

## Conference Proceedings

# 4th Climate Change Adaptation Policy and Science (CCAPS) Conference

26-27 February 2018, Islamabad, Pakistan



Consortium members



## About HI-AWARE

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. CARIAA aims to build the resilience of vulnerable populations and their livelihoods in three climate change hot spots in Africa and Asia. The programme supports collaborative research to inform adaptation policy and practice.

HI-AWARE aims to enhance the adaptive capacities and climate resilience of the poor and vulnerable women, men, and children living in the mountains and flood plains of the Indus, Ganges, and Brahmaputra river basins. It seeks to do this through the development of robust evidence to inform people-centred and gender-inclusive climate change adaptation policies and practices for improving livelihoods.

The HI-AWARE consortium is led by the International Centre for Integrated Mountain Development (ICIMOD). The other consortium members are the Bangladesh Centre for Advanced Studies (BCAS), The Energy and Resources Institute (TERI), the Climate, Energy and Water Resources Institute of the Pakistan Agricultural Research Council (CEWRI-PARC) and Wageningen Environmental Research (Alterra). For more details see [www.hi-aware.org](http://www.hi-aware.org).

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HI-AWARE Internal Report

## Conference Proceedings

# 4th Climate Change Adaptation Policy and Science (CCAPS) Conference

26-27 February 2018, Islamabad, Pakistan

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### **Organised by**

Pakistan Agriculture Research Council (PARC), Pakistan

### **Himalayan Adaptation, Water and Resilience Research (HI-AWARE)**

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<sup>1</sup> Pakistan Agriculture Research Council

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# Acknowledgements

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)

## Acronyms and Abbreviations

BCAS	Bangladesh Centre for Advanced Studies
CARIAA	Collaborative Adaptation Research Initiative in Africa and Asia
CCAPS	Climate Change Adaptation Policy and Science
CDKN	Climate and Development Knowledge Network
DFID	Department for International Development
GLOF	Glacial lake outburst floods
HI-AWARE	Himalayan Adaptation, Water and Resilience
HIMAP	Hindu Kush Himalayan Monitoring and Assessment Program
HKH	Hindu Kush Himalaya
ICIMOD	International Centre for Integrated Mountain Development
IDRC	Canada's International Development Research Centre
IFAD	International Fund for Agricultural Development
INDC	Intended Nationally Determined Contributions
IPCC	Intergovernmental Panel on Climate Change
JICA	Japan International Cooperation Agency
MKAN	Mountain Knowledge and Action Networks
PARC	Pakistan Agricultural Research Council
PEPC	Pakistan Environment Protection Council
PMD	Pakistan Meteorological Department
TERI	The Energy and Resources Institute
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development

# Executive Summary

Pakistan Agriculture Research Council (PARC) hosted the fourth Climate Change Adaptation Policy & Science (CCAPS) conference from February 26th-27th, 2018 in Islamabad, Pakistan. CCAPS conference is a series of events held annually by HI-AWARE. The conference aimed to build a platform for adaptation and resilience research and facilitated exchange of knowledge and ideas on science, policy and good practices related to climate change adaptation in the Hindu-Kush Himalayan (HKH) region and especially in Indus-Ganges-Brahmaputra River Basins. The first, second and third CCAPS conferences were held in Kathmandu, Nepal in 2015, Delhi, India in 2016, and Dhaka Bangladesh in 2017 respectively.

The welcome address of the inaugural was delivered by Dr. Yusuf Zafar, Chairman-Pakistan Agricultural Research Council. He stated that the CCAPS conference is a unique platform where knowledge and experiences on climate change adaptation will be exchanged. He explained that PARC in collaboration with ICIMOD, Pakistan Meteorological Department (PMD) is a pioneer in developing glacier inventory of Pakistan. PARC is a leading organization in conducting agricultural research in Pakistan and also a focal institution for providing inputs on Pakistan' agriculture sector to IPCC reports.

High-level dignitaries from Pakistan - parliamentarians, policy makers, ten vice chancellors of major academic institutions, heads of various research and development agencies from all provinces, representatives of JICA, World Bank, ADB, UNDP, WWF, IUCN SSARC etc., and eminent researchers and policy makers from all provinces of Pakistan attended the inaugural. Notable international figures included Federal Minister of Information, Parliamentary Secretary for Ministry of Climate Change, Ex-Federal Minister, Canadian Ambassador in Pakistan, Director General ICIMOD, Federal Secretary for Ministry of Climate Change, Head- FAO Pakistan Mission, and Managing Director of Wageningen Environmental Research Centre and international team of HI-AWARE also participated in this conference.

Dr. Philippus Wester, Principal Investigator of HI-AWARE, gave an overview of the HI-AWARE Project to the participants by throwing light on the history of climate change awareness in Pakistan. Dr. Wester said that back in 2013 when the HI-AWARE project started, there was not much understanding of the issue, with minds of the masses perplexed whether it is true or not. He explained that PARC has helped to raise awareness regarding this global phenomenon, its challenges, and adaptation in Pakistan.

Dr. David Molden, Director General ICIMOD, highlighted that agriculture and food security in Pakistan is highly vulnerable to climate change impacts due to higher dependence on vulnerable natural resources such as water. The Indus River is highly dependent on glacial melt water, and hence, is very sensitive to climate change impacts. He expressed his happiness at the active role of ICIMOD in Pakistan to arrive at solutions related to climate change problems in mountains.

Ms. Maryam Aurangzeb, Federal Minister for Information and Broadcasting, highlighted some of the major achievements of the Government of Pakistan in its efforts against climate change. She stated that the government is giving high importance to resilient infrastructure, resilient agriculture with flexible cropping patterns, disaster preparedness, and community based projects. She also pointed out that it is very critical to teach climate science to people, media and policy makers to overcome the menace at all levels.

The conference comprised of six technical sessions which gave an in-depth knowledge about the baseline livelihood situation across the study areas, adaptation measures in practice, and various initiatives taken by government and non-government organizations. These sessions were;

- 1) Adaptation Science and Practices in the HKH Region,
- 2) Adaptation Policy and Practices in Gender, Water and Livelihoods,
- 3) Scaling up Innovative Adaptation Practices in the HKH region,
- 4) Communicating Climate Change Challenges and Opportunities,
- 5) Urban Heat Stress Management
- 6) Perspectives on Climate Change and Development.

With around 300 participants, the two-day conference was well represented by government organizations from federal and provincial departments, NGOs, INGOs, universities, public and private sector, and print and electronic media. It had diverse participation from academia, agriculture, water, energy, climate change, rural development etc. from all parts of Pakistan. The event was covered and news was telecasted by Pakistan Television Network (PTV), ARY News, Express News, AJ TAK. Twenty six newspapers also covered the conference, including five national English newspapers.

# Background

HI-AWARE is one of the four consortia of the Collaborative Adaptation Research Initiative in Africa and Asia (CARIAS) supported by the UK's Department for International Development (DFID) and Canada's International Development Research Centre (IDRC). This consortium is conducting high level research, pilot activities, capacity building and policy engagement on climate resilience and adaptation in the mountains and flood plains of the Indus, Ganges, and Brahmaputra river basins. Its overall goal is to contribute to enhanced climate resilience and adaptive capacities of the poor and vulnerable women, men, and children living in the mountains, hills and flood plains of the aforementioned river basins.

HI-AWARE implemented three Work Packages—Knowledge Generation, Research into Use, and Strengthening Expertise, in 12 sites, namely upstream, midstream, and downstream sites located across each of the Indus, Upper Ganga, Gandaki and Teesta river basins. It has also worked towards testing adaptation measures in these sites;

## **Indus**

Hunza (Upstream); Soan (Midstream); Chaj Doab (Downstream) – Pakistan

## **Upper Ganga**

Rudraprayag (Upstream); Tehri Garhwal (Midstream); Haridwar (Downstream) – India

## **Gandaki**

Rasuwa (Upstream); Nuwakot (Midstream); Chitwan (Downstream) - Nepal ; West Champaran (Downstream) - India

## **Teesta**

North and West Sikkim, Sikkim (Upstream); Darjeeling and Kalimpong, West Bengal, and East Sikkim, Sikkim (Midstream)

Jalpaiguri, West Bengal - India; Nilphamari (Downstream) – Bangladesh

Each year, HI-AWARE consortium member organizations take turns to organize the Climate Change Adaptation Policy and Science (CCAPS) conferences to provide a platform for exchange of knowledge on climate adaptation and resilience. HI-AWARE comprises of five consortium members: International Centre for Integrated Mountain Development (ICIMOD), Bangladesh Centre for Advanced Studies (BCAS), Pakistan Agricultural Research Council (PARC), The Energy and Resources Institute (TERI) India, and Wageningen Environmental Research Centre, Netherlands.

# Media Briefing for the 4th Climate Change Adaptation Policy and Science Conference

PARC, ICIMOD and LEAD Pakistan co-organized a media briefing for the 4th CCAPS Conference at Serena Hotel on 25th February, 2018 to facilitate an interaction with Pakistani media outlets, brief them on the conference as well as the work of HI-AWARE. Dr. David Molden (D.G.-ICIMOD), Dr. Philippus Wester (Regional Programme Manager at ICIMOD's Mountain Knowledge and Action Networks (MKAN) Regional Program), Dr. Ali Tauqir Sheikh (CEO LEAD Pakistan), Dr. Yusuf Zafar (T.I) (Chairman-PARC), and Dr. Bashir Ahmad (Co-PI HI-AWARE-PARC), comprised the panel that addressed the media.



## Introduction to the Panelists:

### **Dr. David Molden, Director General ICIMOD:**

Dr. Molden is an expert in water resources management and sustainable mountain development. He is also a patron of the Himalayan University Consortium, which is a group of leading universities in the HKH region.

### **Dr. Philippus Wester, Regional Program Manager for MKAN, ICIMOD:**

He is the Coordinator of the Hindu Kush Himalayan Monitoring and Assessment Program (HIMAP), and the Principal Investigator of HI-AWARE. He has 25 years of professional experience in the fields of climate change adaptation and water resources management and numerous academic publications to his credit.

### **Dr. Yusuf Zafar (T.I), Chairman Pakistan Agricultural Research Council:**

Dr. Yusuf Zafar is one of the leading scientists in Pakistan as well as a founding member of National Institute of Biotechnology & Genetic Engineering (NIBGE), School of Biotechnology, National Institute for Genomics and Advanced Biotechnology (NIGAB), Islamabad, and PARC Institute for Advanced Studies in Agriculture (PIASA),. He has more than 35 years of research experience and has contributed to over 200 academic publications. Recognizing his contributions to science in Pakistan, he was awarded the Medal of Distinction (Tamgha-i-Imtiaz) by Government of Pakistan on 23 March, 2004.

### **Mr. Ali Tauqir Sheikh, CEO of LEAD Pakistan:**

He is a leading policy maker in Pakistan with momentous contributions to various facets of sustainable development. Mr. Ali has served as an advisor to a number of national/international organizations such as Asian Development Bank, European Commission, IDRC, IFAD, JICA, Packard Foundation, Rockefeller Foundation, The Asia Foundation,

UNDP, UNESCO and the USAID. Mr. Sheikh was also the Asia Director for Climate and Development Knowledge Network (CDKN). He has served on several boards and is a member of commissions and committees including the apex environmental body in the country, Pakistan Environment Protection Council (PEPC) chaired by the Prime Minister of Pakistan and the Taskforce on Climate Change set up by the Planning Commission of Pakistan.

## Discussion

The forests in Gilgit Baltistan are mostly owned by individuals and are harvested to meet heating and cooking needs. The role of government in forest management was questioned. Dr. Bashir Ahmad responded that Government has taken different initiatives in provinces to combat the issue of deforestation. Many tree plantation activities have been initiated such as the Billion trees Project in KPK and Green Pakistan Program. However much is needed to be done in this respect.

Previously in Astore and Juglote, snowfall used to be around 5-8 feet which has now reduced to few inches. Whether this decline in snowfall could be related to climate change or not was a point of discussion. Mr. Ali Tauqeer explained that reduced snowfall cannot be attributed to climate change if variation is less than 5 years. When we talk about climate change, the conditions are observed at least for 20 years. Dr. Philippus Wester commented that this phenomenon has been observed in other regions of the HKH. HI-AWARE has been conducting research related to this issue and has developed different climate models.

Questions were also raised about the role of international organizations like ICIMOD in climate change adaptation. Dr. Molden replied that ICIMOD is serving the HKH by raising awareness on issues around climate change, and informing the world what is happening in the mountains. He added that field based data related to climate change is collected and shared with the global communities to initiate action. It also helps in getting a global picture of variations in snowfall pattern, water resources and impacts on the agricultural sector. ICIMOD further aims to develop solutions for vulnerable communities and sharing it with the people.

Dr. Yusuf added that Pakistan has been working on many initiatives with international partners. In Green Climate Fund, Pakistan is competing for two projects; 1) A project for Indus basin in which PARC, FAO and PMD are partners 2) A project for Baluchistan, the main partners being MoCC and UNEP. He stated that the PARC has been working on climate smart technologies for the past few decades. At the same time, the Pakistan's agriculture sector is improving and witnessing high records of wheat, sugarcane and potato production.

Regarding a question about Pakistan's contribution in climate change and its ranking in the list of most vulnerable countries, Dr Yusuf agreed that Pakistan highly vulnerable to climate change despite contributing very little to global GHG emissions. Dr. Wester pointed that we need to decarbonize to a level where limited carbon is emitted. He further stated that an average increase of 1.5°C globally would mean that temperatures will rise by 2.1 degree °C in the mountains. This makes the mountains more vulnerable, and actions from multidisciplinary stakeholders are needed in an integrated way to reduce the vulnerabilities of communities and eco-systems.

# Inaugural Session



The annual CCAPS conference was organized by PARC under its HI-AWARE Project. The conference commenced with an introduction of HI-AWARE project by PI and conference moderator Philippus Wester from ICIMOD. He expressed his delight to see the mass gathering of researchers, intellectuals, policymakers and students and welcomed them at the forum.

The conference was aimed to serve as a platform for climate change adaptation and resilience research in the region which was conducted to create synergies with actions currently conducted or proposed by other actors. It facilitated exchange of knowledge and ideas on science, policy and good practices related to climate change adaptation in the Hindu-Kush Himalayan (HKH) region especially across Indus-Ganges-Brahmaputra River Basins.

## **Welcome Address: Dr. Yusuf Zafar T.I, Chairman Pakistan Agricultural Research Council**

Dr. Yusuf formally opened the session and briefly spoke about the role of the Pakistan Agricultural Research Council (PARC). He explained that PARC in collaboration with ICIMOD, Pakistan Meteorological Department (PMD) is a pioneer in developing glacier inventory of Pakistan. He also said that PARC is a leading organization in conducting agricultural research in Pakistan and also a focal institution for providing inputs on agriculture sector of Pakistan to IPCC reports.



## **Overview of HI-AWARE by Dr. Bashir Ahmad (Co-Principal Investigator, HI-AWARE):**

Dr. Bashir Ahmed, facilitator of the media talk, explained that the Pakistan Agricultural Research Council (PARC), under the "Himalayan Adaptation, Water and Resilience (HI-AWARE) research project, is organizing the fourth Climate Change Adaptation Policy & Science (CCAPS) conference on February 26th-27th, 2018 at Islamabad Hotel, Islamabad, Pakistan.

HI-AWARE is a regional project being implemented by PARC in Pakistan, ICIMOD in Nepal, TERI in India, BCAS in

Bangladesh, and WUR in the Netherlands, funded by Canada's International Development Research Centre (IDRC)

and the UK Department of Foreign Affairs and International Development (DFID) under the Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA) programme. Lead Pakistan is a strategic partner for HI-AWARE implementation in Pakistan.

The CCAPS conference is a series of events held annually by the HI-AWARE consortia. It has previously been hosted by ICIMOD, TERI, and BCAS in Nepal, India, and Bangladesh respectively, and now it was Pakistan's turn to host the annual conference.

### **Remarks by Dr Muhammad Shafique, Deputy Secretary for Ministry of National Food Security & Research (MNFS&R):**

Deputy Secretary Muhammad Shafique highlighted climate change as one of the greatest challenges of the 21st century especially for developing countries like Pakistan where prevalence of problems like poverty and haphazard population growth increase the vulnerability to climate change. Climate change includes a number of phenomena like rise in global temperatures, reduced and erratic rainfall patterns and subsequent perils like hydro- meteorological disasters.



He also urged planners and policymakers to incorporate climate change agenda into national development strategies and emphasized on climate smart agriculture as an important measure to ensure sustainable food security in the country. Mr. Shafique also highlighted the importance of climate and water smart agriculture as the cornerstone of Pakistan's National Agricultural Development Strategy to ensure sustainable food security under climate change and increasing food demand.



### **Dr. Philippus Wester, Regional Program Manager ICIMOD and Principal Investigator HI-AWARE**

#### *Overview of HI-AWARE*

Dr. Philippus Wester gave an overview of the HI-AWARE project to the participants by throwing light on the history of climate change awareness in Pakistan. He said that back in 2013 when the Project was initiated there was not much understanding of the climate change issue, with doubts in the minds of the masses about whether it is true or not. He explained that PARC has helped to raise awareness

regarding this global phenomenon, its challenges and adaptation in Pakistan.

Dr. Wester commented that the major anticipated outcomes of CCAPS include

- Highlighting the importance of mountain water
- What it means to make investment in climate change adaptation in the future?
- Disaster risk reduction in Pakistan

### **Keynote address: Director General, ICIMOD and Chair HI-AWARE steering committee**

Dr. David Molden highlighted that agriculture and associated food security in Pakistan is highly vulnerable to climate change



impacts due to higher dependence on vulnerable natural resources such as water. The Indus River is highly dependent on glacial melt water hence it is very sensitive to climate change impacts. He expressed his happiness over active role of ICIMOD in Pakistan and collaboration with the PARC to identify solutions related to climate change problems in mountains and mid hills.

Dr. Molden asserted that climate change is a global phenomenon with no borders and there is need to deal with its impacts collectively through innovative solutions. He stated the need to make efforts to apprise policy makers of scientific evidences and make them realize that socioeconomic changes such as population growth, urbanization, social and gender disparity are also adding to the vulnerability of mountain communities.

**Keynote Presentation: Mountain Water Resources of the HKH Crucial for Downstream Food Production by Dr. Hester Biemans, Co-Principal Investigator, HI-AWARE, Wageningen University and Research**



Dr. Hester highlighted that many people downstream depend on the volumes of water stored in the HKH as snow and ice, and often called 'the water towers' of Asia, for their livelihood and sustenance. Some of the key messages delivered in her presentation are:

- The water resources from the mountains are crucial for downstream food production in parts of South Asia.
- Any changes in future availability of meltwater can have impacts on this production.
- A water resources model helps to understand risks, helps to manage the water budget, and is therefore a useful tool in policy support.

Dr. Hester highlighted that many people downstream depend on the volumes of water stored in the HKH as snow and ice, and often called 'the water towers' of Asia, for their livelihood and sustenance. Some of the key messages delivered in her presentation are:



**Special Remarks from Mr. Perry J. Calderwood, Canadian High Commissioner**

The Canadian High Commissioner Mr. Perry J. Calderwood revealed that climate change is among the most prioritized areas for Canadian government to focus in developing countries. He said that the Canadian Government has provided significant contribution to global efforts for tackling the climate challenge. These include financing at bilateral and multilateral level support. He also highlighted financial support of Canadian government to HI-AWARE.

**Dr. Kallur S. Murali, Senior Programme Officer, CARIAA, IDRC**

Dr. Kallur S. Murali from IDRC (on video link) highlighted the achievements of HI-AWARE. He particularly mentioned the solutions which are suggested for areas vulnerable to climate change impacts. Among several solutions, he particularly highlighted solar powered irrigation systems integrated with high efficiency irrigation systems and resilient crops in Pakistan, EcoSan toilets in Bihar, India, flood resilient houses in flood plains of Bangladesh, and heat resilient roofs and houses in the urban areas of India, Pakistan and Bangladesh.

### **Special remarks by Ms. Romina Khurshid Alam (Parliamentary Secretary for Ministry of Climate Change):**

Ms. Romina Khurshid Alam graced the CCAPS inaugural ceremony by her special remarks. She began her address by stating, "Climate change is no more a speculation and the people who disagree are living in the world of self-denial". She expressed her concern over the uncertain and multifaceted impacts of climate change that have engulfed the country. The main points that she discussed about climate change and its relation to Pakistan are;



- Pakistan is among top 7 countries which are highly vulnerable to the impacts of climate change. Almost half of the population here is food and water insecure. The country ranks at 17th in the list of the countries which are facing water crisis. To combat with the challenges of climate change, the Government of Pakistan has taken initiatives, the most prominent of which include: PM's Green Pakistan Program, which aims to reduce environmental pollution by mega afforestation schemes; and the Zero Hunger Program, which plans to reach a total of 61 million people of Pakistan to ensure food security in the country.
- Pakistan developed its first National Climate Change Policy in 2013 and recently formulated Climate Change Act 2017 to establish a policy-making Climate Change Council, along with a Climate Change Authority to prepare and supervise implementation of climate change projects in Pakistan. She also mentioned that Pakistan is among the few countries in the world which have a dedicated ministry for climate change.
- The Parliamentary Secretary also stated that the CCAPS Conference has laid an important foundation for strengthening and mainstreaming adaptation at national level and a rapid uptake of these adaptation strategies could be anticipated henceforth.



### **Ms. Maryam Aurangzeb, Minister of State, for Information and Broadcasting**

Ms. Maryam highlighted some of the major achievements of the Government of Pakistan in its efforts against climate change. She exclaimed that government is giving high importance to resilient infrastructure, resilient agriculture with flexible cropping patterns, disaster preparedness and community based projects. She also pointed out that it is very critical to teach climate science to people, media and policy makers.

The Minister then stressed on the need to use print and electronic media to create awareness on climate change in the country. She mentioned that Radio Pakistan has already initiated climate change awareness and SDG related programmes, and that it is crucial to involve students in science and policy events for future development. Miss Maryam further said that the Government of Pakistan is taking steps to mainstream climate change and associated dangers in the school, college and university curricula.

Some of the significant steps taken by Government of Pakistan include Ratification of Paris Agreement, approval of Intended Nationally Determined Contribution (INDC) to UNFCCC in accordance with Article 2 of the Paris agreement, development of Climate Change Policy, Framework for Implementation of Climate Change Policy, adoption of Climate Change Act 2016, establishment of Green Climate Program, South Punjab Forest Company, and Billion Tree Tsunami Afforestation Project etc.

Ms. Maryam applauded the efforts of the HI-AWARE consortium and PARC for touching key aspects of climate change including climate change adaptation and resilience. She also expressed her optimism that we will keep making efforts for a safe and sustainable future.

## **Vote of Thanks: Dr. Ghulam Muhammad Ali, Director General National Agricultural Research Centre**

Dr. Ghulam Muhammad Ali delivered vote of thanks to the participants and expressed his gratitude to the Minister of State for Information and Broadcasting, Ms. Maryam Aurangzeb, Parliamentary Secretary and Member Parliamentary Standing Committee on Climate Change, Ms. Romina Khurshid Alam, for gracing the occasion. He thanked all the international and national dignitaries and delegates and commended Dr Muhammad Shafique and Dr. Molden on delivering a thought provoking speech. He also acknowledged Chairman PARC for his leading role in organizing this conference.

Dr. Ali extended special thanks to Dr. Hester Biemans for presenting an overview of upstream-downstream linkages of mountain water resources of the HKH region. He then expressed his gratitude to HI-AWARE's benevolent donors -IDRC and DFID for financing the HI-AWARE consortium under the CARIAA program. He concluded his address by appreciating the untiring efforts of the HI-AWARE team at PARC and support offered by the consortium members to design, plan and realize this important conference.

# Technical Session



## Adaptation Science and Practices in the HKH Region

This session was chaired by DG. ICIMOD, Dr. David Molden, and included a series of presentations. The keynote address was delivered by Dr. Arun Bhakta Shrestha, Regional Program Manager, River Basins and Cryosphere, ICIMOD, Nepal.

The key questions considered during this session included;

- What kind of climate information is needed to support adaptation?
- How to generate this climate change adaptation related information?
- What are the major anticipated changes important from adaptation perspectives?
- How to make use of climate information for successful adaptation?

The session included presentations by Dr. Bram de Vos, Managing Director Environmental Science Group, Wageningen University, the Netherlands; Dr. Atiq Rahman, Executive Director BCAS, Bangladesh; Dr. Kallur S. Murali, Senior Programme Officer, CARIAA, IDRC, India ; Dr. Abid Qaiyum Suleri, Executive Director, SDPI and Dr. Munir Ahmad, Member, Natural Resources Division, PARC.

### **Dr. Bram de Vos, Managing Director Environmental Science Group, Wageningen University, the Netherlands**

Dr. Bram de Vos shed light on the effects of water management on grassland and the up scaling of results from the field-scale to the local scale. Firstly, he stressed on the nexus approach between water, food and energy and said that it is inevitable to opt it for paving the way to achieve sustainable livelihoods and make communities climate resistant. Secondly, the role of good governance and private enterprises in tackling these scientific issues is also important.



**Dr. Atiq Rahman, Executive Director BCAS, Bangladesh**

Dr. Atiq Rahman, from BCAS said in the last decade the whole world has experienced some prominent changes, especially in the policy arena. One of them is the espousal of the 17 Sustainable Development Goals (SDGs) by UN member countries in September 2015. This is an important global policy that incorporates climate change as a fundamental part. Another process is the Sendai Framework for Disaster Risk Reduction (DRR) 2015-2030, which all governments have agreed to work with. These processes are integrated with each other and also with the CARIIA programme in different research projects. Dr Rahman observed that science, policy, and practice are in a triangular relation.



**Dr. Abid Qaiyum Suleri, Executive Director, SDPI**

Dr. Abid Qaiyum Suleri from Sustainable Development Policy Institute (SDPI) emphasized the importance of relating available information to what is happening on ground. It is important to sensitize masses about issues triggered by climate change like glacial melting, changing rainfall pattern, droughts, etc. Policy makers need to come on board and play their role otherwise the situation will worsen. Talking about adaptation he said we need to know how resilient a community is and then plan and map our strategies accordingly to make them more resilient.



**Dr. Munir Ahmad, Member, Natural Resources Division, PARC**

Dr. Munir Ahmad from PARC briefed the audience about possible adaptation interventions in energy sector of Pakistan. Steps needs to be taken to explore, develop, and establish sustainable and secure energy sources on national level to combat the energy supply and demand gap. The use of these renewable resources can secure long term sustainable energy supplies and also reduce harmful emissions.

Some of the remarkable renewable energy technologies that have been introduced and are operational in Pakistan include Solar drying of agricultural produce (Grain and fruit), Solar water pumping, Solar green houses for off-season production of vegetables, Solar desalinization for utilization of brackish water, Solar assisted cold storages for agricultural produce, Solar assisted milk pasteurizing units, Heating of poultry houses, Eclectic fencing.



**Keynote: Dr. Arun Shrestha, Regional Programme Manager, River Basins and Cryosphere, ICIMOD, Nepal- "Climate change trends in the HKH: Implications for adaptation"**

Dr. Shrestha explained the concept of a flood resilient EcoSan toilet, "A 'Phaydemand Shauchalaya' is a one-time investment to put an end to our daily misery". Bihar is one of the most flood prone states in India and Naya Tola Bishambharpur (NTB), the



pilot village on the banks of the Gandaki River, is located within an embankment in the West Champaran district. The EcoSan toilet is an alternative sanitation technology that can contribute to the SDG 6 aim of equitable sanitation (by 2030) and the Swachh Bharat Mission. Persistent efforts have resulted in the pilot village being sanctioned the SHAN (Sanitation, Health and Nutrition) fund by JEEViKA (Bihar's state rural livelihood mission). Women have seen the benefits, and have taken the lead in carrying the message of these toilets to other houses.



## 2. Adaptation Policy and Practices in Gender, Water and Livelihoods

This session was chaired by Mr. Nisar A. Memon and included a series of presentations. The keynote address was delivered by Mr. Mushtaq Ahmad Gill, Ex- Director General On-Farm Water Management Punjab, Pakistan. There were five presentations in the session.

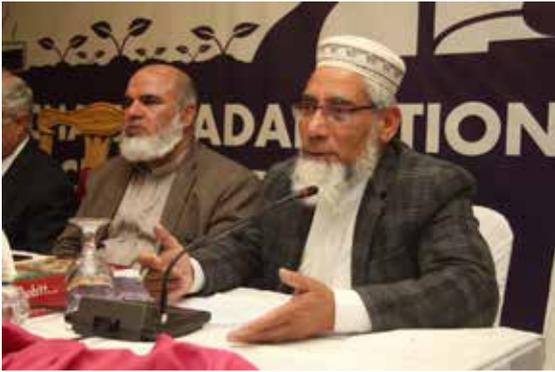
The key questions considered during this session included;

- What kind of adaptation interventions are being practiced?
- What is the regional perspective on gender, water and livelihoods?
- What is the country perspective on adaptation in water management?
- How can climate information be used for successful adaptation?

### **Dr. Chanda Goodrich, Senior Gender Specialist, ICIMOD – Regional Perspective on Gender, Water and Livelihoods**

Dr. Goodrich talked about gendered vulnerability in the HKH region. She started her presentation with the description of biophysical and social vulnerabilities which are a set of conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of the community to the impact of hazards. She claimed that climate change is not gender neutral rather it has differential and indeed more adverse impacts on women. Women and men's decisions differ on the lines of:

- Risk taking ability,
- Use and type of coping strategies,
- Capacity and adaptability,
- Advice taking and information seeking behaviours



### **Dr. M. Muhammad Munir Ahmad, Director CEWRI-NARC - Pakistan's Perspective on Adaptation in Water Management**

Dr. Munir briefed about various initiatives taken by HI-AWARE team at PARC to foster climate smart agriculture. PARC under HI-AWARE developed a pilot on "Climate Smart Agriculture" concept on farmer's field with their participation. It included various climate smart interventions which improved farm productivity and enhanced resilience. This includes crop diversification, high value off season crops, IWVRM, irrigation

efficiency, clean energy, improved and certified quality input, informed decision making and awareness, training and learning. Climate smart agricultural practices were introduced in various ecologies of the country i.e. Hunza basin, Soan basin, Chaj doab.

### **Dr. Muhammad Kamran, Chief, Agency for Barani Areas Development (ABAD) - Scaling up interventions in the Potohar region**

He highlighted the key issues and problems that Pakistan is facing with respect to its water resources. Some of the important issues and challenges entail water losses and inadequate management of water resources, soil erosion and low soil fertility, lack of capacity building initiatives for available human resource, below subsistence and fragmented small land-holdings (12 million populations i.e. 48 % of the total population having about 06 acre land), lack of on-farm and off-farm income generating activities along with backward & forward linkages and food insecurity and poverty (in terms of dependents 17.25 million population are dependents .i.e 67% of the total population).

Concluding remarks: Dr. Nisar A. Memon, (ex-Senator) Chairman Water Environment Forum

Dr. Nisar A. Memon acknowledged the panellists for their valuable presentations. He then talked to the audience about conventional security and defence system, and then drew attention towards non-conventional security aspects like water and environment. Water and environment are inextricably linked to climate change. Mr. Memon then discussed about five key elements and informed audience how they serve as building blocks for a nation to succeed. These key elements include institutions, infrastructure, and investment for capacity building, innovation and information sharing. He then commented that Pakistan has a good climate change policy but there is a dire need to have a national water policy also. The second aspect that he focused on was connection between science and policy. He said that HI-AWARE was a good example of disseminating science to policy makers and inviting them to the table to have a dialogue on scientific problems. He further added that CCAPS conference is a valuable platform where knowledge and work are being exchanged between professionals, academia and politicians, and that HI-AWARE has well demonstrated how people can be approached and how professionals can work with community on food and water security issues.

### **Dr. Nisar A. Memon chairing Adaptation Policy and Practices in Gender Session**

## **3. Scaling – up Innovative Adaptation Practices in the HKH region**

Session 3 focussed on scaling up of innovation adaptation practice in the HKH region for which robust evidence has been generated under HI-AWARE. This session was chaired by Dr. Yusuf Zafar, Chairman PARC. There were five presentations from the region covering various adaptations which have great potential for up and out scaling. These revolved around the question – 'What robust evidence has HI-AWARE generated to increase resilience of climate vulnerable communities in HKH region?'

### **Dr. Abu Syed, BCAS - Climate and Flood Resilient Housing/Habitat**

Dr. Abu Syed talked on Skype about some the need to diversify and institutionalize livelihood opportunities for all the communities e.g., cash crops, horticulture, poultry, dairy and livestock rearing and nursery management. Housing is a major issue in Teesta flood plain mainly because of frequent shifting they have to make. A sustainable prefabricated housing solution with some level of livelihoods found to be preferred by the people there. However, these options require strong political will and policy intervention from highest policy making bodies.

### **Ms. Suruchi Bhadwal, TERI**

Ms. Suruchi Bhadwal made her presentation through Skype pointing to the adaptation pilots undertaken in HI-AWARE that are based on evidence based research. The purpose of the pilots was to check various innovations and introducing adaption options that are people centric and gender sensitive. One of the objectives was to try and test some of the options on ground to see what they can offer people to resist to effects of climate change. These interventions were undertaken in various catchments of India, Pakistan, Bangladesh and Nepal. A small experiment was conducted in the hills of Uttarakhand state of India with a view to explore better options in high locations zones of Himalayas region. The issues in mountain regions of India are largely related to falling productivity, fragmentation of land and scattered land with a good size of population dependent on them. Agriculture is mostly subsistent and not commercial. Through climate resilient and flexible innovations, it was hoped that opportunities that can be tapped by communities to increase agricultural production. The intervention area was a small village at an altitude of 1900 masl and the target population was 67-68 households. The objective was to introduce new crops to the communities so that they could grow not only for subsistence but for commercial benefits as well. The first task was to build a community based organization as it all depended on mobilizing the communities to strive for better wellbeing. Due to specific terrain of mountainous regions i.e uneven and terraced slopes, crops could not be grown to be sold to market but the tables are turning.

### **Dr. Bashir Ahmad, PARC - Climate Smart Agriculture**

Dr. Bashir discussed about introducing the concept of climate smart agriculture in Pakistan and the variety of initiatives taken by PARC in this regard. Some of the goals to be achieved by adopting climate smart agriculture include, but are not limited to:

- Enhancing the farm productivity which will ultimately improve the food security of beneficiary households under changing climate
- Improving flexibility of farm system towards climate extremes through crop diversification
- Improving the adaptive capacity of farmers through livelihood diversification
- Integrating water resource management through High Efficiency Irrigation Systems
- Carbon sequestration through best agriculture practices
- Ensuring energy security through on-farm electrification



### **Dr. Christian Siderius, WUR - Heat Stress Monitoring in South Asia**

Dr. Siderius delivered a precise presentation on how people can adapt to heat stress in South Asia and informed participants that he will discuss it in detail exclusively in urban heat stress management session. His research study was focused on three areas; Faisalabad in Pakistan, Dhaka in Bangladesh, and Delhi in India.

He then talked about an innovative solution to heat stress - The Modified Roofs, or simply Mod Roofs. It is a modular roofing system (made out of agricultural and paper waste) for low-income neighborhoods using corrugated cement/

metal sheets, are easy to install, fire proof, movable and sustainable have a low thermal conductivity value, translating to reduced indoor temperatures

**Keynote: Mr. Farid Ahmad, Head of Strategic Planning, Monitoring and Evaluation, ICIMOD- Scaling up innovative adaptation practices in the HKH region**

Mr. Ahmad shared his experience of working with ICIMOD and HI-AWARE. He basically talked about ICIMOD's framework that is used for most of the research in innovative projects aimed for scaling up new interventions. Uncertainties



and risks are related to interventions that are going to be undertaken as part of adaptation process and that highlights the need for scaling up activities. Thus one has to be very clear right from inception of a process i.e. from designing to putting that innovation into use. He illustrated this with an example of a river bank constructed today which might not work tomorrow during an outbreak of flood. The best strategy is to test innovative practices on a very small scale, demonstrate its usefulness to community and up scaling it later to see its benefits on a wider scale. He ended his address saying that scaling up is a practice that requires policy intervention in short.

#### 4. Communicating Climate Change: Challenges and Opportunities

Session 4 focused on "Communicating Climate Change, Challenges and Opportunities". This session was chaired by Mr. Khizar Hayat Khan, Federal Secretary Climate Change. Keynote remarks were delivered by Dr. Laurie Vasily as ICIMOD's Head of Knowledge Management and Communication. Panellists included Ms. Afia Salam - Freelance Journalist and Communications Consultant, Ms. Zofeen Ebrahim - Freelance Journalist and Communications Consultant, Mr. Syed Muhammad Abubakar - Communications & PR Specialist, South Punjab Forest Company, Mr. Izhar Ali Hunzai - Independent Consultant, Member, PARC Board of Governors and Ms. Nelufar Raza - Water Resources Specialist, PARC.

Ms. Afia Salam - Freelance Journalist and Communications Consultant Ms. Afia said that the message of climate change action should not be boxed in media alone as there are many other avenues to convey this message. She said that media is not considered to be an ally in government policy making. In addition, communication is thought as a mean to showcase the deliverables



of a project which reinforces the essence of message itself. However, PARC through its HI-AWARE project has been interacting with journalists such as me and Abubakar all along the project life, which has been effective in getting success stories out in the mainstream.

**Ms. Nelufar Raza - Water Resources Specialist, PARC**

Ms. Nelufar Raza, HI-AWARE team member expressed her thoughts about communicating climate change. She explained that researchers including her face many challenges in the fields

to communicate about challenges of climate change to the public, especially farming communities. She said that researchers and policy makers should work on strategies to get the message across sectoral, cultural and regional boundaries. She also mentioned that innovative means such as audios, videos and info-graphics can help in bridging the gap.

### **Ms. Zofeen Ebrahim - Freelance Journalist and Communications Consultant**

Ms. Zofeen explained that a positive change is being noticed in the print and electronic media, as big names such as Dawn and The News are willing to write on the climate issue. She was of the view that journalists are the conduits between science and policy that can play an effective role in bridging this gap.



### **Mr. Syed Muhammad Abubakar - Communications & PR Specialist, South Punjab Forest Company**

Mr. Abu-bakar highlighted the importance of facilitating journalists' access to policy making and scientific interventions being introduced by the government. He praised HI-AWARE for providing him the opportunity to witness climate smart interventions being introduced to the farmers at Chakri.



### **Mr. Izhar Ali Hunzai - Independent Consultant, Member, PARC Board of Governors**

Mr Hunzai said that communication is such an important aspect of climate change that it should have been a part of the conference title. He explained that the challenge is to come up with a simple, context oriented and effective message as done by AKRSP in its organization's 'Saving and Skill' slogan. He further emphasized the use of local metaphors and faith to communicate a strong message. Innovations are also important such as use of smart phones and social media in communication. He added that concepts of climate change adaptation and mitigation should be part of the national curriculum.



### **Remarks by Mr. Khizar Hayat: (Federal Secretary Climate Change)**



Mr. Khizar Hayat concluded the session by expressing his personal gratitude to be a part of this conference. He was of the view that Pakistan contributes very little to the carbon emissions but is among the most affected and vulnerable countries to the impacts of the climate change. He said that there is a need to educate people at the grass root level and though there is good awareness in the high policy making circles, it is confined to the limits of federal and provincial capitals. Mr. Khizar then invited Dr. Laurie Vasily Head Knowledge Management ICIMOD to make the keynote presentation.



### **Keynote Remarks by Dr. Laurie Vasily, Head Knowledge Management and Communications at ICIMOD**

She opened her presentation by quoting the famous astrophysicist Neal deGrasse Tyson “Knowledge is a process and not the answer”. She emphasized that there should be a pull for recognizing the audience and calibration of the message to meet audience specification. She said that it is also important to target the right age groups and asking the right questions from the right people.

## **5. Urban Heat Stress Management: The intersection of Science, Policy, and Public Health**

Session 5 was focused on “Urban Heat Stress Management: The intersection of Science, Policy, and Public Health” chaired by Dr. Ghulam Rasul, Chairman Pakistan Meteorological Department. This session was based on HI-AWARE field work in Faisalabad, Dhaka and Delhi to transform policy into practice. Dr. Christian Siderius, WUR presented on monitoring urban heat stress in Pakistan and Mr. Bilal Khalid, LEAD Pakistan presented on the Regional toolkit for heat wave management. Panellists were Mr. Idrees Masood - Member DRR, National Disaster Management Authority, Mr. Irfan Tariq - Director General, Environment and Climate Change, Ministry of Climate Change, and Dr. Nadeem Ullah Khan - Associate Professor, Department of Emergency Medicine, Aga Khan University

### **Dr. Christian Siderius, WUR - Monitoring Urban Heat Stress in South Asian Cities**

Dr. Siderius discussed his study on monitoring of heat stress in urban settings of three South Asian cities in detail and said that some housing properties vital to be considered include green infrastructures, active cooling devices, and passive cooling of the building envelope. The aims of his study were:

- To better understand exposure to heat and indoor and outdoor thermal comfort in three South Asian cities
- To assess the effectiveness of existing measures
- To pilot new options

Talking about solutions at the end of his presentation, Dr. Siderius delivered some key takeaway messages.

- Indoor heat exposure levels are too high, but vary, and there is potential for adaptation.
- Existing solutions help, but we also need innovation to adapt to extreme prolonged heat in ever expanding cities.
- here is a dire need to opt for low-cost and low-carbon measures. City planning, housing and local knowledge must be improved.
- Experts should advise on how to better plan, build and modify behaviour to adapt to rising temperatures.

### **Bilal Khalid from LEAD Pakistan: Regional Toolkit for Heat Wave Management**

Mr Khalid talked about challenges in combating climate change and changing weather patterns. He said that in the last twenty years, the temperature has increased and the duration of winter season has decreased. The crop patterns are affected by shifting of the seasons. He focused on food security, flashfloods and glacial lake outburst floods. He highlighted that climate change threatens to stall



and even reverse development gains. He emphasized the need for policies which are demand based solutions, communication and packaging of research, and understanding of political economy. Scientific community can provide the knowledge but it is upto the social institutions to react. He said that there is need to take the issues in peer reviewed articles to the policy makers so that these issues are embedded in policies for implementation.

## 6. Perspectives on Climate Change and Development



### **Dr. Muhammad Azeem Khan - Member Food Security & Climate Change, Planning Commission of Pakistan**

This session was chaired by Member Food Security and Climate Change, Planning Commission of Pakistan - Dr. Muhammad Azeem Khan. He appreciated HI-AWARE and ICIMOD's work in Pakistan and said that the climate change issue is very well understood by the audience and that the strategies of the Government of Pakistan are very well oriented at federal and provincial level. The government is intended to obtain funds from the Green

Climate Fund and UNDP for climate change and food security projects. There is discussion with World Bank for additional funding which will be helpful in stakeholder driven engagement.

### **Mr. Ali Tauqeer Sheikh – CEO, LEAD Pakistan**

Mr. Ali Tauqeer Sheikh explained that climate change is one of the most pressing issues globally and that our policy and investments regarding climate change should be based on scientific evidence. Commenting on his interaction with parliamentarians from Gilgit Baltistan (GB) in the previous year, he said that GB Government has realized that the accelerated melting of glaciers is a consequence of climate change. This rapid melting is incurring huge losses to the ecosystem and communities are compelled by such hazards to migrate.

### **Mr. Shafqat Kakakhel - Former Ambassador, Chairperson, Sustainable Development Policy Institute (SDPI) Board of Governors**

Mr. Kakakhel began by extending his gratitude to the organizers of the conference. He said that climate change was recognized in 1987 by UNEP. This was basically to get inter-governmental understanding and develop a panel to negotiate the climate change issues across the globe. He was of the view that Pakistan's vulnerabilities are mostly due to floods and drought which are severely affecting the crops and the agrarian economy. There is a variation in monsoon and melting of the glaciers which may cause a decline in fresh water availability.

He said that there are various global institutes working for the climate change policies without any cost and supporting the governments of different countries. At the IPCC, 83 short term actions and interventions, and 13 medium term actions are being discussed and how these are implemented in developing countries like Pakistan. These actions are required to be converted into implementation strategies. He said that political leaders should emphasize more on the climate change policies.

### **Dr. Amina Maharjan – Livelihoods and Migration Specialist, ICIMOD**

Dr. Maharjan made few comments on climate change and development. She said that on being asked about perceptions of changes in climate on ground, 96 percent of farming



communities say that climate is not only changing but severely affecting them. The feedback on adaptation reveals that only about 35 percent farmers are taking measures to cope with the changes. She added that mountain people are more vulnerable to this challenge than those living in the plains. She acknowledged that local knowledge is the most important way to support climate action if there is sufficient support from the scientific community which could test and back such local knowledge with comprehensive climate action plans.

## Concluding Session

### **Dr. Bashir Ahmad Co-PI HI-AWARE Pakistan:**

Dr. Bashir Ahmad explained the importance of the conference and talked about several important messages, discussions, as well as presentations that came out from the conference.

He said that HI-AWARE Pakistan has made efforts in generating robust evidence on climate change, on-farm research pilots, and development of training and learning sites which are building capacity of farmers as an approach to build climate resilience in Pakistan. He thanked the audience for their interest and participation in the conference especially foreign guests and professional came from all over Pakistan.

**Dr. Philippus Wester, Regional Programme Manager at ICIMOD,** stated that while designing HI-AWARE, heat stress came up as new topic for research. He said that due to climate change, an expected 30% decrease in yield of wheat crop is foreseen by 2030. He also shared his view that climate change communication is very important in any project.

Dr. Wester also highlighted the fact that even though Pakistan ranks 138th in contribution to pollution, it is the 7th most vulnerable country in terms of climate change in the world. He ended his remarks by saying it was indeed very fruitful to bring together all the key stakeholders from Pakistan to contribute to the climate change adaptation cause. He thanked PARC and HI-AWARE team for making excellent arrangements for this conference and bringing top professional, policy makers, politician and development partners.

**Dr. Qamar ul Zaman, Ex- DG, PMD** – appreciated HI-AWARE high quality work on generating knowledge on climate projections, impact on water, agriculture and livelihood, community vulnerabilities and robust adaptation evidence. He found CCAPS' multi-sectoral interaction very useful.

### **Concluding Remarks by: Mr. Muhammad Uzair Khan, Young Politician and Head of the Parliamentary Committee on Climate:**

He concluded the conference by offering his special remarks. He said that there is no doubt that climate change is being considered as one of the important issues by parliamentarians in Pakistan. There is regional approach required to deal with climate change. The young parliamentarians at SAARC were gathered some time back to bring more climate change issues and adaptation solutions to their manifesto. There are also national efforts in Pakistan such as, formation of a Climate Change Ministry, Climate Change Policy and its implementation framework. However, there still exists a gap among federal and provincial level plans. There is need to raise the budget for climate change action and to calculate the cost of inaction of adaptation practices.



## Vote of Thanks; Dr. Munir Ahmad, Member Natural Resources Division (NRD), PARC

He offered the vote of thanks and accepted that the cause of climate change is in good hands as there are visionary people who are working in research, policy and development sector in Pakistan.

# Annex 1

## Day 01: 26<sup>th</sup> February, 2018 (Monday)

Inaugural

Moderator:	Dr. Philippus Wester, Principal Investigator, HI-AWARE
09:00 - 09:30	Registration of Participants and Tea\Coffee
09:30 - 09:40	Recitation of Holy Quran by Mr. Qari Shafeeq
09:40 - 09:50	Welcome Address by Dr. Yusuf Zafar T.I., Chairman PARC
09:50 - 10:00	Keynote address: Country Perspective from Pakistan by Mr. Fazal Abbas Maken Federal Secretary, Ministry of National Food Security and Research
10:00 - 10:20	Keynote Address: ICIMOD and water resilience research in the HKH Region by Dr. David Molden, Director General, ICIMOD and Chair HI-AWARE Steering Committee
10:20 - 10:40	Keynote Presentation: Mountain water resources of the HKH crucial for downstream food production by Dr. Hester Biemans, Co-Principal Investigator, HI-AWARE, Wageningen University & Research
10:40 - 10:50	Special Remarks by Mr. Perry Calderwood, Canadian High Commissioner (tbc)
10:50 - 11:00	Special Remarks by Dr. Kallur S. Murali, Senior Programme Officer, CARIAA, IDRC
11:00 - 11:10	Special Remarks by Ms. Romina Khurshid Alam, Parliamentary Secretary, Member Parliamentary Standing Committee on Climate Change
11:10 - 11:20	Inaugural Address: Mr. Sardar Sakandar Hayyat Bosan , Federal Minister of National Food Security and Research (MNFS&R), Islamabad
11:20 - 11:30	Vote of Thanks by Dr. Ghulam Muhammad Ali, D.G, NARC

GROUP PHOTO & TEA BREAK: 11:30 - 12:00

## Session 01: Adaptation Science and Practices in the HKH Region

Timing: 12:00 p.m. - 01:30 p.m.

Chair:	Dr. David Molden, Director General, ICIMOD, Nepal
Key Note:	Dr. Arun Shrestha, Regional Programme Manager - River Basins and Cryosphere, ICIMOD, Nepal – Climate change trends in the HKH: Implications for adaptation

Panelists:

Dr. Bram de Vos, Managing Director, Wageningen University, the Netherlands

Dr. Atiq Rahman, Executive Director, BCAS, Bangladesh

Dr. Kallur S. Murali, Senior Programme Officer, CARIAA, IDRC. India.

Dr. Ajay Mathur, Director General, TERI, India

Dr. Munir Ahmad, Member, Natural Resources Division, PARC

Rapporteur: Mr. Sultan Ishaq & Mr. Salar Saeed

LUNCH: 01:30 p.m. - 02:30 p.m.

Session 02: Adaptation Policy and Practices in Gender, Water and Livelihoods

Timing: 02:30 p.m. - 04:30 p.m.

Chair:	Dr. Nisar A. Memon, (ex-Senator) Chairman Water Environment Forum
Key Note	Ms. Simi Kamal - Senior Group Head, Pakistan Poverty Alleviation Fund

Presentations:

Dr. Chanda G Goodrich, Senior Gender Specialist, ICIMOD – Regional Perspective on Gender, Water and Livelihoods

Dr. Muhammad Kamran, Chief, Agency for Barani Areas Development (ABAD) Scaling up interventions in the Potowar Region

Mr. Malik Muhammad Akram, Director General, On Farm Water Management Punjab

Dr. M. Munir Ahmad, Director CAEWRI-NARC – Pakistan's perspective on adaptation in water management:

Rapporteur: Mr. Ali Kamran & Mr. Muneeb Ahmad

TEA: 03:30 - 04:00

### Session 3: Scaling-up Innovative Adaptation Practices in the HKH Region

Timing: 04:00 p.m. - 05:00 p.m.

Chair:	Dr. Yusuf Zafar T.I., Chairman, PARC
Key Note	Mr. Farid Ahmad, Head of Strategic Planning, Monitoring and Evaluation, ICIMOD - Scaling-up innovative adaptation practices in the HKH region

Presentations:

Dr. Abu Syed, BCAS - Climate and Flood Resilient Housing/Habitat

Dr. Anjal Prakash, ICIMOD - Flood Resilient Eco-San in Bihar, India

Ms. Suruchi Bhadwal, TERI - Spring and watershed management

Dr. Bashir Ahmad, PARC - Climate smart agriculture

Dr. Christian Siderius, WUR - Heat stress monitoring in South Asia

Rapporteur: Ms. Nelufar Raza & Mr. Zeeshan Tahir Virk

RECEPTION DINNER: 6 p.m.

## DAY 02: 27<sup>th</sup> February, 2018 (Tuesday)

### Session 4: Communicating Climate Change: Challenges and Opportunities

Timing: 09:00 a.m. - 10:00 a.m.

Chair:	Mr. Khizar Hayat Khan - Secretary, Ministry of Climate Change (tbc)
Key Note:	Dr. Laurie Vasily - Head of Knowledge Management, ICIMOD - Effective Communication about Climate Change

Panelists:

Ms. Afia Salam - Freelance Journalist and Communications Consultant

Ms. Nelufar Raza - Water Resources Specialist, PARC

Ms. Zofeen Ibrahim - Freelance Journalist and Communications Consultant

Mr. Syed Muhammad Abubakar - Communications & PR Specialist, South Punjab Forest Company

Mr. Izhar Ali Hunzai - Independent Consultant, Member, PARC Board of Governors

Rapporteur: Mr. Zeeshan Tahir Virk & Mr. Ali Kamran

## Session 5: Urban Heat Stress Management: The intersection of Science, Policy, and Public Health

Timing: 10:00 a.m. - 11:00 a.m.

Chair:	Dr. Ghulam Rasul - Director General, Pakistan Meteorological Department
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### Presentations:

Dr. Christian Siderius, WUR - Monitoring urban heat stress in Pakistan

Mr. Bilal Khalid, LEAD Pakistan - Regional toolkit for heat wave management

### Panelists:

Mr. Idrees Masood - Member DRR, National Disaster Management Authority

Mr. Irfan Tariq - Director General, Environment and Climate Change, Ministry of Climate Change

Dr. Nadeem Ullah Khan - Associate Professor, Department of Emergency Medicine, Agha Khan University

Rapporteur:	Ms. Nelufar Raza & Mr. Naveed Mustafa
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TEA: 11:00 - 11:30

DAY 02: 27<sup>th</sup> February, 2018 (Tuesday)

Session 6: Perspectives on Climate Change and Development

Timing: 11:30 a.m. - 12:30 p.m.

Session Chair:	Senator Mushahid Hussain Sayed, Member, Parliamentary Taskforce on Climate Change
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### Panelists:

Dr. Muhammad Azeem Khan - Member Food Security & Climate Change, Planning Commission (Pakistan)

Mr. Ali Tauqeer Sheikh – CEO, LEAD Pakistan

Dr. Abid Qaiyum Suleri – Executive Director, Sustainable Development Policy Institute (SDPI) (tbc)

Dr. Amina Maharjan – Livelihoods and Migration Specialist, ICIMOD

Rapporteur:	Mr. Aneel Piryani & Mr. Zakir Hussain Dahri
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## CONCLUDING SESSION

Timing: 12:30 a.m. - 01:00 p.m.

Reflections on the Conference	Dr. Yusuf Zafar T.I., Chairman, PARC
Wrap Up	Dr. Philippus Wester, Principal Investigator, HI-AWARE Dr. Bashir Ahmad, Co-Principal Investigator, HI-AWARE
Special Comments	Ms. Mariam Aurangzeb, Minister of State for Broadcasting and Communication, and Chairperson, Parliamentary SDG Secretariat, National Assembly of Pakistan (tbc)
Vote of Thanks:	Dr. Munir Ahmad, Member, NRD, PARC

LUNCH: 01:00 p.m. - 02:00 p.m.



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