International

Science-Policy Conference on Climate Change

December 18-20, 2017

@ ISLAMABAD





Background

Climate change is already a reality, and Pakistan is a witness to its adverse impacts. Pakistan is consistently among the top ten countries most affected by climate change. In the past 20 years, the country has been hit by recurrent and devastating floods, recurrent heat waves, a prolonged drought, erratic weather patterns leading to lowered agricultural productivity, emergence of new diseases, and the looming threat of desertification due to the recession of the Himalayan glaciers (rather, to be precise, the Himalaya-Karakorum-Hindukush glacier system).

The Indus River System (IRS), which is the lifeline of Pakistan's society and economy, depends critically on glacial and snowmelt from the HKH system. Climate change has already led to a recession of some of the HKH glaciers, and although some others are stable or even appear to have increased in mass, future projections present a rather bleak picture. Without the glacier and snow melt, water availability in Pakistan may drop by as much as 60 per cent, affecting food security, human health, civic services, water-related (and other) infrastructure, and hydropower generation& energy security.

Besides glaciers, water availability is also threatened by the increasingly erratic weather patterns. Between 1999 and 2002, water flow in the Indus and its tributaries declined dramatically resulting in severe droughts. But from 2010 to 2012 a series of intense monsoons caused devastating floods killing and displacing millions with massive economic and environmental costs.

Given that the country is already water-scarce, the result mainly of uncontrolled population growth, any decline in net water availability is likely to produce a devastating impact on lives and livelihoods. Climate change threatens food security through its impact on the quantum as well as the variability of water flows, temperature increases, and changes in pest vectors. Likewise, it affects human health and life expectancy through food security, availability of drinking water and water for sanitation purposes, changes in disease vectors, impact of extreme events (floods, droughts, and cyclones), and temperature extremes.

Addressing climate change is one of the foremost challenges of our time. It is a global challenge, and the countries of the world (with only two or three exceptions) are united in the effort to find common solutions. This means that the future development prospects of developing countries will depend critically on their ability to benefit from the global efforts to combat climate change. In the past, the most successful developing countries were those that were able to benefit from previous global agendas and growth waves: international trade and the relocation of global manufacturing in the 1970s and 1980s, and information technology and the relocation of global services in the 1990s and 2000s.

Countries who fail to recognize or benefit from the global climate agenda will be left behind, just like the ones that failed to recognize the earlier growth waves.

This presents Pakistan with a complex set of problems. First, there is a need to broaden the understanding and awareness of future trends so that a common national agenda could be designed. Second, this understanding needs to be applied to a better prediction of future climate threats so that appropriate measures could be put in place for coping, adaptation, and risk reduction, and that global support can be mobilized. Third, it is equally important to review the national growth strategy so that it places the country in the best position to benefit from emerging trends, rather than trying (and failing) to go it alone.

To put it in more conventional terms, there is a need to improve and broaden the national understanding of all three traditional areas of climate change, namely climate science, climate adaptation, and climate mitigation.

While global climate change is a pervasive reality, the regional response of climate variables in Pakistan remains complex and poorly understood. Complex topography, coupled with challenges of field study in the Karakoram Mountains, has led to considerable uncertainty in assessing glacial mass balance and even meteorological trends. Research regarding changes to precipitation patterns under various future climate scenarios has not been very conclusive. There is no quantitative assessment of how expected climate change scenarios will affect the water availability in Pakistan and its subsequent impacts on environment, economy and society. Because of these gaps, policies formulated to address climate-related concerns remained ineffective.

Conference Objectives

The conference presents an opportunity for stakeholders to deliberate on Pakistan's development in the context of climate change. The event will provide: (a) an initial mapping of efforts being undertaken to alleviate the impacts of climate change, (b) an assessment of knowledge and capacity needs and priorities that better reflect the Pakistani development context, and (c) a stimulating environment with the intention to yield innovative ideas and grounds for implementation.

Concretely, the conference program seeks to highlight the need for improved climate-related research and information for Pakistan, as well as to strengthen the science-policy interface.

1. Improving scientific understanding of changing climate and associated impacts on socio-economic sectors.
2. Developing policy recommendations to address climate change challenges affecting Pakistan's development.
3. Promoting coordination among researchers and institutions working on different aspects of climate change in Pakistan and facilitating their collaboration with international scientists and experts engaged in similar research activities.
4. Sharing of knowledge and best practices on adaptation strategies, including capacity building of national institutions and experts.

The SPCCC 2017 – Key Policy Issues and Challenges

The objective of the Science-Policy Conference on Climate Change 2017 is to assemble the latest scientific findings on policy-relevant issues on climate change in Pakistan (please see Table), identify major gaps in analysis, data collection, and applied research, and facilitate interaction between the scientific community, policy makers, and other major stakeholders. Below are a list of questions reflecting concerns of policy makers and opinion leaders on climate change:

Table: Selected Policy Questions

Climate Science	Impacts	Adaptation & Mitigation
Current status of HKH glaciers (precipitation, glacier mass, downstream flows)	Recorded/ projected impacts on key crops, and livestock	Disaster preparedness experiences
Net impact of projected GHG emissions on behavior of HKH glaciers	Recorded/ projected changes in pest vectors.	Health systems reform to address climate change impacts
Net impact of air pollution and soot deposits on the behavior of the glaciers	Impact on food security	Development of heat-resistant and salt-resistant crop varieties
Impact of future glacier behavior on annual and seasonal flows into the Indus system	Impact on ground water quantity and quality	Overcoming obstacles to spread of water conservation measures
Current trends and projected changes in precipitation (annual and seasonal) over Pakistan	Impact on forests and rangelands	Conflict management institutions in times of water stress
Recorded and projected temperature changes in various regions in Pakistan	Impact on health (diseases plus extreme temperatures)	Current and projected changes in GHG emissions from Pakistan
Sea level rise and salt water intrusion in the Indus Delta	Impact on extreme events	International trade and finance in the age of climate change

The SPCCC 2017 is being organized jointly by the Global Change Impact Studies Center (GCISC), the Higher Education Commission (HEC), and the US-Pakistan Center for Advanced Studies in Water (US-PCASW) at Mehran University of Engineering and Technology (MUET).

Conference Structure

The SPCCC2017 will be structured in the following manner:

Climate Scenarios and Trends: These two sessions will summarize the latest research on current trends and future projections, including GHG emissions, temperature, precipitation, and glaciers

Climate Change and Disaster Preparedness: This session will review the latest findings on climate related disasters (Floods, Droughts, Heat Waves, and Health hazards) and steps being taken to protect vulnerable populations

Climate Change and Water Security: this session will focus on aggregate and distributed water availability under different climate scenarios.

Climate Change and Food Security: this session will review the evidence on the impacts on major crops due to changes in temperature (heat stress), precipitation, water availability, and changes in the pest vectors.

Climate Change, Vulnerable Ecosystems, and Biodiversity: The major areas of focus are the Indus Delta, mangroves, forests, drylands (i.e., Barani areas), and wildlife.

Climate Change and Mitigation: this session will look at the research on the optimal policy mix for Pakistan in a world of climate change, including the role that international trade and finance will play in future scenarios.

Climate Change, Policy, Governance, and Conflict: this session will review the research on national policies, potential conflicts and conflict management arrangements, and the role of major stakeholders.

Conference Schedule

Abstract Submission Deadline	25 September 2017
Notification of Abstract Acceptance/Rejection	02 October 2017
Full Paper Submission Deadline	02 November 2017
Full Paper Acceptance	20 November 2017
Conference Date	18-20 December 2017

Organizing Committee

Conveners

- Dr. Tariq Banuri, ED, GCISC
- Dr. Aslam Chaudhry, Deputy Director, USPCAS-W, UU
- Dr. Steve Burian, University of Utah

Coordinators

- Mr. Ghulam Hussain Dars (USPCAS-W, MUET)
- Dr. Zia Hashmi (GCISC)

Members

- Dr. Rasool Bux Mahar (USPCAS-W, MUET)
- Mr. Muhammad Shahid Panhwar (USPCAS-W, MUET)
- Mr. Muhammad Ali (USPCAS-W, MUET)
- Mr. Waqas Ahmed (USPCAS-W, MUET)
- Mr. Shahbaz Mehmood (GCISC)
- Mr. Arif Goheer (GCISC)
- Dr. Asif Khan (UET Peshawar)

Thematic Areas:

- Glaciers Response to Climate Change
- Climate Change Trends in Pakistan
- Climate and Disaster Preparedness
- Climate Change and Water Security
- Climate Change and Food Security
- Climate Change, Vulnerable Ecosystems and Biodiversity
- Climate Mitigation and Adaptation
- Climate Change Policy, Governance and Conflict

Collaborating Institutions

- USPCAS-W, MUET, Jamshoro
- GCISC/Ministry of Climate Change
- Higher Education Commission (HEC)

Disclaimer:
This Publication is made possible by the support of the American people through the United States Agency for International Development (USAID). The content are the sole responsibility of USPCAS-W, MUET Jamshoro and do not necessarily reflect the views of USAID of the United States Government.

Contact Details:
U.S.-Pakistan Centers for Advanced Studies in Water
Mehran University of Engineering and Technology, Jamshoro-76062, Sindh - Pakistan
water.muet.edu.pk | uspcasw@admin.muet.edu.pk | /USPCASW | USPCASW_MUET | 92-22-277 1226