

## International Workshop

### **Water and air challenges in the HKH under Climate and Environmental Change: opportunities using a transdisciplinary approach**

ICIMOD, Kathmandu, Nepal, November 2014

#### **Background**

This event is the follow-up of the international workshop held at in Hamburg in October 2013 (<http://hkh-klimPacampus.de>). That workshop was successful in achieving its primary goals of a) contributing to building interdisciplinary knowledge and collaborations among scholars working on climate change and its impacts in the HKH region and representing several leading institutions; b) Delivering the first interdisciplinary issue of *Earth System Dynamics* (IF 2.77). The issue will be published in early 2015.

#### **Rationale**

The present workshop will bring together, in a constructive dialogue, experts from different backgrounds in order to identify research needs and best practices in transdisciplinary research in and on the HKH region. Whereas there is a wide agreement on the need of approaching holistically climate change, when it comes to actual transdisciplinary research, disciplinary barriers seems hard to abate. Rather than assessing a general need for transdisciplinarity, the present workshop wants to bring together researchers who are actively involved in activities benefitting from and linking different research fields and with an action and policy-oriented framework. Successful projects and initiatives with a transdisciplinary design will be showcased and discussed, and the major barriers and gaps to consistent and holistic research will be assessed. Such a knowledge shall contribute to a better understanding of the vulnerabilities and the potential of integrated water management with a specific attention also to water as a

resource for agriculture and to the socio-political and gendered factors shaping access to and control over water and its paramount role for food security and to a holistic view on the environmental and climatic challenges that shall feed into future research design and inform stakeholders and policy-makers. Similarly, the complex interactions between air quality, climate change, economic development, and societal challenges will be addressed. This leads to a natural connection to the Adaptation Conference to be held at ICIMOD in the days following the proposed workshop.

### **Objectives**

1. Understanding key issues of water risk, water resources, and water management, as well as the complex nexus between air quality and social and economic development, in the context of a changing climate in the HKH region, including mountain glacier melting and monsoon change.
2. Building transdisciplinary knowledge on adaptation, human action and social interaction patterns under changing environmental conditions and resource availability: adaptive responses to vulnerability, mechanisms to strengthen livelihood and resilience.
3. Consolidating a cross-cutting network of scholars and setting the agenda for transdisciplinary project activities (e.g. in line with EU Horizon 2020 and international Programmes scheme and goals) and educational/training exchange.
4. Definition of best practices in transdisciplinary research: preparation of research papers and of executive documents outlining proposals for priorities and challenges in research, policy, and governance related to the HKH.

### **Organizers**

#### **University of Hamburg, Germany**

The *Cluster of Excellence Integrated Climate System Analysis and Prediction – CliSAP* (<https://www.clisap.de>) is a project focused on inter and trans-disciplinary climate research based at the University of Hamburg. It also includes experts from non-university partners such as Max Planck Institute for

Meteorology, the Helmholtz-Zentrum Geesthacht, the Climate Service Centre and the German Climate Computing Centre.

**University of Reading, United Kingdom**

The *Walker Institute for Climate System Research* (<http://www.walker-institute.ac.uk/about/index.htm>) draws together a number of internationally renowned climate system research groups and centres with expertise across a wide range of core disciplines central to climate system science. The Institute's vision is to be a world leader in integrated climate system research in order to deliver better knowledge and understanding of future climate and its impacts for the benefit of society.

**ICIMOD, Kathmandu, Nepal**

The International Centre for Integrated Mountain Development is a regional intergovernmental research and knowledge sharing centre serving the eight regional member countries of the Hindu Kush Himalayas -Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan. Its mission is to help the people of the region adapt to emerging challenges and enjoy improved wellbeing in a healthy mountain environment by bringing together a partnership of its regional member countries, partner institutions, and donors. To learn more, please visit: [www.icimod.org](http://www.icimod.org)

## Programme

### DAY 1 Friday 7 November

**09:00-09:10** Welcome, *David Molden (ICIMOD DG)*

**09:10-09:30** Introductory remarks

Valerio Lucarini (Uni Hamburg) / Jürgen Scheffran (Uni Hamburg)

### **Block 1 (09:30-13:00) – Research gaps: how transdisciplinarity can help address scientific challenges in water resources for the HKH region**

#### **09:30- 11:00 Atmospheric Modelling and Remote Sensing in the HKH**

*Chair: Andrew Turner*

**09:30- 09:45 Andrew Turner** (Uni. Reading, UK) “The monsoon in South Asia – major modelling challenges and changing climate”

**09:45- 10:00 Arnico Panday** (ICIMOD) “ICIMOD’s research highlights from its Atmosphere Initiative”

**10:00- 10:15 Elisa Palazzi** (CNR, Italy) “Precipitation, snow and atmospheric circulation in the Hindu-Kush Karakoram Himalaya: uncertainties and strengths in observations and global models”

**10:15- 10:30 Maria Shahgedanova** (Uni. Reading, UK) “Desert dust and snow darkening”

**10:30- 10:45 MSR Murthy and Mir Matin** (ICIMOD) “Atmospheric Monitoring and Assessment - Geospatial Data and Models”

**10:45- 11:00** Discussion

**11:00- 11:30** *Coffee break*

#### **11:30- 13:00 Glaciers Dynamics and Hydrological Modelling**

*Chair: Valerio Lucarini*

**11:30-11:45 Tobias Bolch** (Uni. Zürich, CH) “Variable glacier mass changes across the Himalaya and hydrological impacts”

**11:45-12:00 Flip Wester** (ICIMOD) “Research highlights from Permafrost Research”

**12:00-12:15 Nathan Forsythe** (Uni. Newcastle, UK), "Community resource management implications of HKH hydrological response to climate variability"

**12:15-12:30 Joe Shea/Patrick Wagnon** (ICIMOD) "Results of recent glacio-hydrological research in the HKH"

**12:30-13:00** Discussion

**13:00-14:00** *Lunch*

## **Block 2 (14:00-17:30) – Societal challenges: water risks and management, water in adaptation**

### **14:00- 15:30 Water and Food Security**

*Chair: Eklabya Sharma*

**14:00- 14:15 Uwe Schneider** (Uni. Hamburg) “The impact of climate change and population growth on the Indian Agricultural sector”

**14:15-14:30 Golam Rasul** (ICIMOD) “Water-food and energy nexus in the HK

**14:30-14:45 Dipak Gyawali** (Nepal Water Conservation Foundation) “Water issues in mid hills of Nepal”

**14:45-15:00 Markus Disse** (Tech. Uni. München) “Hydrological and ecological modelling on different scales for sustainable management of river oases along the Tarim River, Northwest China”

**15:00- 15:30** Discussion

**15:30- 16:00** *Coffee break*

### **16:00- 17:30 Water in Adaptation**

*Chair: Giovanna Gioli*

**16:00- 16:15 Aditi Mukherji and Madhav Dhakal** (ICIMOD) “Water issues across scales in the HKH”

**16:15- 16:30 Floriane Clement** (IWMI) “Who should adapt to climate change? Unheard narratives from men and women farmers in Nepal”

**16:30- 16:45 Chanda Gurung and Suman Bisht** (ICIMOD) “Gender and adaptation in the HKH”

**16:45- 17:00 Dhrupad Choudhury** “Adaptation to Change in the HKH”

**17:00- 17:30** Discussion

**17:30 - 17:45** *Break*

## **Block 3 (17:45-18:30) – Open Discussion**

*Chair: Giovanna Gioli, Golam Rasul*

A roundtable discussion will focus on the brief description of past and present projects featuring strong inter/transdisciplinary design in the topics and/or region of interest. We will discuss the set-up of possible future consortia for international projects.

### **19:00 Reception Dinner (Dhokaima Café, Patan)**

## **DAY 2 Saturday 8 November (8am departure – return 6pm)**

Field visit to ICIMOD observational site (Darauni Pokhri, Kavre)