Haris Mushtaq

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WORK EXPERIENCE

Research Analyst

Global Change Impact Studies Centre (Water Resource Section) 06/2018-Present

Partnership for Enhanced Engagement in Research (PEER) project: "Understanding our Joint Water-Climate Change Challenge and Exploring Policy Options for Cooperation on the Afghan-Pak Trans-boundary Kabul River Basin".

- Analysed the Impact of the 21st century climate change on surface water availability of the Trans-boundary Kabul River Basin. The snowmelt runoff model (SRM) integrated with remote sensing snow cover product MODIS was selected to simulate daily discharges. Future projections were generated for two selected time slices, 2011–2030 (near future) and 2031–2050 (far future), based on output of RCP 4.5 and RCP 8.5 scenarios.

Project Title*:* Drought monitoring and prediction in Pakistan: Integrating hydrologic and meteorological perspectives

- The study proposes a framework that uses standard meteorological and hydrologic indices for drought monitoring and prediction. A strong lagged correlation between the Standard Precipitation Evapotranspiration Index (SPEI) and Standard Streamflow Index (SSI) at rim stations of Kabul, Indus, Jhelum and Chenab Rivers shows that SPEI is a good indicator of early warning of hydrologic droughts, and may be incorporated into seasonal drought planning frameworks within the Indus Basin of Pakistan.

Op-Eds for The News International and The Third Pole

- "Water and Peace" Published in The News International. Retrieved from: https://www.thenews.com.pk/print/381747-water-and-peace
- "Are Dams the right choice?" Published in The News International. Retrieved from: https://www.thenews.com.pk/print/360883-are-dams-the-right-choice
- "Opportunities and challenges of Pakistan's massive afforestation drive". Retrieved from: https://www.thethirdpole.net/2019/02/05/opportunities-and-challenges-of-pakistans-massive-afforestation-drive/

Team Leader at Freelancer **2017- Present**

- Leading a team of 50+ freelancers across different institutions of Pakistan
- Completed more than 200 projects since 2017
- Projects are mainly focused on energy efficiency and renewable energy projects (primary focus on solar energy)

Research Assistant **01/2017 – 05/2018**

Leadership for Environment and Development (LEAD), Islamabad, Pakistan

- **Project:** "Understanding our Joint Water-Climate Change Challenge and Exploring Policy Options for Cooperation on the Afghan-Pak Trans-boundary Kabul River Basin".

Research Scholar **02/2016 – 06/2016**

Oregon State University, Corvallis, USA

- Research project analysing Gravity Recovery and Climate Experiment (GRACE) data in for terrestrial water mass over ten years' time in the Indus River System
- Eugene-Based Electricity Generation: Optimizing Resiliency for Eugene Water and Electric Board –Phase II: A collaborative investigation of opportunities to develop locally-based electricity generation across the distribution system of a publicly-owned utility to improve power system disaster resilience.

Design Engineer **09/2011 – 09/2014**

Solar Power Technologies Pvt Ltd

Project of INTERNEWS (USAID)

• Technical lead for designing solar electrification system for press clubs of INTERNEWS in region of lower Dir.
• Supervised the installation of 2220watt system at Press clubs of INTERNEWS.

RAHA UNDP Survey

Technical lead in the survey for solar home systems , solar water pumps and solar street lights in lower Dir region with collaboration of RAHA UNDP team, and provided feasible solution for three systems (Solar home system, Solar Power System, Solar System Lights)

Project of UNDP

• Designed and supervised Installation of solar water pumps in swat region, a project of UNDP. Supervised installation of solar pumps at designated places.

EDUCATION

Research Scholar **(2016)**

Oregon State University, USA

MS Energy Systems Engineering **(09/2013- 08/2016)**

National University of Sciences and Technology

BS Electrical Engineering **(09/2007 – 07/2011)**

University of Engineering and Technology, Taxila, Pakistan

PUBLICATIONS

- Masood, A., **Mushtaq, H.,** Bukhari, S.A.A., Ahmad, B. and Tahir, A.A., Exploring climate change impacts during the first half of the 21st century on flow regime of the transboundary Kabul River in the Hindukush region. *Journal of Water and Climate Change*.
- Trends of terrestrial water mass in Indus Watershed over period of time using GRACE data. Presented in 6th Annual Pacific Northwest Water Research Symposium Oregon State University, USA.
- Masood, A., Hashmi, Z.R., **Mushtaq, H**.,2018 "Spatio-temporal Analysis of Early 21st Century Areal Changes in the Kabul River Basin Cryosphere", Earth Systems and Environment.

DIGITAL PLATFORM

- Leading an initiative of Digital Platform for sharing Pakistan's data and insights related to Water-Energy-Food.
- http://www.rethinkingindus.com/

CERTIFICATES

- Climate Change, Alternate Energy and Water Resources Institute: Watershed Rehabilitation and Irrigation Improvements
- "Summer School on Managing Shared Basins" Connecting Science and Policy for Integrated Water resource management organized by LEAD, Pakistan