Centre for
Water Informatics
and Technology (WIT)

2016 Spring School on Water Systems, Science and Practice

Biographies of Main Instructors

Dr. Asif Khan, PhD University of Cambridge / Researcher Scientist IIASA

Mr. Asif Khan is a practicing professional engineer since 2005. During first two years of his career, he worked in National Engineering Services Pakistan (NESPAK pvt. Ltd) as a regular employee. Then he worked for a year in Irrigation and Hydel-power Department as Sub Divisional Officer (SDO) and performed duties in design office as well as in the site implementation. After the Irrigation department, he worked in FATA Rural Development Project (FRDP) FATA, as Infrastructure Design/Site engineer for about three years. Afterwards he joined Asian Development Bank as Procurement Specialist, where he performed his duties for two months, and then started his PhD at Cambridge University, UK. During his PhD, he has been doing research on water resources and climate change of the Upper Indus Basin, since 2011. Concomitant with his PhD studies, he is working as undergraduate student's teaching supervisor, and carrying out individual consultancies. From November 2013 to February 2014, he worked as an Individual Consultant (hydraulic design engineer) with Asian Development Bank. He has also worked as research assistant at International Institute of Applied System Analysis (IIASA), Austria, from June-August, 2015. During this time period, he worked on various aspects of hydro-climatology of the Upper Indus Basin, and other basins of the Himalayan-Karakoram-Hindukush (HKH) region.

He is currently working on climate change impact/adaptation analysis of Indus Basin, under Future Water and Solutions project of IIASA, Austria. In addition, he is also working on the Indus Basin hydro-climatology with several other well-known researchers from various international institutes. He did his postgraduate work at the Department of Engineering, University of Cambridge and his graduate work at the Department of Engineering, KPK University of Engineering and Technology, Peshawar, Pakistan.

Centre for
Water Informatics
and Technology (WIT)

Dr Iftikhar Ahmed, Research Scientist, Masdar Institute

Dr Iftikhar Ahmed did his PhD in Paris and Masters in Project Management (Oxford). He is a Postdoctoral researcher in Chemical & Environmental Engineering at Masdar Institute UAE. He has 15 years of experience in university, R &D and Management. He has also remained as a Researcher and Assistant Professor at Université Paris Sud, France, and a Lecturer at Aitcheson College, Lahore and at U.E.T, Lahore. He has also served as a Technical Consultant for United Nations Environment Program and a Research Fellow with UNIDO. He has numerous publications on water treatment technologies.

Centre for
Water Informatics
and Technology (WIT)

Dr. Afreen Siddiqi, Research Scientist, Massachusetts Institute of Technology

Dr. Afreen Siddiqi is a Research Scientist in the Engineering Systems Division. She has an S.B. in Mechanical Engineering, S.M. in Aeronautics and Astronautics, and a Ph.D. in Aerospace Systems, all from MIT. Over the last several years, she has worked with public and private institutions in the US and abroad on modeling, design and optimization of complex socio-technical systems.

Dr. Siddiqi is an author of over 50 publications, some of which have appeared in leading journals such as *Energy Policy, Water International, ASME Journal of Mechanical Design, AIAA Journal of Spacecraft and Rockets, and ASCE Journal of Infrastructure Systems*. Her opinion editorials on water policy and the energy, water, food nexus have appeared in *The Express Tribune*, a major newspaper in Pakistan affiliated with *The International New York Times*. Dr. Siddiqi has received several awards and fellowships including the Amelia Earhart Fellowship (2000-01), Richard D. DuPont Fellowship (2003-04), and the inaugural Rene H. Miller Prize (awarded annually for outstanding research) in Systems Engineering (2006). She is also a member of Pi Tau Sigma, and Tau Beta Pi (the national Engineering Honor Society).

Prior to her research career, she worked full-time as an engineer in the R&D division of National Instruments on the company's flagship product, LabVIEW™, in Austin, Texas. She has also worked in Schlumberger (oil and gas services company) in Houston, Texas and has consulted with several corporations such as BP, Lockheed Martin, and Aurora Flight Systems.

Centre for
Water Informatics
and Technology (WIT)

Dr. Abubakr Muhammad, Associate Professor/ Director WIT, LUMS

Dr. Abubakr Muhammad is the founding director of WIT and a tenured associate professor of electrical engineering at LUMS, Pakistan. He is a Jr. Associate Fellow of the International Centre for Theoretical Physics (ICTP), Trieste, Italy and until recently the Secretary NMO in Pakistan for the Institute of Applied Systems Analysis (IIASA), Austria. He received his PhD in Electrical Engineering in 2005 from Georgia Institute of Technology, USA where his PhD thesis won the Sigma Xi Best PhD Dissertation Award. He also received master's degrees in Mathematics and Electrical Engineering from Georgia Tech. He was a postdoctoral researcher first at the University of Pennsylvania and then at McGill University.

In 2008, he established the Laboratory for Cyber Physical Networks and Systems (CYPHYNETS) at LUMS. The Lab does fundamental and applied research in robotics, cyber physical systems and water systems engineering. During his research career, he has spent time as a visiting researcher at UIUC, Stanford, ETH Zurich, KAUST, TU Kaiserslautern, University of Melbourne and ICTP. He is leading the Center for Water Informatics and Technology (WIT) at LUMS as its director.

Centre for
Water Informatics
and Technology (WIT)

Mr. Ahmad Rafay Alam, **Environmental Lawyer, Saleem, Alam & Co.**

Mr. Ahmad Rafay Alam is a Pakistani environment lawyer and activist. After a decade of practice, ending as Senior Associate to Dr. Parvez Hassan (YLS 1963), in 2013 Rafay merged his experience in civil, corporate and constitutional law with his passion for public interest environment litigation and co-founded Saleem, Alam & Co., a law firm that specializes in energy, water, natural resources, and urban infrastructure.

Mr. Rafay has lectured property and environment law at the Lahore University of Management Sciences since 2006. He has also lectured urban development at the Architecture Department of the University of Punjab and climate change and environment economics at the Lahore School of Economics; and is a frequent Review Panelist at the National Management College, Lahore and a regular lecturer in higher education institutions throughout Pakistan. His research and policy papers on law, climate change, transboundary water, sustainability, environmental economics and regulation have been published in The Pakistan Law Journal, Pakistan Law Digest, The Pakistan Development Review and by Chatham House, The Population Association of Pakistan and LEAD Pakistan. Mr. Rafay serves as a Director on the Boards of the Lahore Waste Management Company, the Urban Unit and the Punjab Saaf Paani (Clean Water) Company. He served as Chairman of the Lahore Electric Supply Company from 2011 to 2013. He is a Member of the Punjab Environment Protection Council, the Parks and Horticulture Authority of Lahore and the Lahore Canal Heritage Park Advisory Committee. Mr. Rafay is also is a Member of the Board of Directors of the Citizens Archive of Pakistan, Vice-President (Punjab) of the Pakistan Environmental Law Association, General Secretary of the Public Interest Law Association of Pakistan and Secretary of the Lahore Biennale Foundation. He frequently appears as amicus curiae before the Lahore High Court and is the Secretary of the River Ravi and Fire Safety Commissions.

Centre for
Water Informatics
and Technology (WIT)

Ms. Laila Kasuri, Lead Systems Analyst WIT, LUMS

Ms. Kasuri is a water resources specialist with experience in both operations and research and has consulted with the World Bank and Asian Development Bank, providing advice on country engagement strategies in water resources, and basin planning in federal countries, particularly Pakistan. Bangladesh and Afghanistan. She has a Bachelor's degree from Harvard, with her disciplinary training and research in environmental and water resources, and a Masters in Water Resources Engineering from University of California, Davis with a minor in agricultural development. Her research spans water policy, water federalism, the use of analysis and decision support tools to inform operations, game theory, design of water systems that reconcile sustainability goals while meeting economically driven objectives, reservoir operations and optimizing agricultural water for environmental and urban uses and agricultural development.

She has worked as a Researcher at the Centre for Watershed Sciences in California, testing reconfigured operations of engineered water systems, and teaching best practices in hydrodynamic modelling, and as a Research Fellow with the Harvard Water Security Initiative analyzing the development of institutional mandates and budgetary allocations to hydraulic infrastructure in the United States. At the practice end, Ms Kasuri briefly worked with the United States Army Corps of Engineers on managing flood risks using decision support tools; with the ADB led Friends of Democratic Pakistan Water Sector Task Force, that provided a roadmap for developing water resource base to the Government of Pakistan and was lauded for its efforts.

Currently, she is the Lead Systems Analyst at WIT and also consults with the World Bank, providing advice on country engagement strategies in water resources, and basin planning in federal countries, particularly Pakistan Bangladesh and Afghanistan.