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Institute of Water Research, Sustainability and Policy (IWRSP)

Seminar Presentation

By

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“Global Water Quality, Public Health and Challenges for Mitigation and Management”

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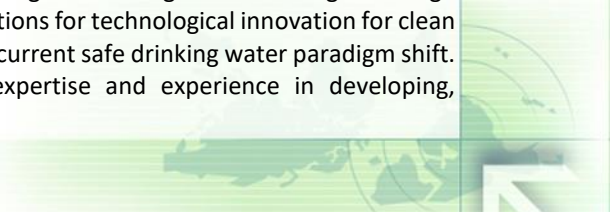
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Abstract

Access to safe drinking water is a basic human right and a component of effective policy for health protection. Water, sanitation and hygiene are the three major important pivotal points for health and overall development. Recognizing this importance, the local governments, inter-governmental organizations and non-government organizations in recent decades have launched a number of missions and initiatives for improving access to safe drinking water and sanitation. Despite of a phenomenal deployment of efforts and resources through public and private sectors, several challenges are evident in rural and urban drinking water and sanitation especially for the developing countries.

The growth in population, urbanization, as well as industrial activities have resulted in a sharp decline of the availability of surface water sources and therefore the demand for drinking water supplies is mostly covered from groundwater resources. However, there are critical challenges due to the presence of geogenic contaminants such as arsenic, fluoride, manganese and others like uranium among others, which are mobilized in different groundwater sources. The Drinking water quality is also impacted due to microbial contamination and a number of other anthropogenic contaminants, the so-called emerging contaminants (ECs) – pesticide, pharmaceutical and antibiotic residuals and several other chemicals in surface and groundwater systems.

Drinking water management encompasses an integrated process involves the source water, quality, the treatment systems and its efficiency, the distribution and storage system as well as the consumer system. Water Safety Plan first introduced by the World Health Organization (WHO) in 2005 as an instrument to ensure the safety of a drinking-water supply most effectively and consistently through the use of a comprehensive risk assessment and risk management approach that encompasses all steps in water supply from catchment to consumer. There is a growing need for technological innovation for drinking water initiatives and creating market opportunities specifically for solving the drinking water challenges through developing tools for assessment and monitoring of water quality. Robust set of actions for technological innovation for clean and safe water, plus self-sustaining business plan is an important concept for the current safe drinking water paradigm shift. Partnerships can play critical role in integration of the knowledge base, expertise and experience in developing, implementing and scaling-up of community-focused solutions.





[Prosun Bhattacharya](#) is a Professor of Groundwater Chemistry at the Department of Sustainable Development, Environmental Science and Engineering at KTH Royal Institute of Technology, Stockholm, Sweden, and an affiliate scientist at the KWR Watercycle Research Institute in the Netherlands. He is the Coordinator of the KTH-International Groundwater Arsenic Research Group, which has global collaborative research engagements on drinking water quality focusing of arsenic, fluoride and other trace elements with universities, research and civil society

organizations in several countries like Argentina, Australia, Chile, China, Colombia, Costa Rica, Bangladesh, Bolivia, India, Ghana, Tanzania, Turkey and USA. He has coordinated several projects on groundwater contamination including the prestigious Swedish International Development Cooperation Agency (Sida) supported action research and implementation project [Sustainable Arsenic Mitigation \(SASMIT\)](#).

The present global pandemic COVID-19 has motivated him to build an inter-disciplinary group of scientists to commence work on the surveillance of SARS-CoV-2 in wastewater to understand the circulation of the virus in the societal segments. Prof. Bhattacharya has authored/co-authored over 400 international publications in peer-reviewed journals and conference proceedings, cited more than 12,000 times. He is the Editor in Chief of the [Journal Groundwater for Sustainable Development](#) published by Elsevier. Since 2011, he has been responsible for Developing Nations Coordination of the IWA Specialist Group Metals and Related Substances in Drinking Water. He has been honored with the title as the Fellow of the Geological Society of America in April, 2012 and has been conferred with the title of the Fellow of the International Water Association in September, 2018. Last year, he won 'TU Delft Global Drinking Water [Best Paper](#) Award 2019' and in recognition of his distinguished work in the field of Environmental Geochemistry and Water Quality Analysis he received the 'STE International Achiever Award, 2019' by the Save the Environment Foundation.

