

The Blue Beneath: Wastewater Reimagined for Planetary Health

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Short Biography

Norhayati Abdullah is an Associate Professor in Environmental Engineering at the Malaysia-Japan International Institute of Technology, Universiti Teknologi Malaysia (UTM) Kuala Lumpur, and currently holds a fixed-term appointment as an Associate Professor at the Graduate School of Environmental and Information Studies, Tokyo City University, Japan. She was recently honoured with the MWA Malaysia Water Award for Women Leadership 2024. Norhayati also serves as Chair of the KURITA Overseas Research Grant (Malaysia) and Secretary of the ASEAN Learning Network Association. Previously, she held the role of Associate Director at UTM International Kuala Lumpur. Her extensive accolades include the 2019/2020 ASEAN Science and Technology Fellowship, focusing on strategic recommendations for water sector transformation, and the 2018 L'Oréal UNESCO for Women in Science Fellowship. She represented UTM and Malaysia at the University of Michigan Ann Arbor as the Fulbright US ASEAN Visiting Scholar in 2016/2017. Norhayati has played an influential role in the global water sector, serving as a Board Director of the International Water Association (IWA) from 2014 to 2018. She remains an IWA Fellow, a Council Member of the Malaysian Water Association (MWA), and has been actively engaged in IWA's international programs since 2000. In recognition of her exceptional wastewater research and dedication to professional development, she received the IWA Young Water Professional (IWAYWP) Award in 2012. Beyond her academic and professional commitments, Norhayati is an advanced adventure diver with a passion for reading and outdoor activities — reflecting her adventurous, curious spirit both in and outside the research world.

Title

The Blue Beneath: Wastewater Reimagined for Planetary Health

Abstract

In the face of accelerating climate change, water scarcity, and ecosystem collapse, wastewater is no longer a liability; it is a latent solution. The Blue Beneath invites us to reimagine what flows unseen beneath our cities and settlements—not as waste, but as an untapped resource capable of reshaping the health of our planet. This keynote explores the future of wastewater treatment through an integrated lens of ecological engineering, circular economy, and planetary health frameworks. We will delve into emerging technologies that not only treat wastewater but also regenerate ecosystems, recover valuable resources, and reduce carbon footprints. From nature-based solutions and bioenergy generation to decentralized treatment innovations, the presentation maps a hopeful trajectory toward resilient water futures. Ultimately, The Blue Beneath is not just a scientific proposition—it is a



paradigm shift. It challenges us to transform our relationship with water, to unlearn waste, and to embrace a regenerative vision where every drop matters. The health of our planet begins below the surface.