**icddr,b and Partners Pioneer Sustainable Hospital Wastewater Treatment in Dhaka, Setting New Benchmark for Environmental Compliance**

**Dhaka, Bangladesh, 24 February 2025:** In a transformative step toward safeguarding public health and the environment, icddr,b, in partnership with the University of Technology Sydney (UTS), and ITN-BUET under the leadership of Hospital Services Management at the Directorate General of Health Services (DGHS), has successfully installed and operationalized Bangladesh’s first low-cost, sustainable hospital wastewater treatment plant (WWTP) at the Kuwait Bangladesh Friendship Government Hospital (KBFGH) in Uttara, Dhaka. Funded by the Integrated Health Science Research and Development Fund under the Ministry of Health and Family Welfare (MoHFW), this innovative plant meets the effluent quality requirements of the Bangladesh Environmental Conservation Rules (ECR) 2023, fulfilling the Ministry of Environment’s mandate for hospitals to adopt effluent treatment systems.

Today, a preliminary dissemination event was held at the MIS Unit, DGHS, Mohakhali, Dhaka to present key findings from the study “Low-cost Sustainable Hospital Wastewater Treatment and Reuse for Healthcare Facilities in Dhaka, Bangladesh.”

Hospitals over 50 beds are classified as ‘Red’ category projects according to the Bangladesh Environmental Conservation Rules 2023 and despite the requirement to install Effluent Treatment Plants (ETPs), no hospital in Dhaka currently operates compliant systems, such as secondary treatment plants or functional ETPs. Most rely on outdated methods like septic tanks or anaerobic baffled reactors which are non-functional or inadequately maintained, failing to meet regulatory or public health standards. This gap has allowed untreated wastewater laden with pathogens, antimicrobial-resistant bacteria, and hazardous chemicals to pollute communities, exacerbating disease transmission and environmental harm.

The newly operational 24 Kilolitres Per Day (KLD) Membrane Bioreactor (MBR)-based WWTP at KBFGH employs a six-stage treatment process to produce reusable water for gardening, cleaning, and non-potable uses. Rigorous testing confirmed 100% removal of faecal pathogens (E. coli), AMR bacteria (*ESBL E. coli*), *Vibrio cholerae*, and *Salmonella typhi*, along with 99% reduction of *Rotavirus A* and full compliance with ECR 2023 standards with respect to other parameters. The system’s compact design, low operational costs, and ease of management by a single operator position it as a scalable solution for hospitals across Bangladesh and other low-resource settings.

Dr Md. Zainal Abedin Tito, Line Director of Hospital Services Management, DGHS, praised the initiative, stating, “This project exemplifies how collaboration between research institutions, government, and international partners can drive compliance with national environmental guidelines. By adopting this proven technology, hospitals can meet regulatory requirements while protecting communities from health hazards. We commend icddr,b and others in setting a new standard for sustainable healthcare waste management.”

Dr Md. Nuhu Amin, Associate Scientist, Environmental Health and WASH, at icddr,b and the Principal Investigator of the study, emphasized the project’s broader implications: “This plant is no longer a prototype—it is a proven, cost-effective technology that eliminates dangerous contaminants and produces reusable water. With successful implementation at KBFGH, we are ready to scale this model to high-risk hospitals nationwide, preventing disease outbreaks and conserving water resources. This is a milestone for Bangladesh and a blueprint for LMICs globally.”

Professor Dr Tanvir Ahmed, BUET also spoke on the occasion, he said, “This proven, compact system offers a scalable national solution. Through collaboration, we can mainstream it to tackle pollution and safeguard public health across Bangladesh.”

Professor Juliet Willetts, UTS said "This project is a leading example for low-resource settings globally. The proven effectiveness of this wastewater treatment system and it's small, compact size make it adaptable to other cities and countries struggling with untreated hospital wastewater. By combining local expertise with international partnerships, we can replicate this model to protect vulnerable communities, advancing health and equity towards the sustainable development goals."

Dr Muhammad Mizanur Rahman, Superintendent of KBFGH, remarked, “Hosting this very low-cost and easy to operate wastewater treatment plant has been a privilege for Kuwait Bangladesh Friendship Government Hospital. The system not only ensures compliance with environmental regulations but also transforms how we manage healthcare waste sustainably. By reusing treated water for gardening and cleaning, we are reducing our environmental footprint while safeguarding public health. This project sets a precedent for hospitals across Bangladesh, proving that cost-effective and eco-friendly solutions are achievable.”Stakeholders, policymakers, and experts gathered to discuss the implications of the research and chart future directions for scaling the technology.

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**Notes to editors**

***About icddr,b***

*icddr,b is a Bangladesh-based international health research institution that strives to solve key public health problems through high-quality scientific research and innovation. Policy-makers and practitioners utilise our evidence and expertise to improve health outcomes and prevent premature death and disability worldwide. Established more than 60 years ago, we continue to provide life-saving services to the people of Bangladesh, and to nurture the next generation of global health leaders.*

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