The 6th International Forum on Big Data for Sustainable Development Goals (FBAS 2026)

Session Proposal Template

Session Title	Digital Decision Support Systems for Water Quality Management: Integrating Big Data and Risk-Based Assessment for SDGs Monitoring	
Session Chair(s)	*Name*	Ahmed Mohamed Bayomi Hassan
	Affiliation	Holding Company for Water and Wastewater, Ministry of Housing, Utilities and Urban Communities, Egypt
	Profile (200-word limit)	Dr. Ahmed M. Bayomi is a Water Quality Director with over 18 years of experience in managing large-scale water and wastewater systems across national utilities in Egypt. He leads water quality governance, compliance, and performance monitoring across 25 affiliated companies, covering more than 4,000 drinking water treatment plants and 500 wastewater facilities. He has developed and implemented a centralized Quality Decision Support System (QDSS), a SQL-based platform that

		integrates multi-source water quality data, operational assessments, and laboratory performance. The system enables risk-based evaluation, KPI monitoring, and data-driven decision-making aligned with national regulations and international standards. Dr. Bayomi has extensive experience in ISO 9001-based Quality Management Systems (QMS), Water Safety Plans (WSPs), and Nature-Based Solutions (NbS) for climate resilience. He is an active contributor to capacity building, leading training programs and internal audit systems across distributed technical teams. He is also a published researcher and international speaker on water quality management, sustainable water systems, and environmental governance.
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Preferred	• Scientific Monitoring and Evaluation with Big	

Topics	Data • Digital Intelligence Technologies Driving SDGs Transformation • Strengthening Partnerships and Capacity Building
Session Description (200-word limit)	This session explores how digital decision support systems can enhance water quality management and contribute to achieving Sustainable Development Goals (SDGs), particularly SDG 6. It presents a real-world case study of a centralized Quality Decision Support System (QDSS), a SQL-based platform designed to integrate and analyze large-scale water quality data from over 4,000 drinking water treatment plants and 500 wastewater facilities across 25 utilities. The system combines laboratory data, operational assessments, and risk-based evaluation frameworks using structured inspection checklists with weighted scoring methodologies based on risk and impact on public health, environment, and operational safety. It supports performance monitoring, compliance tracking, and generation of technical reports for decision-makers. The session will highlight how environmental data can be linked with operational and governance frameworks to

	improve monitoring accuracy, support timely interventions, and enhance system-wide performance. It will also discuss scalability, challenges in data standardization, and opportunities to integrate such systems with broader digital and socio-economic datasets.
Expected outcomes (50-word limit)	Strengthening collaboration with developers and domain experts to advance the system into a smart, data-driven platform. Facilitating knowledge exchange, exploring innovative solutions, and leveraging global best practices to enhance performance, scalability, and impact in water quality monitoring and SDG reporting.

Please submit filled session proposal to fbas@cbas.ac.cn before **April 20, 2026**