Implementing a Training and Capacity Building Programme to Address Water Resources Management Challenges in Central Africa

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ABSTRACT – ORAL PRESENTATION

Central Africa, largely structured around the Congo River Basin system and its tributaries, represents one of the world's most water-rich regions. However, the region faces a paradox of abundant water resources alongside limited access to water services and increasing vulnerability to hydro-climatic risks. This paper examines the critical challenges of water resources management in the region, emphasizing the role of inadequate data systems, weak institutional frameworks, and a significant shortage of skilled water professionals. The decline in hydrometeorological monitoring networks and fragmented knowledge systems constrain effective planning, modelling, and decision-making, while climate variability exacerbates risks such as floods, droughts and water borne diseases.

Central Africa faces a critical shortage of trained professionals in key disciplines such as hydrology, hydrogeology, hydraulic engineering, climate science, and water governance. This shortage is compounded by limited postgraduate training opportunities, brain drain towards institutions outside the region, and insufficient incentives for retention. Existing training programmes are often fragmented, overly theoretical, and poorly aligned with practical and operational needs of the region. The implications of these capacity gaps are far-reaching. Without adequate human and institutional capacity, investments in water infrastructure may fail to deliver expected outcomes, while governance reforms remain difficult to implement. Conversely, strengthening capacity offers significant opportunities to enhance resilience to climate change, improve water security, support economic development, and reduce the risk of conflicts related to water access and allocation (UN-Water, 2023). In a region characterised by major transboundary river systems, effective water management is also essential for fostering regional cooperation and stability.

In response, this paper presents the design and implementation of a comprehensive training and capacity-building programme anchored at the Regional School of Water (ERE) of the University of Kinshasa, in the Democratic Republic of Congo. The programme adopts an integrated and transdisciplinary approach, bridging both management and engineering dimensions of water resources. It emphasizes strategic alignment with the region's vast and diverse water resource potential, encompassing key thematic interfaces such as water and environment, water and energy, water and navigation, water supply and sanitation, water–irrigation and food security, wastewater treatment, hydrometeorology and climate resilience, and water governance.

The programme integrates academic training at MSc and PhD levels with field-based learning, hydrological monitoring systems, and regional academic mobility schemes. Through this holistic framework, it aims to develop a critical mass of highly skilled professionals capable of addressing complex water related challenges and supporting sustainable development pathways in the Congo Basin and central African region.

The methodology for implementing this programme is informed by extensive needs assessments and stakeholder consultations, highlighting gaps in technical expertise, infrastructure, and policy integration. The programme aims to strengthen the science-policy interface, enhance regional cooperation, and support sustainable development pathways. The paper concludes that investing in human and institutional capacity is essential to unlocking hydrological potential and improving water security, climate resilience, and socio-economic development in Central Africa.

Keywords: Central Africa, Congo Basin, Regional School of Water, Water Resources, Capacity Building