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LEVERAGING ON WETLAND MONITORING AND MANAGEMENT APP: A CASE OF KINGWAL AND YALA SWAMP AREAS

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ABSTRACT
Wetlands play a critical role in biodiversity conservation, water purification, and climate regulation. However, these ecosystems face increasing threats due to human activities, climate change, and inadequate monitoring frameworks. This study explores the development and implementation of a Wetland Monitoring and Management App designed to enhance the conservation and sustainable use of Kingwal and Yala Swamp areas in Kenya. The app leverages emerging technologies such as GIS mapping, remote sensing, IoT sensors, and AI-driven analytics to provide real-time data on wetland health, water levels, biodiversity status, and potential environmental threats. Through stakeholder engagement, including local communities, environmental agencies, and researchers, the app aims to facilitate informed decision-making and improve wetland governance. The study evaluates the effectiveness of the application in monitoring ecosystem changes, enhancing community participation, and supporting policy implementation. The findings underscore the importance of digital solutions in promoting sustainable wetland management and recommend strategies for scaling up technology-driven conservation initiatives.
Key words:
Wetland monitoring, environmental conservation, GIS, remote sensing, AI analytics, sustainable management, biodiversity conservation.

Author: Prof. OMIENO, Kelvin (Kaimosi Friends University)

Co-authors: Dr MULINYA, Caroline (Kaimosi Friends University); KIPKEMBOI, Julius (Kaimosi Friends University)

Presenter: Prof. OMIENO, Kelvin (Kaimosi Friends University)

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