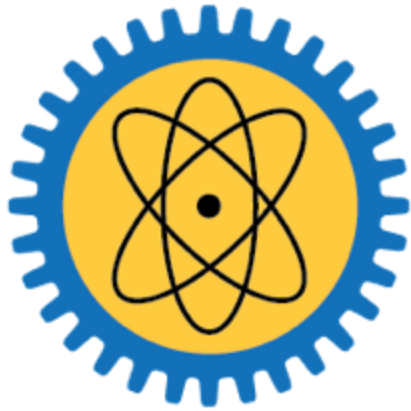




**BUSITEMA
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Pursuing excellence

**EVALUATING INDIGENOUS AND SCIENTIFIC WEATHER
FORECASTING TECHNIQUES FOR RESILIENCE TO
WEATHER EVENTS AMONG FISHING COMMUNITIES IN
JINJA**

BY

KIPROP JULIUS KAPKWOMU

(BU/GS22/MCC/28)

**A DISSERTATION SUBMITTED TO THE DIRECTORATE OF GRADUATE STUDIES,
RESEARCH AND INNOVATIONS IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE IN CLIMATE
CHANGE AND DISASTER MANAGEMENT DEGREE OF BUSITEMA UNIVERSITY**

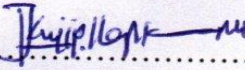
OCTOBER, 2025

DECLARATION

I the undersigned ,declare that this research dissertation/thesis is my original work,except where due acknowledgement has been made.I declare that this work has never been submitted to this University or to any other institution for funding/for partial fulfillment for any award.

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DEDICATION

I hereby dedicate this report to the Almighty God, my Late parents, My Wife Irene Kiprop, Children; Arthur Chemtai Kiprop, Laura Cherotich Kiprop, Emmanuel Kiprop, Joshua Cheptoek Kiprop, relatives and friends for the support they have given to me during my academic journey; spiritually, financially and emotionally to make it a success. May the almighty God bless you abundantly.

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Map 1: Maps showing Masese in Jinja City, Jinja City in Uganda and of Uganda in Africa 20

LIST OF ACRONYMS/ABBREVIATIONS

HIGHWAY	: HIGH impact Weather lAke SYStem
IK	: Indigenous Knowledge
IFRC	: International Federation of Red Cross and Red Crescent
IFRCTCS	: International Federation of Red Cross and Red Crescent Societies
ILO	: International Labour Office
IOD	: Indian Ocean Dipole
IPCC	: Intergovernmental Panel on Climate Change
IWF	:Integrated Weather Forecasting
MAM	: March, April and May Season
NWP	: Numerical Weather Prediction
PLE	: Primary Leaving Examination
SFDRR	: Sendai Framework for Disaster Risk Reduction
SK	: Scientific Knowledge
UACE	: Uganda Advanced Certificate of Education
UCE	: Uganda Certificate of Education
UNMA	: Uganda National Meteorological Authority
SOND	: September, October, November and December Season
SPI	: Standard Precipitation Index
SWF	: Scientific Weather Forecasting
TWF	: Traditional Weather Forecasting
WMO	: World Meteorological Organization

ABSTRACT

The aim of the study was to examine how evaluating indigenous and scientific weather forecasting techniques influence resilience to weather events among fishing communities in Jinja. The objectives were to analyse trends of weather events, assess the relative effectiveness of scientific forecasts compared to indigenous forecasts, identify community preparedness, identify response strategies, and determine the impact of integrating forecasts on preparedness. The results, derived from survey responses and meteorological data analysis, show that 92.2% of participants apply indigenous methods using indicators like cloud patterns and wind shifts, while 70.2% rely on scientific sources, mainly radios and Television. Comparative analysis revealed that scientific forecasts recorded 90 Hits (67.5%) for rainfall and 92 Hits (67.6%) for wind, while indigenous forecasts had 47 Hits (34.3%) for rainfall and 44 Hits (32.4%) for wind. Correlation analysis established a 30% positive relationship between scientific forecasts and observed rainfall and wind records. Event trend analysis highlighted strong winds, heavy rainfall, and floods as the most frequent hazards. Using SPI-3, SPI-6 indices, and annual rainfall anomaly records for Jinja (1991–2023), wet years between 2019–2023 were confirmed. Preparedness strategies identified through survey responses included ensuring seaworthiness of vessels (24.8%), pulling boats ashore (15.8%), and minimizing fishing activity (15.8%). Response strategies emphasized maintaining vessel safety and scaling down fishing, reflecting proactive risk management. Regarding integration, 60.3% of respondents agreed both methods provide reliable forecasts, though scientific forecasts were consistently more effective. Overall, analysis confirms that scientific forecasts surpassed indigenous forecasts in accuracy. The study therefore recommends strengthening stakeholder participation and capacity building in applying scientific forecasts, enhancing dissemination systems, and engaging communities in integrating both approaches for wider acceptance. Further, expanding weather stations across the Lake Victoria basin emerged as critical for improving scientific accuracy, enhancing adoption, and ultimately strengthening fisherfolk safety and reducing vulnerability to extreme weather risks.

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