

Project Summary

HIGHWAY (High Impact Weather Lake System)

Introduction

The aim of the HIGHWAY project was to enhance meteorological observations in the Lake Victoria Basin. The regions that the project covered were Kenya, Rwanda, Tanzania and Uganda. It completed the revival of Upper Air Stations (UAS) in Lodwar and Nairobi (Kenya) and it partly revived UAS in Entebbe (Uganda) and Dar Es Salaam (Tanzania).

The project facilitated the expansion of WMO Members' observational networks. It contributed to the development and enhancement of forecasting tools (the enhanced UK Met Office 4km Unified East Africa model; the RDT (Rapid Development Thunderstorm) product; the Near-Cast product, and Convective Rain Rates (CRR) product), which improved the accuracy of severe weather forecasting in the region.

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Project activities

A regional WMO Integrated Global Observing System centre was jointly created between Kenya (responsible for metadata management in the region) and Tanzania (to oversee data quality and availability) to achieve integrated and better national, regional and global coverage of meteorological data. It enabled countries in East Africa to provide relevant meteorological data and information for policy-and decision making.

A Regional Early Warning System Vision 2025 for East Africa (approved in June 2019 by Ministers at the EAC 16th Meeting of the Sectoral Council on Transport, Communications and Meteorology) further developed cooperation between NMHS. Warnings of high impact weather were disseminated by NMHSs to fishing communities in Lake Victoria through radios, flags, notice boards and WhatsApp messages. Training sessions provided to fishing communities helped build trust in the forecasts. They made communities confident about using the weather information to plan the fishing trips and other activities on the Lake.

HIGHWAY catalysed a drive by all EAC NMHSs to increase their observational data reported to the Global Telecommunications System (GTS), which directly improved numerical weather predictions in the region.

The project carried out resilience studies in Kenya, Uganda and Tanzania to help determine direct and indirect beneficiaries of the new and improved early warning services (EWS) and derived the number of people with improved resilience from the use of this service. The studies concluded that 214,877 direct beneficiaries and 1,390,262 indirect beneficiaries in Kenya, Uganda and Tanzania have improved resilience resulting from use of improved EWS.

A socio-economic benefit study identified benefits (avoided losses or positive opportunities) from the new weather forecasts and severe weather warnings on the Lake. These included tangible benefits as well as intangible (non-market) benefits. The analysis suggested that the HIGHWAY project was leading to approximately a 30% reduction in weather-related deaths on the Lake. The study also estimated that the marine information in HIGHWAY was avoiding 312 deaths/year. Adding all tangible and non-tangible benefits together, the study estimated that the economic benefits of HIGHWAY activities were \$44 million/year. Finally, the analysis found that the net present value of HIGHWAY was \$73 million, with a benefit to cost ratio of 16:1.

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Conclusion

The improvement of meteorological observations and the development of new forecasting tools has contributed to greater forecast accuracy and from a transformational change impact analysis of the project that was carried out it concluded that there was significant evidence for signals of transformational change in HIGHWAY, particularly from strengthened regional cooperation (through the regional EWS Vision 2025 and Sustainability Plan5), improved quality of National Meteorological and Hydrological Services (NMHS) forecast systems; and more effective, user focused EWS products.

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