

CREATING ACCESSIBLE AND SUSTAINABLE CLIMATE SERVICES THROUGH CAPACITY DEVELOPMENT OF NMHSs

Lessons from the WISER programme for NMHSs

Meteorological station manager Same Tanzania.
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KEY MESSAGES

- Capacity development within National Meteorological and Hydrological Services (NMHSs) should extend beyond building technical skills to include investments in holistic skills, which will enable NMHSs to make a stronger business case for their work and advocate for more funding and support from governments and other funding partners.
- Linking Weather and Climate Information Services (WCIS) to national plans for adaptation, disaster risk reduction, resilience and sector development requires NMHSs to build their capacity to understand, promote and champion co-production processes.
- Long-term capacity building partnerships for NMHSs are key to developing sustainable climate services.
- Establishing and maintaining partnerships with the media and intermediaries can increase the effectiveness of communicating climate information.
- NMHSs need to be able to lead in project decision-making and have ownership of capacity building in order to ensure the sustainability of climate information services.

GLOSSARY

CO-PRODUCTION:

The process of working together to combine the knowledge of two or more actors who think in different ways in order to create new knowledge or ways of working to address societal problems.



An agro-pastoralist in Garissa, Kenya reading climate advisories. Source: CARE ALP EIC, Aduma 2014



OUTLINE OF WISER AND THE LEARNING PROCESS

The Weather and Climate Information Services for Africa (WISER) programme aims to increase the resilience of African people and enhance economic development in response to weather and climate-related shocks. Funded by the Foreign, Commonwealth and Development Office (FCDO) and fund managed by the Met Office UK, WISER's goal is to improve the generation and use of weather and climate information across the Sahel and East Africa. Phase 2 of the programme was implemented from 2017 to 2021 through 12 projects. The aim was to develop new and improved climate services for regional, national and sub-national use, based on the specific needs identified through co-production approaches, and to enhance the capacity and capability of regional and national weather and climate service providers.

The programme Fund Managers organised an internal online learning event from 26th to 29th April 2021 to distil key learning from the design, delivery and results of projects and the programme overall. The event was attended by 90 participants from the 12 WISER Phase 2 projects. The participants ranged from scientists/producers, practitioners/intermediaries, researchers/knowledge managers, decision-makers/users, and donors as well as 5 NMHS from the region. The event reflected on four thematic areas of learning to inform future project and programme design for weather and climate information services:

- 1 Programme functions
- 2 Approaches
- 3 Climate service and products outcomes
- 4 Programme/project impacts

1 INTRODUCTION

Providing actionable weather and climate information in a sustainable manner to climate-sensitive sectors requires building the capacity of National Meteorological and Hydrological Services (NMHSs) to respond to the growing and changing needs of the users. The extent to which NMHSs can sustainably deliver tailored WCIS, particularly after donor funding stops, will depend on their capacity to build expertise in new technical skills (e.g. processing observational data, managing and analysing climate data), as well as their capacity to co-produce with users and intermediaries to create usable and accessible products, and to create long-term partnerships with the media and other communicators of WCIS. With the current demand for relevant and context-specific WCIS, there is a need for transformation of NMHSs into future-proof and fit-for-purpose organisations.

This transformation will affect different aspects such as: enhancement of service delivery systems, modernisation of observation and forecasting infrastructure, institutional strengthening and capacity development, improvement of the requisite skills for weather forecasts, early-warning systems, climate and hydrological information services, as well as communication and dissemination of user-relevant information. Within the WISER programme, many initiatives were developed through various projects such as: the increased forecasting capacity acquired through WISER Support to Intergovernmental Authority on Development (IGAD) Climate Prediction and Application Centre (ICPAC) (**W2-SIP**), translation of forecasts into local languages in **Uganda**, Impact Based Early Warning System in **Rwanda** and the Regional Impact Based Early Warning Systems (RIBEWS) in the High Impact Weather Lake System (**HIGHWAY**) project. For this transformation to be sustainable, NMHSs need to build their technical, holistic and strategic capacities, which will help them to advocate for, and source, additional funding and become more self-reliant.

For more information on sustainability, see the WISER policy brief: 'How to develop sustainable climate services: A road map for public investors and project managers.'

The goal of this brief is to feed back to the NMHSs the critical capacity development issues, gaps and recommendations identified through the WISER programme and support them in making the necessary changes to create accessible and sustainable weather and climate services.

Beyond simply producing an output, the value of NMHSs in producing actionable WCIS is about having a real-world impact on individuals and communities, while ensuring that this service is sustainable. This requires NMHSs to step outside their core mandate of meteorological data collection, analysis and product development. NMHSs need to drive the projects that are being developed through donor-funded programmes, co-produce services, seek strategic funding to be less donor dependent and work with media and intermediaries to effectively communicate information and facilitate knowledge transfer to those at risk.

During the WISER learning event, various capacity issues for NMHSs emerged, from the need for technical skills development to more holistic skills. In addition to their core mandate of meteorological data collection, analysis and product development, NMHSs also require the following additional capacities to effectively create sustainable and actionable climate services.

2.1 Articulating challenges and needs when involved in donor projects

Through WISER, the technical capacity of NMHS staff to produce new climate services and products has been improved. Most training and capacity development focused on meteorology and weather forecasting yet, in order to be sustainable, management and leadership skills are needed; for example, human resource capacities to do monitoring, evaluation and learning (MEL) and project management skills such as design, budgeting and report writing.

NMHSs face significant challenges in fulfilling their core mandate, both in terms of human resources and funding. Some project managers and project focal points in NMHSs lack the necessary project management skills required for managing projects successfully. In some cases, these staff are assigned these roles with little to no direct funding available for incentivising their

participation. Without either capacity development activities or financial support for staff time, their willingness to engage can be limited. Carrying out regular capacity assessments is important to continuously identify and track the gaps which exist within NMHSs and plan or adjust activities to support capacity development around these gaps. Additionally, NMHSs which are still part of the civil service within a ministry have minimal autonomy to access and manage funds directly or to make recruitment decisions – some governments have had freezes on any new recruitment extending over years. NMHSs which have managed to become semi- or fully autonomous then have challenges in being financially viable entities. As a means of seeking support to overcome the institutional and financial barriers to their viability and sustainability, NMHSs should clearly articulate these challenges when engaging in donor-funded projects. Enabling NMHSs to lead on the design of activities that are targeted towards their capacity development can set the groundwork for overcoming these barriers.

2.2 Developing skills to take on more leadership in donor projects

Most NMHSs in East Africa require support from donor-funded projects to help achieve their mandates. Designing and implementing climate service projects that are appropriate and impactful without strong leadership by the NMHSs can be challenging, particularly when projects involve multiple partners and goals that may compete with existing priorities. Project design is the most crucial phase for setting appropriate outcomes that align with national priorities, the needs of the users and the capacity of the NMHS. Typically, donor projects are designed in consultation with the NMHS, who are brought in as responders – rather than designers – to the concept. By taking a consultative, rather than an inclusive, approach to designing a project, resources and priorities are often agreed early, limiting the NMHS's ability to influence key areas like capacity development needs. The WISER learning process expressed the need for NMHSs to lead on project design for

projects that focus on strengthening the NMHS's core mandates, in order to develop projects that are more in line with their needs and that build their capacity to deliver sustainable services. NMHSs should advocate for this type of leadership to be built into their roles within WCIS projects.

Capacity development in donor-funded projects typically focus on building the technical capacity of NMHSs to design and deliver novel forecasting products, as a means of creating new and improved WCIS. While this is indeed extremely valuable and often needed, other skills are needed in order to ensure that the services are sustainable. The WISER learning process identified a critical need to invest in NMHS holistic skills (e.g. business, financial, organisational, scientific) and products that will pay dividends, in addition to typical scientific skills development. This type of skills development is not commonly articulated by NMHSs, despite there being a strategic advantage to building these skills in the long term. This type of shift in capacity development focus will enable NMHSs to make a stronger business case for their work and advocate for more funding and support from their governments and other funding agencies. In order to attract funding for climate action, both from the national governments and donors, NMHSs must be able to articulate the value and importance of useful climate services and their role in it (including financial and human resources and equipment requirements) and locate their value and importance in the bigger picture of resilient development and risk management.

2.3 Building capacity to meet user needs

In the case for WCIS where the NMHS is the predominant producer at national and subnational levels, co-production represents a better understanding of user needs and the opportunity for joint development and validation of new products. However, user demands often tend to test the limits of weather and climate science and the available capacities at the NMHS. Engaging in co-production of WCIS can enable the NMHS to deliver services that are tailored to the needs of those at risk and can thus significantly improve the demand for a service. This requires tailoring

of technical information to be more appropriate to the users and the acknowledgement by NMHS that there is valuable knowledge from the users that can contribute to creating a better service. To address this, NMHSs should develop the necessary skills that are required for co-developing information that is both robust and relevant to the user's needs. This requires NMHSs to lead on, and facilitate, co-production processes and engagements with users, intermediaries and the media.

In many WISER projects, users struggled to fully articulate their needs, which initially hindered the NMHS from developing appropriate products. Strong facilitation skills are required to create an environment that diffuses power dynamics and hierarchies and allows different knowledge and experiences to be equally heard.

Firstly, NMHSs require the capacity to understand, promote and champion co-production processes. They need to recognise the value of other actors' capacities and contributions, and they must be able to link climate information from the NMHS to national plans for adaptation, disaster risk reduction, resilience and sector development.

Secondly, NMHSs need to be aware of the fact that long-term success necessitates devoting the time and resources dedicated to co-production to seriously engage end users, to understand their needs comprehensively and to create better awareness of climate services. A strongly facilitated co-production process is key to co-exploring users' needs which, in turn, helps users to develop the capacity to articulate those needs.

With users who have limited knowledge of the climate services products to be made available, it is necessary to build the capacity of all actors, across multiple disciplines, so as to ensure an equal footing for discussion. Capacity building should take place throughout the co-production process. While it may not necessarily be the onus of the NMHS to build the capacity of users to understand their needs or understand the information provided by the service, the NMHS, at least, needs to be aware of this issue and its implications, and advocate for processes that enhance user capacity when taking part in donor projects.



CASE STUDY 1

DEVELOPING ONLINE MAPROOMS TO SUPPORT AGRICULTURE IN RWANDA

The WISER Rwanda national project **Iteganyagihe Ryacu** demonstrates how capacity building at different levels can promote success in climate services dissemination. Capacity development within this project was done at multiple levels and included the NMHS, farmers, extension agents and local radio. The project was led by the International Center for Tropical Agriculture (CIAT) in Rwanda, the Met Office UK and the International Research Institute for Climate and Society (IRI) in New York and Meteo Rwanda. The Rwanda project facilitated capacity development at Meteo Rwanda to manage the automation of seasonal forecasts onto the online maproom. Meteo Rwanda enabled them to also develop the capacity of extension agents on the use of WCI that is context and location specific. This has helped the district agronomists to support farmers in making crop variety and irrigation decisions. In addition, through the partnership with local radio Huguka, a network of radio listeners' clubs was trained in understanding weather forecasts and provided feedback whenever there was a weather event. The project also built the capacity of farmers to use a two-way communication loop through the **5Q approach**, frequently asking stakeholders five questions about their needs and perceptions on project activities implemented and how a specific project could serve them. This proved to be an efficient tool for data collection for MEL, as it built in simple feedback mechanisms through a mobile application with easy access. Building the capacity of Meteo Rwanda enabled them to engage with multiple actors to ensure that the knowledge from the WCIS was appropriate and understood by all actors.

2.4 Building partnerships for effective communication of WCIS

Climate change and climate services are, by nature, complex, and communicating these services in plain language is a necessary step towards ensuring that the services are actually used, therefore allowing the space for demand to grow. There exists a clear need for NMHSs to develop effective communication strategies supported by well-established user feedback loops. In order to develop a sustainable and appropriate service, NMHSs will need to establish and maintain strong and trusting relationships with the communicators of WCIS, such as intermediaries and media. This can allow NMHSs to co-produce the service with those who are communicating it, to ensure that an accurate and accessible message is being communicated. However, this process faces several challenges. The language that is typically used by the NMHS often includes technical terminology which, at times, can be intimidating to the unfamiliar. To enhance the accessibility of weather and climate information, clarity of language is needed. The focus should be on the audience rather than the argument. Additionally, the capacity of the media to effectively communicate technical weather and climate information is typically low, which can lead to misinterpretation and therefore a breakdown in trust. Thus, creating an efficient communication strategy that brings about real change in people's perception, and that enables trust, requires understanding both the target audience's capacity to interpret technical information and the capacity of those to communicate the information appropriately.

Despite capacity development efforts by WISER, the ability to unpack technical terminologies used in climate science is not always existent in many NMHSs. This requires NMHSs to host collaborative engagements effectively with media and intermediaries, as a means for both co-developing effective communication of WCIS and fostering mutually beneficial partnerships. Ultimately, the need for capacity development should not sit solely with the NMHS with regards to tailoring services to be more accessible. There is a need for capacity building of all actors involved in the co-production process as it can have a multiplier effect, as seen in the following case study.



CASE STUDY 2

BUILDING THE CAPACITY OF JOURNALISTS TO REPORT WCIS

The WISER **Weather Wise project**, delivered by BBC Media Action and the Network of Climate Journalists in the Greater Horn of Africa (**NECJOGHA**), strengthened the capacity of media professionals and technical experts to respond to the WCI needs of radio listener audiences. Weather Wise focused on people living in Northern Kenya, around the Lake Victoria shores of Kenya and Uganda and the coastal strip of Kenya and Tanzania.

The project supported 10 stations in producing quality radio programming that responded to the weather and climate information needs of people in East Africa. The project trained local journalists, meteorologists and experts in agriculture, fisheries and livestock to communicate weather and climate information effectively, and brought them together to share learning. In this way, the journalists were able to engage with, and interview, local Met offices and experts and incorporate their expertise and advice into their weather shows, helping people to take positive actions to improve their lives and livelihoods. In parallel with the actors involved with producing the information, the target audiences' knowledge and understanding of weather and climate issues was raised. This not only improved the working relationships and trust between journalists and meteorologists and experts but also changed people's lives.

2.5 Leveraging experience and skills from international and regional initiatives

Despite the fact that many NMHSs in East Africa, through programmes like WISER, are constantly building their technical and research capacities, regional and international research institutions will continue to make significant contributions to capacity building in climate forecasting. Such contributions include climate outlook forums and the training of skilled personnel able to access, interpret and translate climate information into decision-relevant products and services.

There is still a need to create linkages between NMHSs and international weather/climate organisations in order to gain knowledge and take advantage of data, modelling capabilities and the expertise of these international organisations. For NMHSs to fully benefit from these initiatives, there is a need to develop the capacity in NMHSs to coordinate, standardise, improve and encourage efficiencies in the exchange of information so that their activities respond to the needs of society.

Leveraging experience and skills from international and regional initiatives can help NMHSs remain at the cutting edge of developing novel WCIS and can help to advocate for support and funding, which will contribute towards the sustainability of their services and the development of improved services, which can help to increase demand.





RECOMMENDATIONS



RECOMMENDATIONS FOR ENHANCING NMHS LEADERSHIP IN PROJECTS

Advocate for leading the design of donor-funded projects.

NMHSs should have a leading role in the design and implementation of donor-funded projects that focus on strengthening their core mandate. In particular, this should include designing capacity development activities that build both technical and strategic skills. This could be made a condition for projects engaging with the NMHS.

NMHSs should seek a range of sustained support which should be built into project design.

Such support should cover: the technical capacities to improve the quality of products; communication skills, such as simplifying climate information and engaging stakeholders in co-production; project management skills and the pursuit of future funding opportunities.



RECOMMENDATIONS FOR GREATER SERVICES THROUGH STRATEGIC PARTNERSHIPS

NMHSs need to establish and strengthen partnerships with intermediaries and the media in order to further the reach of services.

NMHSs should build partnerships with, and support, intermediaries and the media with training and tools to understand climate services and communication skills to help them reach end users with information tailored to local needs.

NMHSs should learn from others how they can leverage, or build on, previous experience.

NMHSs should proactively enable cross learning from other projects and programmes and build long-term partnerships in linking science to socio-economic activities (see examples in the [WISER Co-production manual](#) and [ICPAC Guide](#)) or in implementing inclusive projects.

NMHSs should build upon institutional/ partnership knowledge.

Transforming scientific knowledge and research into WCIS to support decision-making for sustainable livelihoods entails recognising and strengthening individual/ organisational roles, skills and sector-specific knowledge, as well as establishing clear roles and responsibilities in implementing climate-resilient products.



RECOMMENDATIONS FOR LONG-TERM STRATEGIC PLANNING

The NMHS should develop strategic plans geared at immediate and long-term investments to support modern weather forecasting requirements.

Investments in data acquisition, data exchange, data processing, visualization and archival capacity should be accompanied by similar investment in the human capital necessary to operate and maintain state-of-the-art facilities in forecasting services, in order to better meet end-user needs.

3 FINAL THOUGHTS

The demand for actionable climate information and tools to inform decision-making is growing in response to the increased frequency, severity and changing nature of climate impacts. NMHSs need to co-produce WCIS with users to ensure services are designed and delivered to meet the needs of users, building on the trust that is required to ensure services continue to be relevant and used in the future. As such, there is a need for NMHSs to grow in strategic areas and to align better with the growing user demand. It is essential for NMHSs to build skills that can enable them to facilitate and champion co-production processes in order to engage further with users. NMHSs need to advocate for additional and sustained funding to support their co-production capacity development. This will require demonstrating the value of this skills development in parallel with the value of co-producing services. A significant barrier that remains is the limited human and financial resources that NMHSs are able to allocate towards facilitating co-production processes and events in the long term. To overcome this, NMHSs should partner with organisations/institutions that are able to support the co-production process as well as their capacity development in facilitating these processes. This means NMHSs may need to move beyond partnerships for communication of WCIS to also include partnerships for developing more appropriate and tailored services.

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