



## Policy brief

# How to develop sustainable climate services

## A road map for public investors and project managers

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### Key messages

- Effective weather and climate information services can save lives and livelihoods. They are vital in helping countries adapt to climate change.
- This brief summarises the findings of a study of donor investments in weather and climate information services in East and West Africa that found that such investments can achieve significant benefits in a project's lifetime.
- However, these gains can be easily eroded if sustainable capacity is not created in national and local institutions to keep operational systems and people's knowledge up to date beyond a project's lifetime.
- Ongoing capacity strengthening is needed for national meteorological and hydrological agencies, relevant government departments and non-governmental actors that work to understand user needs and communicate relevant weather and climate information to these users.
- Long-term political and financial commitments are needed on the part of national treasuries to enable weather and climate information services to fulfil their promise. Sustainable business models have a role to play, including, potentially, those which blend private and public finance.
- Where donor support is appropriate and bolsters national development priorities, donors should partner with governments and other stakeholder groups, over multiple years and multiple phases, to enable countries to develop the sustainable capacity their weather and climate information services need. This brief provides a nine-point road map for developing this capacity.

## Introduction

Weather and climate information services (in this brief, ‘climate services’<sup>1</sup>) are part of the foundation for sustainable development in a changing climate. This is true everywhere, but particularly so in Africa.

On the African continent, many countries’ economies and people’s livelihoods are based on climate-sensitive sectors, such as agriculture and pastoralism. The impacts of extreme weather and climate events such as floods, drought and heatwaves are being felt. Changes in their frequency and intensity are increasingly attributable, at least in part, to human-caused climate change.

### Climate services are essential to Africa’s development in a changing climate

Effective climate services deliver information ranging from short-term forecasts to warn people about imminent weather events – such as heavy rain, wind and temperature extremes – to seasonal forecasts and longer-term climate projections.

Accurate, timely, relevant and usable information can help people to understand climate-related risks and act appropriately. It can

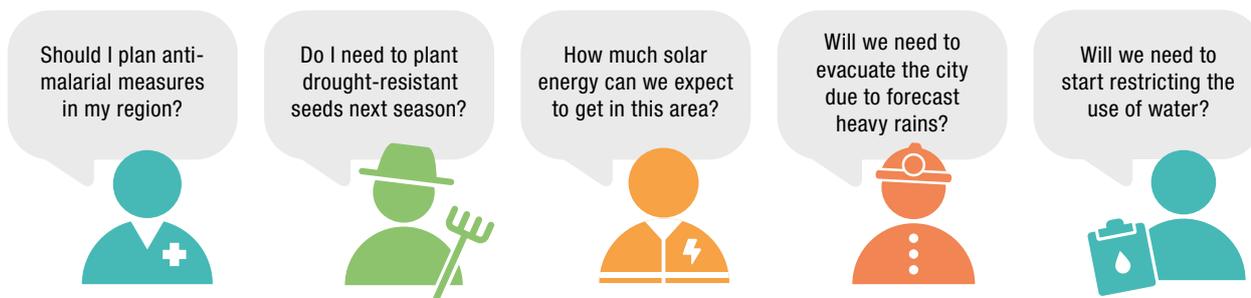
support decision horizons ranging from the daily to the decadal, including plans and activities to adapt to climate change. Individuals, communities, businesses, government departments and the full array of actors that invest in African development and commerce all need access to reliable weather and climate information to inform their decisions. Decisions made by governments, businesses and communities today about infrastructure and other developments that will last for decades need to take future climate change into account.

Effective, sustained delivery of climate services is integral to achieving the Paris Agreement’s adaptation goal of ‘enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change’ (UNFCCC, 2015: Art. 7).

The Global Framework for Climate Services (GFCS) aims to guide the development of effective climate services so that they advance users’ understanding of the climate and ‘facilitate climate-smart decisions that will reduce the impacts of climate-related disasters, improve food security and health outcomes, and enhance water resource management’ (WMO, 2014: v). In line with the GFCS, the African region needs investments in its climate services that will ensure these services go from strength to strength in the future. An illustration of how climate services can inform development decisions is shown in Figure 1.

Figure 1 What are climate services?

Climate services provide climate information to help individuals and organisations make climate-smart decisions



Source: GFCS (2020)

1 In this brief, we include weather services in the overall term ‘climate services’; a fuller definition is provided in the associated technical report (Dupar et al., 2021).

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## Learning from the WISER programme

The Weather and Climate Information Services for Africa (WISER) programme aims to strengthen the capacity of climate services in Africa.

Focusing principally on East Africa, it is running from 2016 to 2021. WISER is funded by the United Kingdom's Foreign, Commonwealth and Development Office (FCDO).

This paper is based on a study commissioned to answer the following questions, based on WISER experiences:

- What elements are necessary to sustain capacity for climate services delivery?
- How can sustainability best be incorporated into project design and implementation?
- What are the enablers and barriers to creating sustainable capacity?
- How can the barriers be overcome?

The study involved 15 WISER projects, shown in Figure 2. The research combined:

1. a review of existing literature and frameworks for weather and climate services
2. a review of both published project literature and unpublished project reports
3. in-person key informant interviews with WISER project staff and partners
4. a follow-up survey
5. further one-to-one consultations with programme stakeholders.

The complete findings are published in a technical report (Dupar et al., 2021).

The recommendations here are intended to inform future efforts by national governments, international development partners and domestic climate service providers, such as research institutes and non-governmental organisations, to achieve sustainable capacity in African climate services.

## Thinking beyond immediate project impact

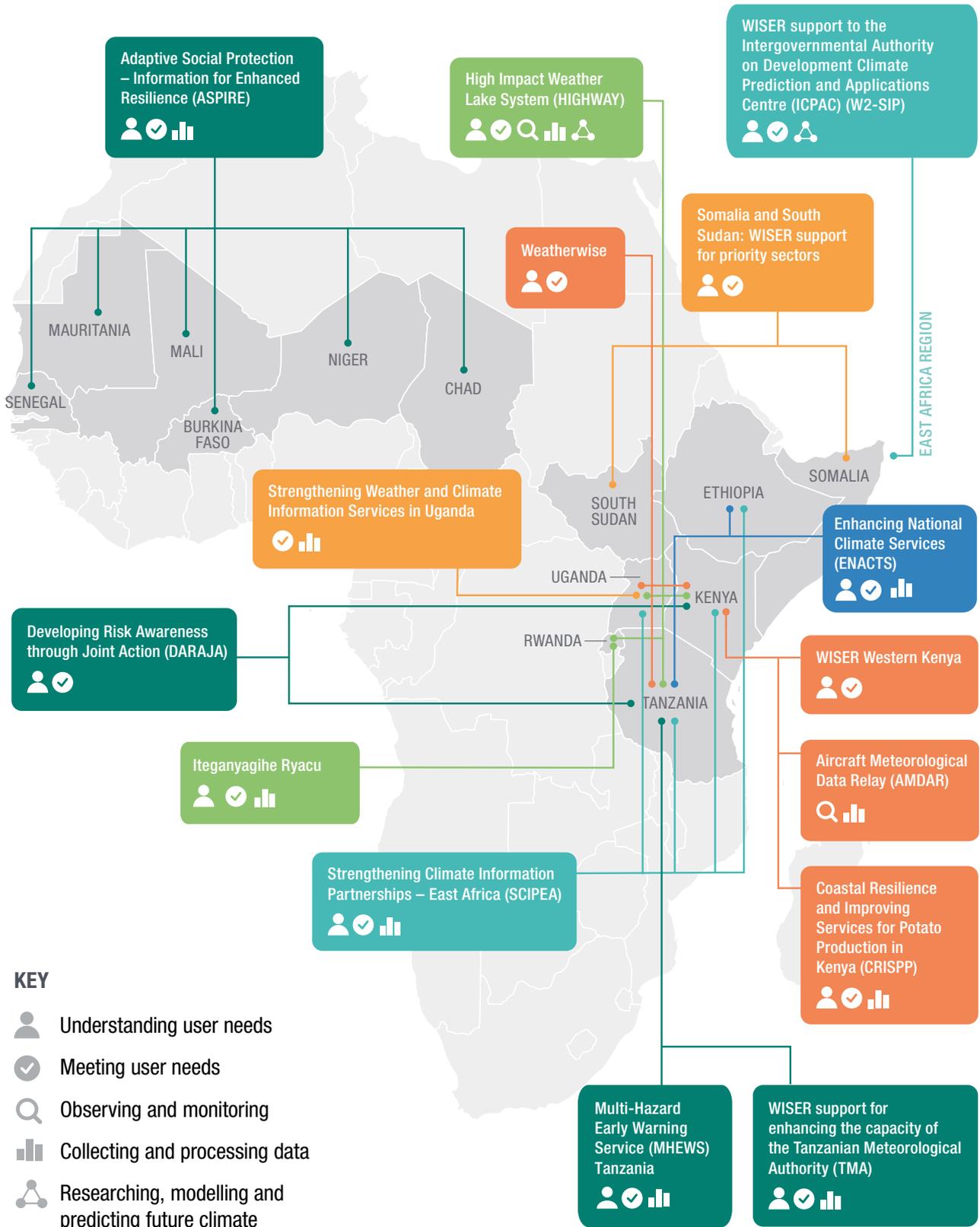
WISER experience demonstrates that investments geared to strengthening the capacity of national climate services can yield significant benefits during a project's lifetime. The 15 projects in the study refined people's skills, deepened their understanding and strengthened operational systems in some or all of the key areas highlighted by the World Meteorological Organization as being fundamental to effective climate services:

- understanding user needs
- meeting user needs
- observing and monitoring the weather and climate
- collecting and processing data.

The projects showed that it is possible to introduce life-saving early warning systems, such as alerting fishermen to hazardous weather, giving them time to move out of harm's way. They illustrated that it is possible to develop tailored and targeted information to support public health managers and agricultural extension services to be more climate-responsive. They empowered journalists to be more engaged and accurate reporters of the weather and climate, and to communicate with diverse audiences, from smallholder farmers to urban slum-dwellers, about the implications of climate variability and change. These initiatives are detailed at length in the associated technical report (Dupar et al., 2021).

Notwithstanding these significant near-term achievements, we also found that climate services risk showing diminishing returns after a project has ended. The good news is that WISER experience strongly validates findings in the broader case study literature about measures that climate services providers and their donors and allies can take to sustain the effectiveness of these investments beyond a project's life (WMO, 2014; Güingla, 2011).

**Figure 2 Location and scope of WISER climate services projects**



Note: The map includes the 15 WISER projects covered by our research study. Some projects (such as ENACTS) are or were active in other countries, but we only denote here the WISER-supported activities in the scope of this study. Please also note that box and line colours are to differentiate projects and do not convey meaning in themselves.

## Recommendations

National governments, international development partners and domestic climate service providers, such as research institutes and non-governmental organisations, should work together to achieve sustainable capacity in African climate services as follows (for a summary, see Figure 3).

### 1. Invest in human skills and capacity, both individual and organisational

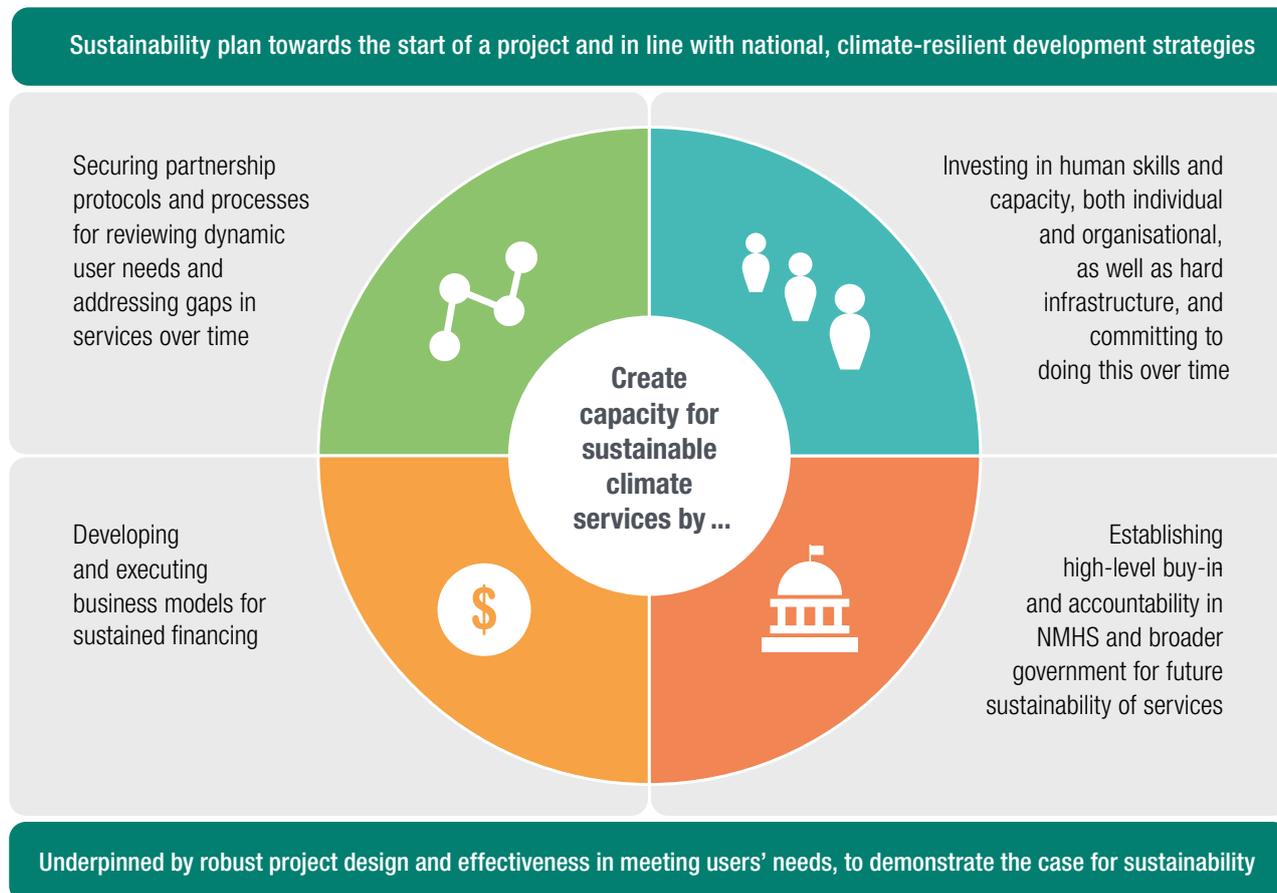
Make the commitment to invest consistently in human capacity, at both individual and organisational levels, as well as investing in hard infrastructure such as computers and observation equipment. Knowledge of climate systems is constantly improving and climate service providers need to keep up-to-date with scientific developments and forecasting and prediction skills.

### 2. Establish high-level buy-in and accountability

Secure recognition, across government, of the vital role played by sustainable, effective weather and climate information services now and in the future. This buy-in and accountability should not only be in national meteorological and hydrological services (NMHS), which are often at the forefront of delivering climate services, but also within broader government. Clearly demonstrating alignment of climate services investments with a country's broader climate services and development strategies helps strengthen stakeholder buy-in and increases the potential for these investments to be sustained.

The effective cross-sectoral functioning of climate services is essential to enable countries to cope with climate change. This depends on the robust performance of a publicly accountable NMHS, respected by and fully coordinated with other agencies.

**Figure 3** Creating capacity for sustainable climate services



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### **3. Secure partnerships, protocols and processes**

Be ready to review and respond to users' dynamic needs for weather and climate information over time – recognising that such needs are not static. Effective and sustainable development and delivery of climate services can involve a variety of actors, including NMHS, climate service users and knowledge intermediaries such as journalists, media houses or civil society organisations like farmers' groups and women's unions.

The delineation of complementary roles and responsibilities and commitment to cooperation should be clearly defined and approved at high level. This can require formal institutional partnerships (both political and financial) and plans between organisations for concrete collaboration, as well as refreshed information-sharing protocols and processes.

### **4. Ensure the equal voice of women and socially marginalised groups**

Partnerships and protocols for ensuring women, people with disabilities and other socially disadvantaged people are served effectively and equitably with weather and climate information must become part of 'business as usual' (where it is not already so). This is a critical element of delivering excellence in climate services – and their sustainability.

Although the Paris Agreement calls for climate change adaptation action to 'follow a country-driven, gender-responsive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems' (UNFCCC, 2015: Art. 7), measures to integrate gender-responsive and socially inclusive climate services are being left largely to chance in many countries and contexts studied.

### **5. Develop and execute sustainable business models**

Research and assess the feasibility of different revenue models for the sustainable financing of climate services over the long term. Where viable markets exist for commercialising climate services products, e.g. the sale of information products that are tailored for specific agricultural or industrial sectors, these should be pursued. For a national climate service as a whole, activities

may be supported by a blend of public funding and private finance. Private funding alone is only a partial answer and, even then, still has only emergent potential in the countries studied. A substantial share of a country's climate services offering will still be a 'public good' – providing weather and climate information to householders and small enterprises who benefit from it but cannot afford to pay – and so these aspects of climate services will require public funding.

### **6. Start developing a sustainability plan from the beginning**

Keep all the above elements of sustainable capacity in mind from the outset of a project or programme, with a view to establishing a sustainability plan early on. Such a plan will not work well if it is devised and tacked on towards the end. Sustainability planning can be an iterative process, which project teams can consider in the broader context of how a project is contributing to a region's or country's climate services capability. For projects aiming to drive innovation and experimentation in climate services, having a sustainability plan in place from the outset may not be practical. However, considerations around the potential sustainability of new innovations should nonetheless be an integral part of these projects, and inform strategies to scale them up.

### **7. Significant time and money are required to get it right**

Achieving all the elements of sustainable capacity described above is necessary, but it is a tall order. Most of the WISER projects studied lasted for only 18–24 months. This was often insufficient to lay the groundwork for sustainable capacity. Significant time and money are required, particularly for trusted professional relationships, networks and protocols to become well established and, where necessary, formalised.

Where development partners play a role, at the invitation of national government and national and local institutions, they should provide secure, predictable funding for longer periods to strengthen climate services capacity. Evidence from WISER suggests that multi-year investment is needed to achieve all the elements of sustainable capacity outlined

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above, even in a country with already well-established hydrometeorological capacity. Supplemental external funding may be required for considerably longer periods in low-income countries with very limited human resources and physical infrastructure.

### **8. Institutional mandates may require reform**

Vital aspects of domestic inter-agency coordination and partnership among government and other domestic actors can be difficult to achieve without reforming institutional mandates. This often involves establishing new Memoranda of Agreement and/or standard operating procedures. Often the people and institutions who are championing the agenda for sustainable climate services are low-ranking in government and do not have the authority or leverage to progress institutional reform.

### **9. Political leaders must champion the vital role of climate services if they are serious about adapting to climate change**

Political leaders must recognise the importance of achieving excellence in climate services delivery and champion the cause. Few political leaders have yet grasped the potential of climate services to permeate and strengthen almost all facets of national development in the face of a dynamic climate and changing hazards. Well-delivered climate services are a necessary part of disaster risk management and climate-resilient development, to avert or reduce (where complete avoidance is not possible) losses and damage from rapid-onset weather events and slow-onset events and climate change. Such services can also enable countries to make the best of opportunities for green economic growth. It is the work of national leaders to recognise and act on this integrated agenda.

## **References**

- Dupar, M., Weingärtner, L. and Opitz-Stapleton, S. (2021) *Investing for sustainable climate services: insights from African experience*. ODI Report. London: ODI ([www.odi.org/publications/17784-investing-sustainable-climate-services-insights-african-experience](http://www.odi.org/publications/17784-investing-sustainable-climate-services-insights-african-experience)).
- Güingla, R.M. (2011) 'Building sustainable regional climate information systems' *Climate Research* 47(1–2): 41–45 (<https://doi.org/10.3354/cr00959>).
- Kruczkiewicz, A., Hansen, J., Sayeed, S. et al. (2018) *Review of climate services governance structures: case studies from Mali, Jamaica, and India*. Working Paper No. 236. Wageningen: CGIAR research program on Climate Change, Agriculture and Food Security (<https://cgispace.cgiar.org/handle/10568/96255>).
- UNFCCC – United Nations Framework Convention on Climate Change (2015) The Paris Agreement, adopted 12 December (<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>).
- WMO – World Meteorological Organization (2014) *Annex to the implementation plan of the Global Framework for Climate Services – Climate Services Information System component*. Geneva: WMO ([https://gfcs.wmo.int/sites/default/files/Components/Climate%20Services%20Information%20System/GFCS-ANNEXES-CSIS-FINAL-14204\\_en.pdf](https://gfcs.wmo.int/sites/default/files/Components/Climate%20Services%20Information%20System/GFCS-ANNEXES-CSIS-FINAL-14204_en.pdf)).

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