Weather and Climate Information Services: a thematic evaluation across three regions

Final Report

Prepared by:

Kate CONROY – Team Leader

Lizzy McDONALD - Senior Climate MEL Expert

Dr. Katharine DOWNIE-NGINI - Senior MEL & Resilience Expert

Anna MARCET PUIG – Evaluation & Research Specialist

15 November 2024

Table of Contents

Acronyms

AMDAR	Aircraft Meteorological Data Relay project
APEX	Africa Programmes and Expertise Department
ARCAN	Africa Region Climate and Nature programme
ARRCC	Asia Regional Resilience to a Changing Climate Programme
BBC	British Broadcasting Corporation
BBCMA	British Broadcasting Corporation Media in Action
CARA	Climate Action for Resilient Asia programme
CARISSA	Climate Analysis for Risk Information and Services in South Asia project
CC	Climate Change
CDMS	County Directors of Meteorological Services
CDMU	Kenya County Disaster Management Unit
CIMMYT	International Maize and Wheat Improvement Centre (Centro Internacional de Mejoramiento de Maíz y Trigo)
CIS	Climate Information Services
CREWS	Climate Risk and Early Warning Systems
CRISPP	Coastal Resilience and Improving Services for Potato Production in Kenya
DARAJA	Developing Risk Awareness through Joint Action
DHM	Department of Hydrology and Meteorology
EGM	Evidence Gap Map
ET	Evaluation Team
EQ	Evaluation Question
EQUALS	External Quality Assurance and Learning Services
ENACTS	Enhancing National Climate Services
EWS	Early Warning System
FCAS	Fragile and Conflict Affected States
FCDO	British Foreign, Commonwealth and Development Office
FGD	Focus Group Discussion
GCF	Green Climate Fund (UN)
GDPR	General Data Protection Regulations
GERF	Global Europe Results Framework of the European Union
GESI	Gender, Equality and Social Inclusion
GHACOF	Greater Horn of Africa Climate Outlook Forum
GHG	Greenhouse Gases
HH	Household
HIGHWAY	High Impact Weather Lake System project
ICF	International Climate Fund
ICIMOD	International Centre for Integrated Mountain Development
ICPAC	IGAD Climate Prediction & Applications Centre
IBF	Impact Based Forecasting
IGAD	Inter-governmental Authority on Development
IMTR	Institute of Meteorological Training and Research
IP	Implementation partner
IWM	Institute of Water Modelling
KEMFSED	Kenya Marine Fisheries and Socio-Economic Development project
KII	Key Informant Interview
KMD	Kenya Meteorological Department
MEL	Monitoring, Evaluation & Learning
MENA	Middle East and North Africa
MHEWS	Multi-Hazard Early Warning Systems
MO	Meteorological Office
MS	Member State
MTR	Midterm Review

N/A	Not Applicable
NDMR	National Disaster Risk Management
NECJOGHA	Network of climate journalists of greater horn of Africa
NMHS	National Meteorological and Hydrological Services
ODA	Official Development Assistance
OH	Outcome Harvesting
PEA	Political Economy Analysis
PHENOMENAL	Pioneering a Holistic approach to Energy and Nature-based Options in MENA for Long-term stability
PMD	Pakistan Meteorological Department
QA	Quality Assurance
RCC	Regional Climate Centre
RCCC	Red Cross Climate Centre
REAP	Risk-informed Early Action Partnership
RIMES	Regional Integrated Multi-Hazard Early Warning System
SAAO	Sub-Assistant Agricultural Officer
SASCOF	South Asia Climate Outlook Forum
SCIPEA	Strengthening Climate Information Partnerships East Africa
SCIPSA	Strengthening Climate Information Partnerships for South Asia
SDTs	Service Development Teams
SMS	Short Message Service
SoC	Stories of Change
SoE	Strength of Evidence
SRO	Senior Responsible Owner at FCDO
TMA	Tanzania Meteorological Agency
ToC	Theory of Change
ToR	Terms of Reference
UK	United Kingdom
UKMO	United Kingdom Meteorological Office
UNHCR	United Nations High Commissioner for Refugees
UNMA	Uganda National Meteorological Authority
VFM	Value for Money
WHO	World Health Organisation
W2SIP	WISER support to ICPAC
WCI	Weather and Climate Information
WCIS	Weather and Climate Information Services
WFP	World Food Programme
WISER	Weather and Climate Information Services (FCDO programmes)
WMO	World Meteorological Organization
WRIP	WISER Resilience Impact

Executive Summary[1]

Evaluation overview, scope, objectives: This document comprises the evaluation report for the thematic evaluation of the Weather and Climate Information Services (WISER) portfolio, a suite of six programmes implemented by the United Kingdom (UK) Meteorological Office (UKMO) and its implementing partners (IPs). Three closed programmes form the focus of this evaluation with lessons informing three live WISER regional programmes.[2] Funded through the UK Foreign, Commonwealth and Development Office (FCDO)'s Research and Evidence Team and with oversight from FCDO, the evaluation was commissioned by FCDO in September 2023.

The document was completed by the Evaluation Team (ET) and includes a suite of wider detailed annexes. [3] The evaluation is learning focused and draws exclusively from the three closed WISER programmes in Africa and Asia (for background on these programmes see Annex 2), with key objectives around: synthesising evidence and learning, and results sustainability. Outside of the scope of the evaluation is evaluation of the three current WISER programmes and value for money (VFM) considerations. As requested by FCDO, this document is purposefully concise, has an assumed level of WISER knowledge for the reader, and includes wider explanatory annexes for further detail. Annexes are referenced in the text and contain critical information.

Evaluation implementation phase work began in January 2024 and included: the jointly developed WISER global theory of change (See Annex 11a); qualitative narrative analysis and synthesis, qualitative and quantitative primary data collection across Asia and Africa, thematic coding of evidence data sets; synthesis of findings; and various feedback sessions with stakeholders to test and validate findings. The **evaluation questions (EQs)** that framed this evaluation are given below.

EQ1: Which approaches have been more effective in co-producing useful, relevant, and accessible weather and climate information services (WCIS) across contexts? What lessons can be learnt for differing contexts (including Fragile and Conflict Affected States (FCAS)) and end-user inclusion?

EQ2: What were the key operational and delivery lessons learnt from implementing the WISER model across differing contexts for future programming?

EQ3: To what extent, and in what ways, were improved climate information services effective in informing decision making at the producer, intermediary and user levels?

EQ4: What factors, internal or external to the programmes, may have limited or accelerated the application of improved WCIS in decision-making for producers, intermediaries and users? What lessons can be learnt for delivery, in general and specifically in an FCAS context?

EQ5: Following the closure of the WISER 1&2 and of the Asia Regional Resilience to a Changing Climate Programme (ARRCC) programmes, what programme results have been sustained, in what ways, for whom? And why?

Revisions & Limitations: The ET's inception report outlined a detailed thematic evaluation approach and methodology, which has been revised over the course of the evaluation (See Section 2 and Annex 3). A range of primary data collection and related methodological changes were made. Limitations include the extent to which the findings are generalisable, documentation bias, Kenya primary data collection focus, lack of access to basic data in Bangladesh and Nepal and limited evidence availability on gender.

Evaluation Uses & Target Audience: The ET invested time in giving regular updates to core stakeholders (FCDO teams and UKMO) throughout the evaluation. To maximise the usefulness of the evaluation and in line with the methodological approach to ensure robustness and stakeholder participation, the ET offered a range of validation and debrief meetings to core stakeholders – to allow for teams to validate findings and recommendations, make sense of the evidence and

[1] This executive summary should be considered the evaluation digest as required by EQuALs and is written up to eight pages to include use of diagrams and quote for readability and uptake.

[2] These include the closed WISER regional programmes in Africa (WISER Africa1&2) and the WISER component of Asia (Asia Regional Resilience to Changing Climate ARRCC), with a view to informing live WISER programmes / components housed in wider regional programmes (Africa Region Climate and Nature - ARCAN, Climate Action for Resilient Asia - CARA, Pioneering a Holistic approach to Energy and Nature-based Options in Middle East and North Africa (MENA) for Long-term stability programme - PHENOMENAL).

[3] Detailed annexes where further detail can be sought include: Annex 1 – evaluation original terms of reference, Annex 2 - evaluation context, Annex 3 – evaluation methods, Annex 4 – list of documents reviewed, Annex 5 – list of people consulted, Annex 6 - data collection tools, Annex 7 to 8 - FCAS focused annexes, Annex 9 – Framework to inform future WCIS needs assessment, Annex 10 – WCIS intermediaries and end users' voices, Annex 11 - deliverables

recommendations and discuss these in relation to live programming. Initially this was only planned to be three separate workshops, but this increased to five. These were also complemented by a series of one-to-one or small group sessions reviewing findings and recommendations.

Data Collection included:

- **Document review and narrative analysis:** 62 documents across the portfolio analysed and coded.
- **112 Key Information Interviews (KIIs) covering a range of stakeholders and themes.** stakeholders consulted include representatives from: regional organisations (7), government agencies at national level (3) and sub-national level (13), National Meteorological and Hydrological Services (NMHS) (22), county level MO (5), Weather and Climate Information (WCI) disseminators including radio professionals (12) and Weather Mtaani Leaders (12), WISER IPs (16), WISER Monitoring, Evaluation & Learning (MEL) partners (2), UKMO (11), and FCDO (9). Themes discussed included: results, delivery model, lessons learned, sustainability, and co-production.
- **Deep-dive country data collection:** covering Bangladesh, Nepal and Kenya (four end user surveys in Bangladesh and Kenya, 20 Focus Group Discussion (FGD) in Kenya, WISER Political Economy Analysis (PEA) at country level for all three countries). These countries were selected based on the sampling as described in our Inception Report.
- **FCAS & humanitarian focused data collection:** covering WCI producers and intermediaries in Somalia and Yemen, as well as Rohingya in Bangladesh.
- **Observation:** members of the evaluation team also observed both the Greater Horn of Africa Climate Outlook Forum (GHACOF) and South Asia Climate Outlook Forum (SASCOF) forums.

Evaluation Approach Methods & Analysis: a mixed methodological approach was undertaken gathering evidence on what has been achieved by the programme across contexts, where it was sustained and the reasons why. Qualitative and quantitative data collection allowed us to explore in more detail *why* and *how* things happened.

Analysis processes included: (i) descriptive characteristics and categorisation of programme and external documentation to enable document quality analysis, including categorising evidence; (ii) thematic analysis was undertaken on qualitative data and descriptive statistical analysis for quantitative data; (iii) to surface emerging finding. Triangulation was used across qualitative and quantitative datasets to identify patterns. These were then developed findings and lessons learnt that were stressed tested over many sessions with both the FCDO and UKMO; (iv) Wider mapping of the WCIS PEA in three deep dive countries.

Very little Gender Equity and Social Inclusion (GESI) data was made available throughout the evaluation and when undertaking the document narrative analysis very little emerged regarding GESI. This lack of evidence has seriously limited what the ET has been able to summarise regarding GESI.

Findings & Lessons Learnt: Given that one of the primary purposes of this evaluation is to support learning and future programme design, the ET have provided evidence-based findings, lessons and recommendations, likely to be useful for future work.

EQ 1: WHICH APPROACHES HAVE BEEN MORE EFFECTIVE IN CO-PRODUCING USEFUL, RELEVANT, AND ACCESSIBLE WCIS ACROSS CONTEXTS? WHAT LESSONS CAN BE LEARNT FOR DIFFERING CONTEXTS (INCLUDING FCAS) AND END-USER INCLUSION?			
#	**Finding Statement**	**Strength of Evidence (SoE)**	**Contribution Claim**
1	The WISER approach of utilising existing regional organisations/bodies is effective and has enhanced national ownership and the strategic implementation of activities, but sustained capacity building and financial resources are needed to continue enhanced WCIS activities.	Medium high	**Partial Contributor:** WISER was not the only supporter of regional organisations
2	WISER has created a demonstration effect at the intervention level (in some contexts) internally and externally which has supported NMHS's in strengthening services and tools.	Medium high	**Partial Contributor:** WISER was not the only actor
3	Co-production processes (at all levels) are widely recognised as a valuable technique to support the development of useful and accessible WCIS and for sustainability. However, stakeholders across contexts confirmed that co-production processes were not synonymous with co-design and	High	**Key Contributor:** (For specific interventions, WISER was unique in bringing these to NMHS's)

EQ 1: WHICH APPROACHES HAVE BEEN MORE EFFECTIVE IN CO-PRODUCING USEFUL, RELEVANT, AND ACCESSIBLE WCIS ACROSS CONTEXTS? WHAT LESSONS CAN BE LEARNT FOR DIFFERING CONTEXTS (INCLUDING FCAS) AND END-USER INCLUSION?			
#	**Finding Statement**	**Strength of Evidence (SoE)**	**Contribution Claim**
	required significant time and financial resources to sensitise stakeholders to the value of the process.		
4	WISER support has enabled NMHS' to better understand their own WCIS data flows and ecosystem within government and develop broader relationships across departments, bringing added value to co-production processes.	Medium high	**Key Contributor:** For specific interventions, WISER was unique in bringing these to NMHS's

Taking a regional approach to delivering WISER programmes has worked.[4] WISER has been instrumental in strengthening NMHS and regional organisations, in WCIS in Asia and East Africa[5]. Evidence gathered shows that projects have enhanced technical capacities, created stronger climate data partnerships, and facilitated co-production of climate services[6]. Stakeholders across contexts highlighted the importance of learning from and through other regional or national partners, even when this took more programme resourcing itself. However, these initiatives require sustained investment in human and technical resources, particularly to keep data systems up-to-date and WCI infrastructure assets maintained. Financial challenges remain a critical concern, with regional forums (SASCOF and GHACOF) being largely too dependent on international donor support. For long-term viability, a diversified funding strategy will be required.

Co-production processes were highlighted as essential to the success of WISER, enabling more accurate, user-relevant climate services (supporting evidence of the evaluation hypothesis – *'co-production processes in the development and dissemination of WCIS lead to improved confidence in the delivery of services and decision making'*). However, the approach was not always embraced, requiring substantial resources to build trust and collaboration across contexts.

EQ2: WHAT WERE THE KEY OPERATIONAL AND DELIVERY LESSONS LEARNT FROM IMPLEMENTING THE WISER MODEL ACROSS DIFFERING CONTEXTS FOR FUTURE PROGRAMMING?			
#	**Finding Statement**	**SoE**	**Contribution Claim**
5	UKMO viewed as a very respected partner across stakeholder groups, with training and support consistently reported as valuable across NMHS and regional bodies supported in Asia and Africa.	Medium high	**Key Contributor:** Evidence reported across Africa and Asia and by varying stakeholders. For the FCAS evidence gathered, UKMO was alone in supplying technical assistance
6	There is evidence that WISER IPs who have proven track records and a good reputation, produced good results, and also increased the potential for both attracting other credible partners and future funding.	High	Not applicable (N/A)
7	IPs found it difficult to both focus on high quality technical activities and the production of materials demonstrating their success (communications and marketing activities).	Medium low	N/A
8	Historic MEL approaches, including independent evaluations, were limited and did not focus sufficiently on end-users or consider GESI.	Medium high	N/A
9	WISER has produced/supported WCIS for some FCAS and/or humanitarian settings and there is scope to enhance this offer.	Medium low	**Key Contributor:** For the FCAS evidence gathered, UKMO was alone in supplying technical assistance

The UKMO has played a pivotal role in supporting meteorological services across Asia and Africa[7]**.** Their collaborative approach, willingness to share technical resources, and partnership-building have been key to advancing climate services.

[4] Throughout the evaluation, the ET team refer to 'WISER' meaning the programmes in scope. WISER is known in various countries by various names.
[5] This confirms an output in the WISER Global theory of change developed collaboratively with FCDO and MO in February 2024, **Annex 11a**
[6] An Intermediate Outcome of the WISER Global Theory of Change.
[7] This is an Intermediate outcome from the WISER Global theory of change, and an evaluation hypothesis. **Annex 11a**

Stakeholders praised UKMO for facilitating relationships between regional and national stakeholders and promoting user involvement in weather information development, and the provision of on-going support when the programme ended. However, key learnings were noted e.g. the need for further engagement with field staff outside the capital was recommended to ensure the interventions were addressing challenges at all levels. There is evidence of UKMO technical support fostering innovation in multi-hazard early warning systems and anticipatory action planning.

Despite these successes, there are concerns regarding documentation and MEL processes. IPs found it challenging to balance technical work with communication and marketing activities, leading to missed opportunities to showcase successes. Furthermore, historical MEL approaches lacked sufficient focus on end-user feedback and GESI considerations. There were also significant gaps in baseline data, a paucity of independent evaluations, and quantitative evidence of project impacts. This limits the ability to assess the long-term sustainability and transformative potential of WISER-funded initiatives.

EQ3: TO WHAT EXTENT, AND IN WHAT WAYS, WERE IMPROVED WCIS EFFECTIVE IN INFORMING DECISION MAKING AT THE PRODUCER, INTERMEDIARY AND USER LEVELS?			
#	**Finding Statement**	**SoE**	**Contribution Claim**
10	UKMO introduced innovative assets, tools and systems to NMHS' which in general were well-received, although sustained use of these tools is not universal.	High	**Key Contributor:** WISER led specific innovative intervention and did this alone – without any other actor involvement
11	Provision of high-resolution, downscaled forecasts and WCI specifically tailored to the needs of end-users allowed critical preventive action to be taken to mitigate the effects of extreme weather events.	Medium low	**Contributor:** WISER was usually one actor amongst others
12	WCIS on their own are not completely effective in enhancing user-level resilience, without other supporting activities.	Medium low	N/A

UKMO introduced innovative infrastructure assets, tools and systems at the producer level (to NMHSs), which were generally well-received, though their sustained use has been uneven across different countries. This represents selective evidence of outcome and intermediate outcome level change in the WISER Global Theory of Change and selective evidence supporting the evaluation hypothesis – ***Household level end users of WISER interventions trust, access and use climate information which contributes to improving their resilience***. Some countries successfully leveraged these resources, whilst others faced significant challenges due to connectivity issues, financial constraints, and limited technical capacity. There are significant disparities in the uptake and use of meteorological data across different regions, highlighting systemic barriers, such as funding and infrastructure deficiencies, which are beyond the sphere of influence (and existing budgets) for WISER to influence.

Tracing intermediary level results from programme reports (e.g. logframe data) is more challenging although there are a range of strong impact stories generated from e.g. British Broadcasting Corporation (BBC) Media Action and Red Cross Red Crescent Climate Centre. This could be a function of the role of intermediary not initially being considered in the programme level Theories of Change (ToCs). However, through this evaluation we have captured a range of intermediary voices and outcome stories (See **Annex 10 and 11b**).

There is evidence that the provision of downscaled forecasts and tailored WCIS enabled end-users to take critical preventive actions against extreme weather events. Radio programmes under the WeatherWise initiative were particularly effective, helping communities make informed decisions about agriculture and fishing, as was wheat blast early warning systems in Nepal and Bangladesh. However, the broader success of WCIS in enhancing resilience at the user level was poorly evidenced – in part due to weak monitoring systems. See EQ5 findings for further details.

GESI – In ARRCC, we note that two of the 16 systems enhanced/tools developed specifically addressed gender and social inclusion needs (Impact Based Forecasting (IBF) pilot in Pakistan adapted communications channels based on female farmer preferences; IBF work in Nepal developed key vulnerability and exposure indicators which accounted for gender and demographics). In Africa, various projects also designed their tools and processes considering GESI (i.e. adjusting radio shows times to be at times to fit round women's domestic and livelihood activities).

EQ4: WHAT FACTORS, INTERNAL OR EXTERNAL TO THE PROGRAMMES, MAY HAVE LIMITED OR ACCELERATED THE APPLICATION OF IMPROVED WCIS IN DECISION-MAKING FOR PRODUCERS, INTERMEDIARIES AND USERS? WHAT LESSONS CAN BE LEARNT FOR DELIVERY, IN GENERAL AND SPECIFICALLY IN AN FCAS CONTEXT?			
#	**Finding Statement**	**SoE**	**Contribution Claim**
13	Evidence suggests that NMHS's were not sufficiently involved/consulted at the early stage of WISER project design.	Medium low	N/A
14	More evidence, (i.e. Business Case studies) needs to be produced to demonstrate the value of WCIS in other sectors such as Health, Urban Planning, Agriculture, etc., to enable NMHS' to make the case at national level for greater investment in the provision of timely and accurate WCIS. Existing evidence should be leveraged within FCDO to maximise impact of wider UK Government climate investments.	Medium low	N/A
15	Both external (COVID-19 and budget issues) and internal (UKMO structural constraints) factors had an impact on momentum, delivery timelines and the effectiveness of WISER.	Medium high	N/A
16	Short- and long-term delivery constraints were perhaps not always considered when designing NMHS support packages. There was also little evidence of UKMO/FCDO mapping of WISER to other FCDO / donor investments in WCIS, which could have ensured UK investment added value and sustainability	Medium high	N/A

Evidence gathered during the evaluation identified several high-level factors that influenced the application of improved WCIS. Key informants expressed the need for more inclusive consultation during the design phase of WISER, which could have improved the projects' reach and ensured adequate budgetary provisions, which may have led to more sustainable results. They emphasized the need for more comprehensive engagement with stakeholders across their own countries to improve the usefulness and uptake of WCIS. Evidence suggest that longer term delivery constraints were perhaps not factored in when initial packages of NMHS support was designed, which has ultimately had an impact on the longer-term viability and sustainability of WISER programme support across contexts. These have been more pronounced in FCAS.

Momentum of programme delivery naturally took time to build, and then was impacted significantly by external factors, such as the COVID-19 pandemic and FCDO budget reductions. These significantly affected the implementation of WISER projects, causing delays, reductions in project scope, and challenges in maintaining project continuity.

Key informants highlighted the need for better, more coordinated approach among FCDO, other donors, national governments, and local organisations to ensure sustainability and enhanced outcomes. A politically informed strategy that maps FCDO and donor investments in WCIS, and coordinates efforts across sectors could optimize the value of UK and other international investments, ensuring that WCIS are used effectively to support climate adaptation, particularly in vulnerable regions.

EQ5: FOLLOWING THE CLOSURE OF THE WISER 1&2 AND ARRCC PROGRAMMES, WHAT PROGRAMME RESULTS HAVE BEEN SUSTAINED, IN WHAT WAYS, FOR WHOM? AND WHY?			
#	**Finding Statement**	**SoE**	**Contribution Claim**
17	Closed WISER programmes do not appear to have been designed from the outset with a view to ensuring the sustainability of results, across the entire WCIS value chain	High	N/A
18	The 'readiness' of NMHS' and their on-going ability to take up or support improved WCIS assets, systems and processes was not always understood, and limited sustainability.	Medium high	N/A
19	Years after WISER programmes have ended, results and the mechanisms through which they have been delivered have been partially sustained for some users (i.e. producers, intermediaries and end-users). There remain significant sustainability challenges (financial and technical) and without ongoing support, these results are likely to taper off.	High	N/A

This evaluation highlights several issues related to longer term sustainability in the delivery and application of WCIS with no pattern of sustainability at producer, intermediary or user levels. Clear from evidence gathered today is that, while WISER projects successfully enhanced technical capacities at several levels, there was insufficient planning for the continuity of this work post-funding.[8] The expertise, capacity and technological improvements seen under WISER have, overall, reduced under the absence of clear sustainability plans and funding. The rotation of government staff and the lack of budgetary provisions for on-going training and maintenance of equipment further compounded these issues, leading to gaps in service delivery. These issues reflect a broader trend, as noted in external reports, of donor-funded interventions failing to provide strategies for sustainability, leaving developing countries dependent on international aid.

While some WISER interventions produced long-term benefits, the lack of sustainability planning has limited the lasting impact, putting gains made in technical capacity and climate service delivery at risk of erosion without continued financial and technical support.

Conclusions & Recommendations: The closed WISER programmes have successfully delivered results, enhancing the WCIS skills, processes, assets and confidence of stakeholders to generate and disseminate enhanced WCIS across a range of contexts. It is delivered by a near universally respected key technical partner, UKMO, who continues to be held in high regard by partners in some cases years after support has ended. It is notable that even when WISER has ended there are many instances of stakeholders highlighting how the relationship with UKMO remains.

The regional delivery approach purposefully designed by FCDO at the beginning of WISER has been successful in delivering results, even when there have been times that working through regional or national partners has taken more time and resources to deliver. This has created a demonstration effect that has further supported successful delivery. Substantial NMHS capacity gaps remain at country level. UK support alone will not address all of these needs. A more deliberate approach to financing technical capacity building at a national level is required.

Utilising co-production processes has supported WCIS producers and intermediaries in generating more accessible and usable WCI for end users delivered in formats, times and modalities that are easier, cheaper and more relevant to them. This, in turn, where the WISER projects focused on end users and gathering data from them, has been shown to make a difference on end users' lives. Even in challenging contexts, including FCAS and humanitarian settings, WISER has been successful in enhancing the WCIS ecosystems it worked within, and sometimes has been the only provider of services.

In some contexts, partners felt they could have been engaged earlier on and have been more involved in design processes. There is also clear evidence that the wider operational environment and longer-term exit strategies for WISER support were not always considered as project support was designed and delivered. GESI and MEL (including wider needs assessment and political economy analysis) were core limiting delivery factors that impacted on WISER delivery and WISER being able to evidence its supported changes. Covid and budgeting fluctuations too impacted on momentum and results. Today, there continue to be intermediaries and end users still using WISER supported WCIS to inform household and livelihood decisions. NMHS in many contexts still use WISER supported tools and processes.

Understandably given the scale, differing contexts and changing operational environment, challenges remain. Sustainability of processes, tools, and systems, in some cases two or four years after funding has finished have tapered off without on-going inputs and are likely to continue to do so without further support. Understandably disappointing for WISER recipients who have built momentum within their own ecosystems to generate and disseminate improved WCIS. Improvements in designing for sustainability (in terms of project selection matching needs and political contexts as well as future financing strategies) are necessary. Certainly, exit strategies and more holistic assessment could have been undertaken but the complex, dynamic, and multi-stakeholder WCIS value chains within each operational environment are well beyond the resources of WISER to significantly change, over time, permanently.

While FCDO are positive about WISER and it appears to be considered a highly effective programme, there are gaps in how FCDO manages and communicates WISER internally. As WISER continues and expands into new contexts, consideration needs to be given to whether UKMO has all the in-house skills and level of resources needed to deliver complex multi-faceted programmes. This is particularly the case for working on the last part of the Hydromet value chain - enhancing end user resilience.

[8] A question this raises is how far UKMO/ WISER would be responsible for sustainability of investments when programme support ends and is a question for FCDO and UKMO to resolve.

Significant opportunities exist for WISER to continue to deliver good support to partners to enhance WCIS, in a locally relevant way, across new operational contexts, informed by some of the key lessons generated by this evaluation and enhanced MEL moving forward.

Recommendations based on evidence and findings gathered in the evaluation are provided below grouped across four key areas, linked back to findings and marked for specific audiences.

#	Recommendation	Related findings (code)	Intended audience
BUILDING COHERENCE, LEVERAGING IMPACT			
1	**FCDO needs to take an active role in identifying and linking to wider FCDO programmes (at a country as well as regional / global level) both during WISER and after FCDO funding ends** to build cohesive and coherent programming and sustainability. This may require a strategy to clearly support the delivery of this and dedicated personnel, as it will include engagement across FCDO on many fronts. FCDO could work towards this by improving internal communications across its departments / regional programmes to build a coherent plan for the use of WISER data and evidence (to inform current and future programmes). FCDO and UKMO also need to work together on developing a wiser partnership strategy, based on a meaningful and targeted stakeholder strategy. This would need to be live and opportunistic as well as planned and agreed, meaning active management of the strategy. This should become a key part of programme delivery across regions and part of the Global WISER ToC as well as the regional ToCs.	14, 16, 17	FCDO
2	**NMHS's can amplify their impact by working in partnership with intermediaries, particularly those ones that have experience in enhancing the resilience of end users.** However, attracting, vetting and co-ordinating potential partners requires significant skills, funding and support. FCDO needs to ensure that provision for this work is included in budgets. UKMO can support NMHS during programme implementation by assisting them to identify potential credible partners. **This may require skills beyond those currently existing within UKMO, including humanitarian / social protection, conflict specialists, gender and more MEL.** This will not only enhance opportunities for better results during implementation, but also improve future funding prospects.	6, 7, 16, 18, 19	UKMO FCDO
3	**Enhanced communication of WISER supported Change Stories and showcasing of results:** provision (budget and experienced team members) needs to be made in the WISER programme to include **dedicated evidence, learning and strategic communications component**. This not only showcases WISER achievements, but also enables IPs to provide potential partners and future donors/funders with high quality examples of their successes. It could also support FCDO being able to better communicate internally about WISER.	8, 14	UKMO FCDO
DESIGNING FOR SUSTAINABILITY			
4	**Enhancing strategic programming and capacity building** - UKMO to FCDO secondments should be continued and operate in reverse. FCDO secondments to UKMO could help accelerate UKMO capability building on 'managing and delivering development'.	14	UKMO FCDO
5	**NMHS need to be actively involved at the early stage of project design and development,** to enable them to make provision in their national and sub-national budgets for the maintenance, protection and sustained use of assets and outputs achieved under WISER. Or to make the case for external investments to NMHS to support longer term sustainability (i.e. Green Climate Fund (GCF) funding, Climate Risk and Early Warning Systems (CREWS) etc.).	2, 3, 4, 13, 16, 17	UKMO
6	**FCDO should design WISER programmes embedding appropriate partners from the outset -** to ensure appropriate and sustained results. For example, if changes in livelihood strategies are likely to be necessary, relevant partners should be engaged early (and funding mechanisms planned to ensure their ability to operate post WISER).	6, 7	FCDO

	Sustainability and approaches to delivering it must become part of programme delivery. All current regional programmes (and their component parts) need to be assessed as soon as possible for how sustainable activities / results are beyond FCDO funding / when they end. An active Sustainability Delivery Strategy, with dedicated resources and personnel and check in points on the workplan, needs to be developed.		
7	**If resilience remains a core WISER global goal, and as WISER expands into new operational contexts, including FCAS and humanitarian settings, a gap analysis of UKMO skills needs to be undertaken to identify if all the expertise exists in UKMO to deliver this.** Where gaps are identified (for example, resilience, humanitarian, GESI / MEL) these need to be filled either within UKMO or with dedicated delivery partners.	5, 8, 9, 12	FCDO UKMO
TAKING A POLITICALLY INFORMED APPROACH TO DESIGN AND DELIVERY			
8	**WISER programming across geographies must be informed by WCIS informed PEA and should be aligned with national WCIS policies, plans and commitments** (e.g., NDCs, NAPs) and a deeper understanding of WCI flows. Future interventions could: ▪ Be integrated into the wider FCDO / donor landscape and the enabling environment, i.e., which other donor current investments could be enhanced by WISER, which investments in the future could have greater impact due to provision of WCIS. ▪ Reflect national demand but also consider the capacity of NMHS to take up WCIS interventions. If they require additional support, budgetary provision should be ensured or links to other support identified. ▪ Ensure that the value of WCIS and processes to support it to all stakeholders (producers, intermediaries and end-users) is understood. For co-production to be a successful technique which is leveraged to encourage the buy-in of stakeholders, there must first be consensus on the value of that which is being produced. Sensitisation of stakeholders requires time and financial resources, which need to be funded as part of a WISER project. ▪ Be co-designed by relevant stakeholders who understand the added value of their involvement. ▪ Include in the design and budget continuous feedback loops between service providers and users, and scope for adjustment of activities, should feedback illustrate the need.	4, 6, 8, 9, 12	FCDO UKMO
9	**To deliver sustainable impacts, GESI should be integrated from the needs assessment stage to ensure that climate services address the diverse needs of all community members**. This then needs tracking to understand what adjustments to programming are made, with GESI also forming a part of how the programmes are adaptively managed. FCDO should consider asking UKMO to appoint a specialist gender partner (which would be normal for a programme of this size) and/or appoint GESI specialist in each region to support the programme. If a WISER Global Evidence & Learning Partner is considered (see Recommendation 10), this could be part of that facility. FCDO and UKMO will need to work in partnership on this to develop a viable solution.	8	FCDO UKMO
IMPROVING MEL APPROACHES, USING RESULTS FOR WIDER PURPOSES			
10	**FCDO should ensure financial provision is sufficient for UKMO to invest in a strengthened approach to MEL, including downstream partners** – particularly, establishing robust baselines and consistent monitoring and evaluation systems - crucial for accurately assessing the impact of climate services. This must include end users. As a second phase of regional programmes has been supported by FCDO and the level of investments to date, this is a critical recommendation to respond to. Beyond UKMO MEL budget and personnel strengthening, other options could include: ▪ Requesting that the externally contracted MEL partners of the regional programmes that the WISER component sit under today, include end user data collection in their programmed activities	8, 19	FCDO UKMO

	▪ Developing a WISER Global Evidence & Learning facility that could plan to gather data across all regional programmes. Data could be collected at 5 – 10 sites routinely (every six months) tracking resilience / end user data longitudinally. This does not have to be statistically significant – i.e. 100 household per site (with 20% changing per visit to mitigate bias to those households / villages) but most importantly would happen over time, building up a significant data set. Interesting findings that emerge, could then be responded to with one off studies that would be more rigorous. The ET have shown that with the right local partners this does not have to be an expensive exercise		
11	**Investment in end-user resilience skills and / or partnerships for WISER / UKMO** – during the evaluation, in an early set of recommendations, the ET suggested reducing the value chain in WISER programming, so it did not include hope for change at an end user resilience level, as this has been so difficult to evidence robustly to date. This was rebuffed by both the FCDO and UKMO. That being the case, FCDO should ensure that sufficient budget and technical capacity is available for UKMO to design, manage and implement activities aimed at enhancing end user resilience. This includes the need to have skills and resources to measure and report against resilience measures.	5, 9, 12	FCDO UKMO
12	**FCDO should review results measurement approaches** with WISER style programming. Current approaches appear to incentivize UKMO to report output level results with less attention on outcome level change and very little incentive to triangulate results with independent third-party monitoring or evaluation.	8	FCDO
13	**FCDO should consider adopting a set of core indicators across WCIS programming** which could also be reported to global initiatives e.g., Early Warning for All Initiatives and/or Climate Risk and Early Warning Systems indicators, and indicators which are aligned to the SDGs and the Global Europe Results Framework (GERF) of the European Union.	8	FCDO

1. Introduction

This document comprises the Evaluation Report for the Thematic Evaluation of the Weather and Climate Information Services (WISER) portfolio, a suite of six programmes implemented by the UK (United Kingdom) Meteorological Office (UKMO) and its implementing partners (IPs), three of which are closed programmes and three of which are ongoing.[9] Funded through the UK Foreign, Commonwealth and Development Office (FCDO)'s Research and Evidence Team and with oversight from FCDO WISER programmes teams, the evaluation was commissioned by FCDO in September 2023.

The evaluation is learning focused and draws exclusively from the three closed WISER programmes in Africa and Asia (for background on these programmes see Annex 2), with key objectives around: synthesising evidence and learning, and results sustainability. Outside of the scope of the evaluation is evaluation of the three current WISER programmes and value for money (VFM) considerations. The document was completed by the Evaluation Team (ET). As requested by FCDO, it is purposefully concise, has an assumed level of WISER knowledge for the reader, and includes wider explanatory annexes for further detail. Annexes are referenced in the text and contain critical information.

1.1. Evaluation Overview, Scope, Objectives

The evaluation is learning focused and draws exclusively from the three closed WISER programmes in Africa and Asia (for background on these programmes see Annex 2), with key objectives around:

- Synthesising evidence and learning from across WISER programmes and geographies, including fragile and conflict affected states (FCAS), where feasible
- Identifying where results have been sustained and why, and where they have not, why
- Generating useful evidence-based insights that may be useful as current WISER programmes scale and are delivered.

Outside of the scope of the evaluation is evaluation of the three current WISER programmes, VFM considerations and generating generalisable findings.

The evaluation questions (EQs) that framed this evaluation are given in Box 1. These were decided and agreed with FCDO during the inception phase of the thematic evaluation.

Box 1: Evaluation Questions

EQ1: Which approaches have been more effective in co-producing useful, relevant, and accessible weather and climate information services (WCIS) across contexts? What lessons can be learnt for differing contexts (including FCAS) and end-user inclusion?

EQ2: What were the key operational and delivery lessons learnt from implementing the WISER model across differing contexts for future programming?

EQ3: To what extent, and in what ways, were improved climate information services effective in informing decision making at the producer, intermediary and user levels?

EQ4: What factors, internal or external to the programmes, may have limited or accelerated the application of improved Weather and WCIS in decision-making for producers, intermediaries and users? What lessons can be learnt for delivery, in general and specifically in an FCAS context?

EQ5: Following the closure of the WISER 1&2 and of the Asia Regional Resilience to a Changing Climate Programme (ARRCC) programmes, what programme results have been sustained, in what ways, for whom? And why?

It should be noted that although the three current WISER programmes were not included in the evaluation, at the request of the FCDO, lessons for FCAS contexts were sought wherever possible, and so some key informant interviews (KIIs) were conducted with key stakeholders working in FCAS contexts under the current programmes.

1.2. Evaluation Activities, Revisions and Limitations

Evaluation Activities: work on the evaluation implementation phase began in January 2024 and included: the jointly developed WISER global theory of change (See Annex 11a); qualitative narrative analysis and synthesis, qualitative and

[9] These include the closed WISER regional programmes in Africa (WISER Africa1&2) and the WISER component of Asia (Asia Regional Resilience to Changing Climate ARRCC) and the live WISER programmes / components housed in wider regional programmes (Africa Region Climate and Nature - ARCAN, Climate Action for Resilient Asia - CARA, Pioneering a Holistic approach to Energy and Nature-based Options in Middle East and North Africa (MENA) for Long-term stability programme - PHENOMENAL).

quantitative primary data collection across Asia and Africa, thematic coding of evidence data sets; synthesis of findings; and various feedback sections with stakeholders to test and validate findings. The evaluation was originally designed to inform the early stages of the three current programmes but due to delays in procurement, it will now support lessons learnt for live programming.

Revisions and limitations: the ET's inception report outlined a detailed thematic evaluation approach and methodology, which deviated from the original evaluation terms of reference (See Annex 1) and was further revised during the evaluation implementation, all in agreement with FCDO (See Section 2 and Annex 3). A range of primary data collection and related methodological changes were made. Limitations included the extent to which the findings are generalisable (most WCIS are context specific and caution is needed when seeking to transfer ideas and lessons from one context to another); documentation bias (we received a large volume of reports, the majority of which were written by intervention designers or implementors – not independent); Kenya primary data collection focus (with positive engagement from Kenya teams we were able to collect data here; other options were very limited); lack of access to basic data in Bangladesh and Nepal (we were not able to trace Agricultural Extension Officers or the Districts where they operated as the IP did not share this data after multiple attempts) and limited evidence availability on gender (whilst this was a critical element of the evaluation, there was very little evidence in reports). Stakeholder engagement: despite repeated attempts with several National Meteorological and Hydrological Services (NMHS) or specific country stakeholders, we were unable to get interviews with them. This has limited our ability to confirm WISER project reporting or gather further evidence from a wider contextual base.

1.3. Evaluation Uses and Target Audience

The ET invested time in giving regular updates to core stakeholders (FCDO UK and regional teams and UKMO) throughout the evaluation. The ET have also made offers to brief incoming Monitoring, Evaluation and Learning (MEL) team for the live Climate Action for Resilient Asia programme (CARA) and share the document library collated for this evaluation with UKMO and FCDO.

To maximise the usefulness of the evaluation and in line with the methodological approach to ensure robustness and stakeholder participation, the ET offered a range of validation and debrief meetings to core stakeholders – to allow for teams to validate findings and recommendations, make sense of the evidence and recommendations and discuss these in relation to live programming. Initially this was only planned to be three separate workshops, but this blossomed into five with individual FCDO and UKMO also undertaken. After each session the slides were shared, and further feedback was invited via a survey or direct feedback to maximise participation. These were also complemented by a series of one-to-one or small group sessions reviewing findings and recommendations. This resulted in significant changes being made from the initial sessions to the last based on this feedback.

Table 1 comprises an overview of knowledge products and deliverables planned during the Inception phase and updated for the implementation phase. Targeted stakeholders are also provided in the table.

Table 1: Deliverables & Target Audiences *(* = deliverables included in this report)*

Deliverable	Targeted Stakeholders	Actual delivery
Summary slide deck of portfolio Theory of Change (ToC) workshop	FCDO teams, UKMO, MEL Delivery partners	▪ Developed in a participatory manner through three workshops (including one face to face) - Jan-Feb 24 ▪ Shared portfolio ToC (deck and narrative)) - March 24
Emerging findings slide-deck	FCDO Senior Responsible Owner (SRO) and UKMO	Shared 5 Sep 24
*Validated ToC and evidence mapping	FCDO teams and UKMO	Suggestions to update the portfolio ToC shared – alongside ideas for further action/evidence strengthening (Annex 11a)
*Thematic Stories of Change	FCDO teams, UKMO, MEL Delivery partners, and wider FCDO staff	Three Stories of Change delivered (Annex 11b)
*Validation workshop with key stakeholders	FCDO teams, UKMO, and MEL delivery partners	▪ Asia workshop (14 September 2024, 31 people) and post workshop discussions with FCDO Asia ▪ Africa workshop (22 September 2024, 30 people) ▪ FCDO workshop (5 September 2024, 5 people) ▪ UKMO workshop (11 September 2024, 9 people)

Deliverable	Targeted Stakeholders	Actual delivery
		(See example of validation workshop slide decks in Annex 11d)
*Final report	FCDO teams, UKMO, and MEL Delivery partners	Delivered (September 2024)
Regional slide deck	UK Embassy teams and FCDO teams	Regional slide-decks were produced and delivered in regional validation workshops
*Evaluation Digest	FCDO teams, UKMO, MEL delivery partners, and FCDO evaluation and climate cadres	Executive Summary of the evaluation report, expanded to eight pages to be able to contain graphics for usability and uptake
2 monthly evaluation team email updates	FCDO teams, UKMO, and MEL delivery partners	This was replaced with bi-weekly calls with FCDO and UKMO to share emerging updates and seek advice/steers.
Data[10] and documents registry	Newly appointed CARA MEL team, and interested UKMO / FCDO stakeholders	This is completed and has been offered to UKMO and FCDO

1.4. Evaluation Management

The ET included an all-female core team: Kate Conroy (Team Leader covering evaluation design, technical oversight and quality assurance); Lizzy McDonald (Evaluator & Senior Climate MEL Expert covering WISER Asia oversight and primary data collection), Dr Katharine Downie-Ngini (Senior MEL & Resilience Expert covering WISER Africa oversight and primary data collection) and Anna Marcet Puig (Evaluation & Research Specialist covering primary data collection, analysis and synthesis). We also worked with established local data collection partners in Bangladesh (Data Management Aid), Kenya (Sababi Institute Ltd) and Nepal (GyanBodh Research and Development Services). Programme management support came from the WISER Evaluation Consortium, which is led by Tropical Health and one of its consortium partners, GFA Consulting Group. There are no known conflicts of interest across any of the team or consortium partners. The following sections include:

- Section 2: Methods & Analysis
- Section 3: Findings
- Section 4: Conclusions & Recommendations
- Section 5: References
- Section 6: Annexes (listed in this section and submitted as an accompanying folder)

[10] Headline tables from the quantitative surveys.

2. Methods & Analysis

Below we present our final evaluation methods and analytical approach, which was revised during the evaluation implementation due to several considerations, including availability of data and stakeholders and opportunities that presented themselves. Further details on this can be found in Annex 3.

2.1. Evaluation Approach

A mixed methodological approach was undertaken gathering evidence on what has been achieved by the programme across contexts, where it was sustained and the reasons why. Qualitative and quantitative data collection allowed us to explore in more detail *why* and *how* things happened. Data collection tools were developed based on evaluation hypothesis developed during the inception phase and all tools were refined and piloted locally. The team used thematic qualitative analysis, descriptive statistical analysis, WCIS PEA and triangulation. Table 2 provides an overview of the evaluation framework, please note that the data collection and analysis and synthesis process are related to all evaluation questions to a greater or lesser degree.

Table 2: Evaluation Framework

Data Collection	Analysis & Synthesis
Primary data was gathered through remote KIIs, and in-country qualitative and quantitative data collection in Bangladesh, Kenya, and Nepal (so called deep-dive countries). It covered projects across the three WISER historic programmes. This included: ▪ **112 KIIs** across a wide range of stakeholders across contexts including producers, intermediaries and end users of WCIS Themes covered included results, delivery model, lessons learned, sustainability, and co-production.[11] ▪ **4 quantitative surveys** including Weather Mtaani contacts and farmers, pastoralists, fisherfolk, and fisher sellers in Kenya, and Farmers, Sub-Assistant Agriculture Officers (SAAOs), and Rohingya in Bangladesh. ▪ **20 Focus Group Discussion (FGD)** with farmers, pastoralists, fisherfolk and fisher sellers in Kenya. ▪ **Observation at Greater Horn of Africa Climate Outlook Forum (GHACOF) and South Asia Climate Outlook Forum (SASCOF).** **Secondary data** was a significant part of the evaluation in the form of programme, project and MEL partner data and documents, as well as wider literature on WCIS, organisational strengthening and end user uptake or other lines of enquiry that may emerge. **Observation:** members of the evaluation team also observed both the GHACOF and SASCOF forums. See Annex 3 for additional information.	From a library of 160 documents (including 148 programme documents and 12 wider literature documents), the ET coded and analysed 62 documents as part of the literature review (see Annex 3 for further details). Thematic qualitative analysis, descriptive statistical analysis, WCIS PEA and triangulation for the three deep dive countries, and various participatory validation processes (regional workshops, one to one interviews, stakeholder focused workshops). Analysis on strength of evidence provided for evaluation findings. Light-touch contribution analysis for relevant EQs. Thematic Stories of Change (SoC) based on primary data gathered during the evaluation as well as secondary data. Rapid literature review of WCIS in FCAS.

Table 3 provides a more detailed overview of data collection in the three deep-dive countries. Note that approval was sought and obtained in the two countries where end-users' information was collected, and all data collection tools were piloted and refined in each context.

[11] Stakeholders consulted include representatives from: Regional organisations (7), Government agencies at national level (3) and sub-national level (13), NMHS (22), County level Met (5), WCI disseminators including radio professionals (12) and Weather Mtaani Leaders (12), WISER IPs (16), WISER MEL partners (2), UKMO (11), and FCDO (9). Themes discussed included: results, delivery model, lessons learned, sustainability, and co-production.

Table 3: Deep-dive countries - Overview of data collection

Evaluative Focus	Numbers Surveyed / Interviewed
Bangladesh	
Wheat Rust (International Maize and Wheat Improvement Centre - Centro Internacional de Mejoramiento de Maíz y Trigo - CIMMYT): focused on wheat farmers and SAAOs in wheat rust coverage areas, their supply and use of WCI and action they may make as a result of WCI	Quantitative surveys with 43 SAAOs (5 female / 38 male) and 45 wheat farmers (all male) across Pabna, Meherpur, and Rajshahi districts
Rohingya: the focus of the survey was to understand WCI flows in humanitarian environments	Quantitative survey with 110 people (84 Male / 26 Female)
Kenya	
DARAJA (Developing Risk Awareness through Joint Action (Resurgence & Konkuey Design Initiative (KDI)): the focus of the survey was to gather data from a set of contacts that current Weather Mtaani passed weather forecasts and other WCI to, and how they use it.	Completed by phone: ▪ 12 KIIs with Mtaani ▪ Quantitative survey with 134 Weather Mtaani contacts who mainly live in Kibera[12]
WeatherWise (British Broadcasting Corporation (BBC) Media Action): the purpose of this survey was to understand how individuals – especially those living in an area dominated by fishing and farming livelihoods – received and used WCI, both during the WeatherWise programme's implementation and following it.	Completed around the Lake Victoria, fieldwork took place in a range of communities, concentrated in Kendu Bay town and Seka, followed by Alego Kamser, Kabongo, Kanam, Kanjera, and Ochot Odong. ▪ Quantitative survey with 293 (119 male / 174 female) people around Kenya Bay with a focus on provision of WCI through radio ▪ 12 KIIs with journalists who were trained and supported under WISER/ BBC WeatherWIse ▪ 20 FGDs with male and female and mixed-groups with male and female farmers, pastoralists (total 109 participants, 47 male and 62 female)
Additional stakeholder KIIs were undertaken with local Kenya Meteorological Department (KMD) officials and Kenya County Disaster Management Unit (CDMU) to better understand WCI flow. These were seen as critical actors- both intermediaries and producers of WCI and part of the wider enabling environment.	▪ 6 KIIs with CDMU members ▪ 5 KIIs with county level KMD staff

2.2. Analysis

Political Economy Analysis

Enhancing WCIS to ultimately improve resilience outcomes at a household level, involves a long and complicated causal chain, with many actors and contributing factors. Understanding the wider enabling environments, that supported or limited outcomes, is critical to understanding what worked and why. We undertook a WCIS focused PEA at deep-dive country level and WISER portfolio. Summaries for the three deep-dive countries are submitted with this report.

Other Analysis

Other analysis processes included:

- Descriptive characteristics and categorisation of programme and external documentation to enable document quality analysis, including categorising evidence, which was mainly undertaken in the inception phase.

[12] Mtaani contacts are concentrated very heavily in the Kibera area. 96% of the sample come from four wards that overlap – in part or in whole – with Kibera. Most respondents were in Lindi, Makina, and Laini Saba (all three of which are part of the core of Kibera), Sarang'ombe (which includes western portions of Kibera), and Nyayo Highrise (to the east of Kibera) wards.

- Thematic coding of selected documents and KIIs: To support accuracy and robustness in our evaluation findings, we developed an initial high-level code set for all qualitative data sources, as this allowed us to analyse and categorise data more efficiently, supporting later synthesis across qualitative and quantitative data sets. These were framed around the EQs and evaluation hypothesis, piloted with 10 selected programme documents, and refined.
- Descriptive statistical methods: quantitative data were analysed using descriptive statistical methods. Measures of central tendency (mean, median, and mode) and measures of dispersion (range and variance) were calculated to summarise the key characteristics of the data. Descriptive statistics, such as frequencies and percentages, were used to describe the distribution of categorical variables (Pallant, 2020).
- Strength of evidence: using the process above allowed us to develop an 'evidence package' mapped against EQs and outcome hypothesis. This evidence package may include conflicting opinions. It was synthesised to generate robust evaluation findings using a Strength of Evidence (SoE) approach that the ET developed using a coded scale denoting the SoE.

Gender, Equality and Social Inclusion (GESI)

As with every FCDO supported piece of work, GESI was a required aspect to be reviewed within the evaluation. We understood prior to undertaking the evaluation that various studies carried out across WISER geographies may have collected data that can be disaggregated. Unfortunately, there was very limited access to these historic datasets, and when undertaking the document narrative analysis, very little emerged regarding GESI apart from the need to do more to mainstream GESI into WISER programming, although there were notable exceptions. This lack of evidence has seriously limited what we have been able to summarise regarding GESI. That being said, from an evaluation process perspective, GESI considerations were embedded throughout the evaluation in the design/delivery and analysis stages.

Stories of change

We also developed three stories of change (SoC) (see Annex 11b) that emerged from the evidence gathering phase:

- A Pakistan SoC that focused on WISER support through two core projects (Impact Based Forecasting (IBF) and climate grids) and Pakistan Meteorological Department's scaling up of activities following the end of WISER
- A Somalia SoC that outlined the regional and national WISER activities that contributed to the enabling environment that is supporting Met services coming under one agency and ministry
- A Kenya SoC that focused on WISER support to intermediaries and end users in Kenya covering DARAJA and WeatherWise projects.

2.3. Validation with key stakeholders

Following the data collection phase, we validated with key stakeholders the findings generated through a series of participatory engagements. Participants selection was based on availability of attendees. Validation workshops included:

- In August 2024, two regionally focused workshops which included a mix of stakeholders who participated in the evaluation. The Asia focus validation workshop was attended by 19 stakeholders including representatives from UKMO, FCDO, CIMMYT, Red Cross Climate Centre (RCCC), International Centre for Integrated Mountain Development (ICIMOD). The Africa focus validation workshop was attended by 24 stakeholders including representatives of UKMO, Inter-governmental Authority on Development (IGAD), Intergovernmental Authority on Development Climate Prediction & Applications Centre (ICPAC), KMD, and Tanzania Meteorological Agency (TMA). During and following each workshop stakeholders were asked to provide feedback on findings and recommendations shared.
- Various focused meetings with FCDO, UKMO and WISER stakeholders at both regional and higher levels following the regional workshops to further validate and refine recommendations in particular.

2.4. Quality Assurance

Quality assurance took place on several levels, including at field level, for primary level data collection and collation, as well as at core ET and consortium level. A draft version of this report was reviewed by the FCDO External Quality

Assurance and Learning Services (EQUALS). In addition, the ET consortium partners have worked closely to provide additional quality assurance (QA) and oversee contractual compliance and effective due diligence for the whole team.

2.5. Ethics & Safeguarding

The evaluation adhered to the FCDO Ethics Principles for Research and Evaluation (FCDO 2020) and all related key principles, including informed consent, anonymity of data etc. Data is held on secure, password protected sites. Our team adhered to strict data management protocols in compliance with the UK General Data Protection Regulations (GDPR). The ET followed Do No Harm principles throughout. No renumeration was offered for participation in any of the data collection exercises.

The ET was able to work freely and without interference of any actor. The ET had no conflicts of interest.

3. Findings

The findings below are organised by EQ, drawing on examples from across the WISER portfolio and geographies. Each EQ is responded to in turn, beginning with a summary statement and key findings and then supporting evidence. Given the scale of evidence collected, collated and synthesised, the ET have selected for inclusion in this report, the most relevant findings of use and reflection in relation to existing programmes. Findings have often been grouped by regional geography to make it easier for respective readers to find evidence of relevance to them.

It is important to note that given the scale of WISER, examples provided are illustrative and not exhaustive. Lessons too should be considered indicative rather than generalisable. No unintended or unexpected findings were evidenced.

Key findings, their SoE and where relevant the contribution that WISER is included under each evaluation question.

3.1. Findings

EQ1: Approaches to co-producing useful, relevant and accessible WCIS across contexts

Table 4: Overview of EQ1 findings including SoE, contribution claim when relevant, and contradictory evidence

EQ 1: WHICH APPROACHES HAVE BEEN MORE EFFECTIVE IN CO-PRODUCING USEFUL, RELEVANT, AND ACCESSIBLE WCIS ACROSS CONTEXTS? WHAT LESSONS CAN BE LEARNT FOR DIFFERING CONTEXTS (INCLUDING FCAS) AND END-USER INCLUSION?			
#	**Finding Statement**	**SoE**	**Contribution Claim**
1	The WISER approach of utilising existing regional organisations/bodies is effective and has enhanced national ownership and the strategic implementation of activities, but sustained capacity building and financial resources are needed to continue enhanced WCIS activities.	Medium high	**Partial Contributor:** WISER was not the only supporter of regional organisations
2	WISER has created a demonstration effect at the intervention level (in some contexts) internally and externally which has supported NMHS's in strengthening services and tools.	Medium high	**Partial Contributor:** WISER was not the only actor
3	Co-production processes (at all levels) are widely recognised as a valuable technique to support the development of useful and accessible WCIS and for sustainability. However, stakeholders across contexts confirmed that co-production processes were not synonymous with co-design and required significant time and financial resources to sensitise stakeholders to the value of the process.	High	**Key Contributor:** (For specific interventions, WISER was unique in bringing these to NMHS's)
4	WISER support has enabled NMHS' to better understand their own WCIS data flows and ecosystem within government and develop broader relationships across departments, bringing added value to co-production processes.	Medium high	**Key Contributor:** For specific interventions, WISER was unique in bringing these to NMHS's
Contradictory evidence EQ1: An NMHS key informant noted that there are downsides to co-production. They noted that many Meteorological services felt vulnerable when working with other government departments – with funding already stretched for NMHS's, they felt that their funding could be removed if other departments can make more out of the data, then they could directly.[13] In addition, with 'whole of Government' approaches being in early stages in some countries, NMHSs sometimes don't understand the pressures other Departments might be facing and in turn, other Government Departments don't fully understand the limitations of forecasting data.[14]			

Taking a regional approach to delivering WISER programmes has worked. WISER has been instrumental in strengthening NMHS and regional organisations, in WCIS in Asia and East Africa[15]. Projects such as Strengthening Climate Information

[13] KII 54
[14] KII 54
[15] This confirms an output in the WISER Global theory of change developed collaboratively with FCDO and MO in February 2024, Annex 11a

Partnerships for South Asia (SCIPSA), Enhancing National Climate Services (ENACTS) and Strengthening Climate Information Partnerships East Africa (SCIPEA) have enhanced technical capacities, created stronger climate data partnerships, and facilitated co-production of climate services[16]. Stakeholders across contexts highlighted the importance of learning from and through other regional or national partners, even when this took more programme resourcing itself. However, these initiatives require sustained investment in human and technical resources, particularly to keep data systems up-to-date and WCI infrastructure assets maintained. Financial challenges remain a critical concern, with regional forums (SASCOF and GHACOF) being largely too dependent on international donor support. For long-term viability, a diversified funding strategy will be required.

Co-production processes were highlighted as essential to the success of WISER, enabling more accurate, user-relevant climate services (supporting evidence of the evaluation hypothesis – *'co-production processes in the development and dissemination of WCIS lead to improved confidence in the delivery of services and decision making'*.) However, the approach was not always easily embraced, requiring substantial time and resources to build trust and collaboration across contexts. Table 4 provides an overview of key findings, with supporting evidence provided below.

FINDING 1. The WISER approach of utilising existing regional organisations/bodies is effective and has enhanced national ownership and the strategic implementation of activities, but sustained capacity building and financial resources are needed to continue enhanced WCIS activities.[17]

The regional approach

The WISER regional approach has been successful. As confirmed by FCDO designers of WISER, WISER purposefully sought from the beginning to work through regional organisations or partnerships to deliver its work. It did this to enhance local ownership and buy-in, and longer-term sustainability. This was even the case when FCDO acknowledged that these regional bodies themselves required some support to deliver WISER work.[18] Supported regional bodies included IGAD, ICPAC, GHACOF, SASCOF, and regionally focused multi-country projects.

Under WISER 1&2, significant support was provided to the ICPAC from 2015 to 2021, under projects such as Quick Start, ENACTS, SCIPEA and WISER support to ICPAC (W2SIP).[19] Stakeholders confirmed that the support provided under WISER focused on creating an enabling environment in which the NMHS could access the tools, data and support necessary to increase their own technical and human resource capacities to provide accurate and timely WCIS, using techniques such as downscaled forecasting[20].

Regional delivery partners also required support (during and after WISER)

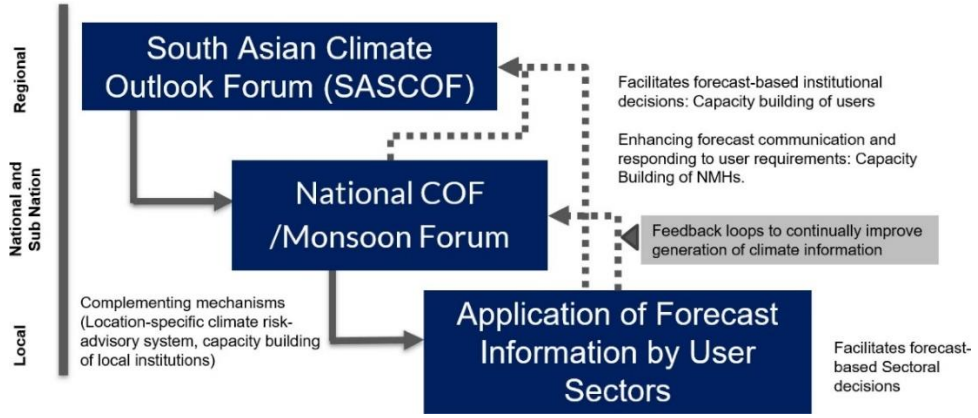
A regional entry point delivered results for WISER, and this required significant investment in technical assistance and capacity building (i.e. most regional bodies needed support to enable them to deliver the results reported). For example - stakeholders confirmed in Africa that the regional organisations (such as IGAD) themselves continue to require support to ensure that data remain up-to-date and their technical and human resource capacities continually evolve[21, 22]

Significant support was given to SASCOF, via the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) and ICIMOD as trusted regional partners. Enhanced WCIS products (Fig 1 below[23]) are improving how NMHS's generate their own products. In SCIPSA, training activities have leveraged the SASCOF and partnership with RIMES as a regional training centre e.g. training on objective dynamical model-based seasonal forecasting was provided to NMHSs.[24]

[16] An Intermediate Outcome of the WISER Global Theory of Change.
[17] **Contribution claim: Partial Contributor** (WISER was not the only supporter of regional organisations)
[18] KII 89
[19] The ENACTS project focused on improving the quality, availability, access and use of climate information by working directly with NMHS and enhancing their capacity (both technical and human resources) to be able to use the maprooms and associated tools, such as the Climate Prediction Tool (CPT). SCIPEA sought to strengthen climate partnerships by enhancing relationships and the exchange of data between global, regional and local organisations, to co-develop (climate information providers, intermediaries and end-users) prototype climate services and to provide the resources to strengthen the capacity of NMHS, academic and training institutes by developing training modules on dynamical seasonal forecasting and prediction.
[20] KII 43, KII 1, KII 46, KII 45, W2SIP_PCR Updated_Jul2021, SCIPEA_PCR_Apr17, ENACTS_PCR including logframe and other annexes_Mar17
[21] KII 104
[22] KII 89
[23] J. Daron, M. Bruno Soares, T. Janes, F. Colledge, G. Srinivasan, A. Agarwal, C. Hewitt, K. Richardson, S. Nepal, M. Singh Shrestha, G. Rasul, N Suckall, B. Harrison, R.L. Oakes, D. Corbelli. Advancing climate services in South Asia, Climate Services, Volume 26, 2022, https://doi.org/10.1016/j.cliser.2022.100295
[24] ibid

Figure 1 shows the inter-relation between regional bodies, national and local WCIS actors and the critical feedback loops across all levels.

Figure 1: Framework for climate services using seasonal forecasts in South Asia (Daron, J. et al. 2022)



The need for on-going funding

GHACOF, like its Asian counterpart, SASCOF, is a series of events that bring together experts, meteorologists and climate scientists from IGAD member states (MS) to discuss weather and climate science in the region, including the potential effects of climate change. The GHACOF is held three times per year with IGAD MS rotating the hosting of different events. ICPAC, under the broader IGAD framework, is responsible for organising and co-ordinating GHACOF events. KIIs stated that the GHACOF provides the opportunity for producers, intermediaries and end-users of different aspects of WCIS to come together and share information, exchange ideas and in some cases, make requests for WCIS products specific to their context. These stakeholders highlighted the importance of coming together as NHMSs to discuss objective rather than consensus forecasting, and other cross-boundary weather issues.[25]

Over the past decade, the GHACOF has been supported by a combination of regional contributions and international donor funding. Financial support to hold the GHACOF and support in the form of training and capacity building for NMHS in IGAD MS, have come primarily from international donors such as the European Union, FCDO, United States Agency for International Development, The World Bank and the African Development Bank, as well as partnerships with international organisations such as the World Meteorological Organization (WMO). This funding has been crucial in ensuring the participation of experts from NMHS' and in strengthening regional collaboration; however, in addition to these international donors, some IGAD MS, including Kenya, Ethiopia, Uganda, and South Sudan, have been able to contribute by funding their own participants' attendance at GHACOF events.

The sustainability of funding for the GHACOF was a key concern by KIIs. The forum currently relies heavily on international funding, which raises questions about its long-term viability and the sustainability of the current financial model, if these external sources decrease. While national governments in the region are committed to supporting GHACOF, many face financial constraints, limiting their ability to fully fund participation and host the forum without international aid. To ensure sustainability, experts suggest that countries in the region should integrate climate-related expenses into national budgets and seek to diversify funding sources. Engaging the private sector and regional development banks could provide more sustainable financing models, ensuring GHACOF's ongoing role regarding WCIS in the region.[26]

In Asia, regional partnerships were the focus and under the ARRCC. There is strong evidence that UK support has delivered organisational strengthening at the SASCOF. The ARRCC Strengthening Climate Information Partnerships – South Asia (SCIPSA) project focused specifically on the prediction and application of seasonal outlook information in South Asia. In partnership with the Regional Climate Centre (RCC) Pune, India and RIMES, SCIPSA supported and enhanced the SASCOF.[27]

[25] KII 46, KII 43, KII 45, KII 34
[26] [ICPAC](https://www.icpac.net/news/re-engineering-the-greater-horn-of-africa-climate-outlook-forums-ghacofs/).
[27] Final Report Strengthening Climate Information Partnerships South Asia

Selected WCIS products enhanced under ARRCC include the Seasonal Climate Outlook Statement and the creation of the Climate Service User Forum. Leaders of SASCOF noted the UKMO has developed best practice for creating climate outlook forums and this has greatly benefited SASCOF, which is seeking to engage with even more users in future.[28] As in Africa, long term funding of this regional entity (SASCOF) is not in place, with hosting costs proving to be challenging for many NMHS's – resulting in the India Meteorological Department hosting repeated annual events instead of this rotating every year across the region.[29]

Annual training workshops funded under ARRCC were attended by all 12 meteorological services in the region – thereby influencing beyond the small number of countries directly targeted by ARRCC, even reaching some small island states which were official development assistance (ODA) eligible but are very vulnerable to climate change.[30]

SCIPSA's regional approach allowed partnerships to evolve around transboundary issues, which might not have been possible in a purely national model. Where limitations of NMHSs are constraining progress, funding and investment will be needed at a national level.[31]

Despite the regional approach successes, challenges were also noted –a range of NMHS's acknowledged that some countries were unwilling to share data, political divides prevented collaboration and getting travel visas in the region was increasingly difficult.[32] Many NMHS stakeholders across contexts also highlighted the importance of continuing to support national level work as well as regional, as assumptions cannot be made that they have the resources to either engage with regionally focused work or maintenance of their own national met services. Highlighting the importance of understanding and mapping the wider environment WISER interventions work in. As noted by a UKMO KII, there is *'(s)till a huge need for WCI and climate support…[and there is a] worry that regionally focused projects don't enable that.'*[33]

FINDING 2. **WISER has created a demonstration effect at the intervention level (in some contexts) internally and externally, which has supported NMHS's in strengthening services and tools.**[34]

Across the African WISER contexts, national stakeholder highlighted the importance of the demonstration effect of WISER supported work in other national contexts, to create buy-in within their own stakeholder ecosystem.

Cross-learning and knowledge exchanges between projects was useful in quickly developing a new project, kick-starting co-production in a project's region, and building trust with regional partners. The quick development of 'prototype' products enabled producers and end-users to engage with each other more easily. *'It was found that development of a prototype bulletin, which served as a tangible "benchmark" for discussion and improvement, helped to focus the service development, set realistic targets for progress and deepen mutual understanding'*[35].

Stakeholders across African contexts confirmed that to fast-track the development of these prototype products it was found that sharing examples of previous outputs from other projects, preferably in comparable regions or environments, enabled NMHSs and their stakeholders to rapidly adapt them to their own needs and regional requirements[36] [37] [38] [39].

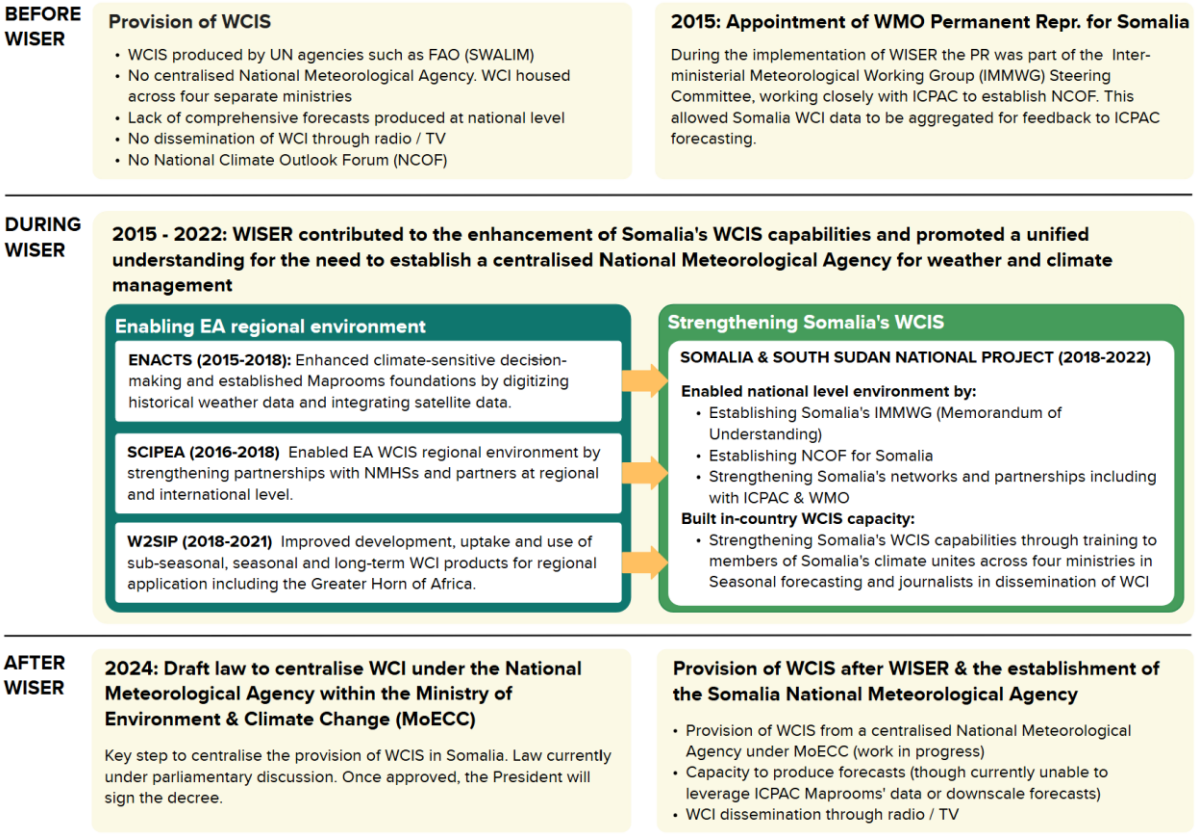
This was the backdrop or enabling environment - for example, in which negotiations could take place between ICPAC (de facto IGAD), the WMO and the Government of Somalia to consolidate all elements of WCIS, previously housed in separate ministries within Somalia, under one agency, housed within one Ministry. The process of consolidation was quite sensitive as, according to one key informant, '…*competing ministries which all housed elements of WCIS at the time all felt their information was the most important, therefore any consolidation of WCIS should take place under their*

[28] KII 48, KII 20, KII 22
[29] KII 53, KII 48
[30] KII 53
[31] KII 53
[32] KII 15, 22, 53
[33] KII 51. This KII also noted that FCDO had increased the geography for CARA without increasing the proportionate budget – they noted that a regional approach was the 'trade-off' but were concerned that some of the countries which need support the most.
[34] Contribution claim: Partial Contributor (WISER was not the only actor)
[35] KII 22, KII 44, W2SIP_PCR Updated_Jul2021
[36] WP1 IBF Pakistan country report
[37] Stories of Change from ARRCC programme - OPM 2022
[38] WISER Pilot sustainability Assessment of Select WISER Projects 2022
[39] SOMALIA & SOUTH SUDAN_PCR_Update_06Aug2021

respective ministries'[40], rather than creating a new space and/or agency in a separate ministry. ICPAC played a critical role in the '*sensitisation of the government of Somalia on the importance of WCIS and the need for a coordinated approach for the delivery of WCIS'*[41], as did the Permanent Representative to the WMO for Somalia and the Office of the Prime Minister for Somalia[42]. See Figure 2 for Somalia's WCIS.

NHMSs are often risk averse in nature and novel, untested, or unique approaches can struggle to *'gain support'*. Knowledge exchange approaches helped to ease the co-production process through a *'feeling of 'we are all in the same boat' '*[43], which can help further regional integration and discussion[44] leading to organisational strengthening and reputation uplift.[45] For example, the successful adaption of *'SCIPEA products for WISER ENACTS'*[46], or the co-production in this prototyping stage also *'increases ownership and use',* as in the Rwanda National Project, where this engagement process meant participants *'were the ones putting pressure on Meteo Rwanda demanding for the release the product'.*[47] Evidence from Asia does not support or refute this finding.

Figure 2: Weather Climate Information Services in Somalia before and after WISER



FINDING 3. Co-production processes (at all levels) are widely recognised as a valuable technique to support the development of useful and accessible WCIS and for sustainability. However, stakeholders across contexts confirmed that co-production processes were not synonymous with co-design and required significant time and financial resources to sensitise stakeholders to the value of the process.

[40] KII 44
[41] ICPAC Project Completion Report Revised 15 March 2022, KII 44, KII 43
[42] ICPAC Project Completion Report Revised 15 March 2022
[43] ARRCC (2022) Case study on Political economy of strengthening climate services - OPM022.
[44] ARRCC (2021) Case Study on Innovation in Climate Services - OPM_Sep2021
[45] Final Report Strengthening Climate Information Partnerships South Asia - The South Asia Climate Outlook Forum
[46] ENACTS Project Extension Review March 2018
[47] RWANDA NATIONAL PROJECT Project Completion Report (final revised 2021)

A central theme of the WISER programme has been its focus on co-production as fundamental delivery approach. Part of the importance of the approach (as set out in WISER reporting) is the *'explicit acknowledgement that co-production is about learning from one another to develop holistic understandings as well [as] engendering trust and ownership of the process'*.[48] This is an iterative process that promotes sustainability through 'ownership' and localisation.

Across WISER programme implementation, several producers, intermediaries and end-users cited the co-production process as having added value to their products. These included radio presenters and listeners, Weather Mtaani leaders, regional organisations and NMHS. A Key Informant from an NHMS stated that, *'The [WISER co-production] template has been adopted by 47 Counties including WISER and non-WISER counties.'*[49] A Key Informant from the WeatherWise programme mentioned that *'participation and coproduction are key for buy in'*[50] with reference to the production of the radio programmes focused on broadcasting of weather information. Other stakeholders highlighted the importance of WISER support in this process, *'GHACOF was there but the key ingredient of co-production was WISER, more organisations have taken this up.'* An official from a regional organisation funded under WISER reported: '*working together using co-production model so that we all understand what the issues are was crucial to ensuring the better data and better techniques could be exploited to their full potential. The main outcome of the process was the co-production of forecasts at the national and sub-national level for those in government agriculture, hydrological and other relevant departments, which were accurate and useful to end users.'*[51]

WISER support sought to make WCI more accessible through co-production processes across a range of projects and had key successes. An example of this approach was demonstrated in the High Impact Weather Lake System (HIGHWAY) project, where local communities around the Lake Victoria Basin were involved in making sure forecasts were *'timely and understandable'*, thus ensuring *'uptake from local communities'*[52]. The ENACTS project, for example, ensured a continued demand for its services by working with local partners to ensure that climate information was *'easy to access'* and able to be accurately interpreted by the end-user[53]. DARAJA engaged with the regional NMHS, *'city level stakeholders, and residents of informal settlements'* to co-design *'downscaled and daily forecast[s]'* to make them more *'user-friendly and actionable'*[54]. These comments reflect many key stakeholders' perceptions across contexts who saw the value in co-production processes.

In Asia, the Climate Analysis for Risk Information and Services in South Asia (CARISSA) project, took a co-production approach in Pakistan to develop 'climate grid' software – enhancing climate observation datasets.[55] Senior officials at the Pakistan Meteorological Department (PMD) noted that *'(t)hey welcomed UKMO guidance and support. Initially they offered to create the data, but we encouraged them to support us in leading the work.'*[56] The team at PMD worked diligently to secure data from across a range of Departments and have been inspired to generate datasets for a range of audiences (see **Pakistan Story of Change** for more details).

The early warning system (EWS) for wheat blast was adapted from CIMMYT's work in Ethiopia for use in Nepal and Pakistan. CIMMYT worked rapidly with stakeholders in both countries to adapt the data tools and pilot them in Asia for the first time.[57] Nonetheless, it was noted in ARRCC that, *'there were times when it felt like the delivery partner was the one 'pushing' the initiative, rather than being a support function for the organisation's own priorities'*. This was echoed by stakeholder KIIs in other contexts highlighting the importance of co-designing initiatives.[58]

This being said, these well-liked co-production processes, were not well understood initially, and many producers of WCIS faced resistance from their partners to undertake them. IPs often had to invest substantial time and financial resources in working with potential stakeholders in the co-production process to sensitise them to the benefits of working together. Had IPs been more involved in co-design of the programme at the outset, they would have perhaps better understood

[48] WISER Africa Policy Brief 1 - Coproduction
[49] KII 34
[50] KII 34
[51] KII 43
[52] HIGHWAY (2020), Project Completion Report
[53] WISER Pilot sustainability Assessment of Select WISER Projects 2022
[54] DARAJA, (2020), Project Completion Report
[55] ARRCC Impact story - Gridding climate observation records in Pakistan - CARISSA - Met Office, Pakistan Story of Change (**Annex 11b2**)
[56] KII 36
[57] KII 13
[58] ARRCC (2022) Strengthening climate services in South Asia - Learning from the ARRCC programme, KII 34, KII 15, KII 44

the value of co-production. According to one Key Informant, in the development of the BBC Media in Action (BBCMA) WeatherWise radio programmes, *"..a massive focus of our work over time was building trust regarding co-production processes, the accuracy of the information, how it was disseminated and how it could be used"*.[59] KMD themselves acknowledged that they also had to spend a great deal of time working with County Governments to allow them to understand their role in the co-production process and particularly the WeatherWise project. This was also cited by those working on WeatherWise, who said that *"[we] spent a lot of time persuading the local KMD County Directors of Meteorological Services (CDMS) that they should be available for interviews [on the radio weather programmes [and] the Programme Director (for BBCMA WeatherWise) had to work very closely with the KMD, [who were] initially very reluctant to work with us and required a lot of time spent persuading them…."*.

FINDING 4. WISER support has enabled NMHS' to better understand their own WCIS data flows and ecosystem within government and develop broader relationships across departments, bringing added value to co-production processes.[60]

Key stakeholders from Pakistan, Somalia, and Kenya highlighted that WISER supported them to enhance links within their own WCI ecosystem they now work more collaboratively across Government resulting in improved understanding and partnerships.

For example, an African NMHS key Informant stated that WISER had enabled his organisation to share forecasts that were more specific to different geographies and agro-eco zones. Under WISER, *'we were able to link producers of WCI, intermediaries and users of WCIS – before decentralisation we just shared a forecast.'* He also highlighted that working under WISER brought greater understanding to potential bottlenecks, which could hinder the impact of accurate and timely WCIS on decision making.[61]

'UKMO taught us how to work collaboratively with other departments – now it's normal'

Senior Official, Pakistan Meteorological Department.[28]

Downstream partners such as KenGen, the Kenyan government parastatal in charge of the provision of power from a variety of sources (hydro, geothermal, thermal and wind), were *'…taught the concept of planning and regulation of water resources'*, resulting in the opening of dams in Garissa County, prior to heavy rains. This capacity "was born out WISER, [and based on the provision of] *'long-term forecasting information, [provided by KMD], which resulted in contingency planning'*.[62]

Another NMHS stakeholder reported that, *'the co-production meetings enhanced users' trust of the services provided to them after being able to understand how the products are being developed as well as bridging the gap between users and producers.'* He also mentioned that although "other partnerships between different stakeholders to produce and disseminate WCIS [were] still functioning, [these were not functioning] at the same level" citing a "lack of funding [and] lack of good internet coverage" hindering the continued co-production work.[63]

In Pakistan on the WISER supported IBF project, a PMD Senior Official noted 'we *would not have done this work without UKMO initiating it'…'We've now developed good relationships with agricultural extension workers, and they reach out to us with any queries'*[64] (see also Pakistan Story of Change **Annex 11b2**). The IBF project has scaled to other parts in Pakistan and the team now automatically reach out to a wide set of stakeholders (including the farming community, local academic researchers and the Agriculture Department) to build data sets.[65]

[59] KII 12
[60] **Contribution claim: Key Contributor.** (For specific interventions, WISER was unique in bringing these to NMHS's)
[61] KII 34
[62] KII 1
[63] KII 40
[64] KII 38
[65] KII 38

EQ2: Key operational and delivery lessons learnt across contexts

Table 5: Overview of EQ2 SoE, contribution claim when relevant, and contradictory evidence

EQ2: WHAT WERE THE KEY OPERATIONAL AND DELIVERY LESSONS LEARNT FROM IMPLEMENTING THE WISER MODEL ACROSS DIFFERING CONTEXTS FOR FUTURE PROGRAMMING?			
#	**Finding Statement**	**SoE**	**Contribution Claim**
5	UKMO viewed as a very respected partner across stakeholder groups, with training and support consistently reported as valuable across NMHS and regional bodies supported in Asia and Africa.	Medium high	**Key Contributor:** Evidence reported across Africa and Asia and by varying stakeholders. For the FCAS evidence gathered, UKMO was alone in supplying technical assistance
6	There is evidence that WISER IPs who have proven track records and a good reputation, produced good results, and also increased the potential for both attracting other credible partners and future funding.	High	Not applicable (N/A)
7	IPs found it difficult to both focus on high quality technical activities and the production of materials demonstrating their success (communications and marketing activities).	Medium low	N/A
8	Historic MEL approaches, including independent evaluations, were limited and did not focus sufficiently on end-users or consider GESI.	Medium high	N/A
9	WISER has produced/supported WCIS for some FCAS and/or humanitarian settings and there is scope to enhance this offer.	Medium low	**Key Contributor:** For the FCAS evidence gathered, UKMO was alone in supplying technical assistance
Contradictory evidence: Whilst the quality of technical support from UKMO was commended, some Key Informants noted that they believed programming was 'stuck on pilot mode' with no clear pathways for scaling. They also noted that more could have been done to share lessons within a country on a range of WISER investments and thematically across countries in the region, they noted a tendency to 'compartmentalise' by country. FCDO stakeholders highlighted that UKMO would not operate in some FCAS/humanitarian settings due to current risk appetites, limiting its ability to support stakeholders in these settings.			

The UKMO has played a pivotal role in supporting meteorological services across Asia and Africa[66]. Their collaborative approach, willingness to share technical resources, and partnership-building have been key to advancing climate services. Stakeholders praised UKMO for facilitating relationships between regional and national stakeholders and promoting user involvement in weather information development, and the provision of on-going support when the programme ended. However, key learnings were noted e.g. the need for further engagement with field staff outside the capital was recommended to ensure the interventions were addressing challenges at all levels. There is evidence of UKMO technical support fostering innovation in multi-hazard early warning systems and anticipatory action planning. The ability to provide the forecasts was the result of KMD CDMS, ICPAC maprooms and data and other UKMO services provided under WISER. Some specific examples include (Box 2):

Box 2: Examples of anticipatory action planning evidenced by ET data collection

In Kenyan pastoral communities reported that having accurate seasonal forecasts (for example, if a drought is predicted) has allowed herders to implement better herd management strategies such as off-selling livestock well in advance to middlemen for a better price before the drought sets in, who then take the livestock to fatten before selling them on for human consumption. The herders then only maintain their breeding stock during times of drought and are better able to ensure their survival when pasture is scarce. They might do the same if heavy rains are predicted, to better provide veterinary care, shelter and enough food to ensure they can still breed and build up their herd in the future when conditions improve.

[66] This is an Intermediate outcome from the WISER Global theory of change, and an evaluation hypothesis. Annex 11a

In communities living around Lake Victoria, if heavy prolonged rains are predicted, women who are in charge of drying omena (a small type of fish caught at night - a bit like a sprat or a smelt that is only ever sold dried) reported that during heavy rain they focus more on their agricultural activities than on fish selling because they know they won't be able to dry the fish sufficiently and it will rot. Livelihood diversification towards agriculture rather than aquaculture is a generally employed strategy if the conditions for optimising aquaculture as an income-generating activity are predicted to be less than ideal.

Communities who received seasonal forecasts from radio programmes, such as that in Kwale, reportedly changed the types of crops they were going to grow, based on the forecast. For example, farmers at the Coast (which is where Kwale County is) were told not to grow maize but rather to grow another more drought tolerant crop (pearl millet or green gram lentils). The farmers who followed the advice provided in the radio programme, based on the co-produced downscaled forecasts had much better economic outcomes than those who ignored the advice and grew maize, as they always had done.

For people living in informal settlements, following advice that there would be heavy rains, employed strategies such as either moving from the ground floor apartment to an apartment higher up in the building, or ensuring that if they were selling vegetables, they built platforms that they could sell their vegetables from (using old pallets or similar waste wood) so the vegetables wouldn't rot.

Despite these successes, there are concerns regarding documentation, MEL and GESI processes. IPs found it challenging to balance technical work with communication and marketing activities, leading to missed opportunities to showcase successes. Furthermore, historical MEL approaches lacked sufficient focus on end-user feedback and GESI considerations. There were also significant gaps in baseline data, a paucity of independent evaluations, and quantitative evidence of project impacts. This limits the ability to assess the long-term sustainability and transformative potential of WISER-funded initiatives.

FINDING 5. UKMO viewed as a very respected partner across stakeholder groups, with training and support consistently reported as valuable across NMHS and regional bodies supported in Asia and Africa.[67]

The UKMO was seen as a highly respected technical partner across NMHS and regional partners across Africa and Asia, with a number commenting that even after WISER support ended, they continued to work with and reach out to UKMO today for further guidance. For example, in Africa, UKMO was instrumental in supporting activities under the early Quick Start programmes and under SCIPEA. It was reported that UKMO showed a *'willingness to engage, sharing ideas, tools and technical and social resources.'*[68] They established *'good partnerships with regional centres [which assisted]'* in *'national centres coming together [and] brought end-users of weather information [to the co-production process.]'*.[69] Another KII stated *'we are still working with them, even in different projects we still work with them, [continuing to] develop the products….with consultants from the UK Met'*.[70]

In Tanzania, it was noted that although the UKMO interacted with TMA, for the technical expertise and capacity of those staff outside of Headquarters in Dar-es-Salaam to be enhanced, UKMO needs to work with people in the field, and the Tanzania Meteorological Services directly.[71] **Instrumental in the success in the East Africa region was having a Regional Coordinator who was from East Africa**. Many interviewed expressed their satisfaction with this Co-ordinator and that it made communication with the UKMO easier, and that the relationship facilitated and enhanced WISER outcomes.[72]

In Nepal, a Key Informant noted that technical support from UKMO had helped them to think differently about how to plan anticipatory action and multi hazard early warning systems.[73] In Bangladesh, a Key Informant noted that UKMO supported them to develop their proposal, providing useful comments and technical advice.[74] In the Asia region, highlighting the value of the UKMO, the Red Cross Red Crescent team are using work developed under ARRCC in ongoing initiatives around forecast based financing.[75]

[67] Contribution claim: Key Contributor (WISER specifically was the focus on feedback and evidence)
[68] KII 1
[69] KII 1
[70] KII 45
[71] KII 40
[72] KII 45, KII 34, KII 43, KII 16
[73] KII 9
[74] KII 15
[75] Self-Evaluation of the Climate Centre's Contribution to the Asia Regional Resilience to a Changing Climate (ARRCC) Programme. January 2022

FINDING 6. There is evidence that WISER IPs who have proven track records and a good reputation, produced good results, and also increased the potential for both attracting other credible partners and future funding.

WISER worked with a range of international to local IPs to deliver its work. Often more established partners, perhaps more familiar with FCDO priorities and reporting, were able to deliver good results and attract follow on funding.

BBC Media Action, via the WeatherWise programme won an 'Averted Disaster Award' Special Recognition for saving lives in East Africa programming to help pastoral communities in Kenya and Somalia adapt to climate change.[76]

The DARAJA programme has been recognised internationally - it won a World Habitat Award in January 2024 for its contribution to innovative and transformative approaches to housing, from community-driven solutions to climate change adaptation – the only awardee in Africa.[77] It has secured cofounding for current delivery - DARAJA Phase II secured £250,000 co-funding from Lloyds. This funding will continue work in Tanzania and Kenya, and also in Uganda and Ethiopia.[78]

The University of Nairobi was an integral part of the Service Development Teams (SDTs), which provided support to ICPAC under the early Quick Start programmes, SCIPEA and W2SIP. These SDTs guided the development of co-produced climate products tailored to a specific user demand. The SDTs were made up of members representing all organisations concerned and were chosen for their experience in co-production. These groups had the mandate to make all decisions with respect to the content of the services and assist the producer organisations in generating and tailoring these services appropriately. One of the most useful products that came out of this process was the ***ICPAC Guide for Engagement in Co-producing Climate Services***[79], a manual which builds on the WISER Manual, which provides the explanation and conceptual foundation for co-production in climate services and draws on the learning produced from 18 case studies on co-production, including the W2SIP implemented by ICPAC. CARE International played a significant role in producing the ICPAC Guide for Engagement in Co-producing Climate Services and drew on previous experience in co-production. Based on the success of the partnerships involving co-production, further WISER funding ensued, as well as that from other donors.

In Uganda, World Vision UK leveraged their existing programme staff already on the ground to implement the co-production activities with other stakeholders. These activities consisted of translating WCIS information into 22 vernacular languages for distribution across the country.[80] While it was very advantageous to implement activities under WISER using existing staff, World Vision UK did mention that ***'building on existing relationships, projects and networks can lead to greater impact more quickly, and possibly be more sustainable, but there is also a danger that there is an over reliance on the implementing agency to provide extra resources, staff, contacts from outside the budget, rather than adequately funding everything needed'***[81]

In Asia, the Red Cross Red Crescent team were already working on early/anticipatory action and were facilitating a range of technical working groups (in Nepal). Work under ARRCC accelerated existing plans and work on heat progressed rapidly from a very low base. Campaigning and awareness are increasing, and early action protocols are in place.[82]

ICIMOD had a range of long-standing relationships with NMHSs in the region. They were able to leverage these under ARRCC and deliver quality work at speed as trust was already established.[83]

In terms of leveraging WISER work and attracting additional funding - £1,530,000 was leveraged in Nepal for work on IBF, by integrating IBF into the Nepal Red Cross Society's ongoing Forecast-based Action and Shock-Responsive Social Protection initiative.[84] CIMMYT leveraged the EWS for Wheat Rust work to secure a multimillion-dollar investment from the Bill and Melinda Gates Foundation for work across eight countries.[85]

[76] See https://www.bbc.co.uk/mediaaction/where-we-work/africa/kenya/averted-disaster-award
[77] See https://www.resurgence.io/daraja/
[78] KII 21
[79] Care International, ICPAC, WISER Transform, Kenya Meteorological Department & UK Met Office (2021). ICPAC Guide for Engagement in Co-producing Climate Services. Eds. Percy, F., Wakini, J., Baraibar, M., and M. Anyango. Nairobi.
[80] KII 24
[81] Feedback from Africa Validation Session
[82] KII 20
[83] KII 14
[84] ARRCC Programme Completion Report, November 2022.
[85] KII 13

Although this points to *enhanced* results and follow on funding where UKMO partners with established IPs - this challenges current FCDO goals on diversifying supplier bases and locally led approaches.[86] An answer may need to be found between FCDO and UKMO in the current versions of the WISER programme on whether FCDO would prefer:

i. A locally led programme – likely to require longer lead in times and support and oversight to meet FCDO programme management requirements, or
ii. An approach with established IPs who require less FCDO/UKMO oversight and resources to manage them

FINDING 7. IPs found it difficult to both focus on high quality technical activities and the production of materials demonstrating their success (communications and marketing activities).

In Africa, both NMHS and regional level organisations highlighted that they would have liked to be able to spend more time developing and documenting their successes under WISER by developing communications and marketing products. One NMHS Key Informant stated, "***we should have taken the opportunity to document (documentary video) to show what has changed and the success***."[87] A key informant from a regional organisation agreed with this, saying, if they had the chance to implement WISER again, they "***would ensure that a separate Communications department was funded by the programme. The ability of [regional organisation] to do the technical work as well as track and present the success of their activities was very limited. Opportunities have been lost to communicate valuable [project success and failure] information to a wider audience***."[88]

Evidence from Asia does not support or refute this finding, this could be because work was less advanced in the Asian than African context.

FINDING 8. Historic MEL approaches, including independent evaluations, were limited and did not focus sufficiently on end-users and consider GESI.

As highlighted in evidence reviewed during the ET inception phase (including systematic reviews), and by the recent ARCAN MEL evidence gap map[89], there is limited evidence on climate information and its impact on resilience across geographies and end users, making the case for significant programme level MEL and focus in a WISER style programme. For programmes of this value, MEL was not significantly resourced and there were challenges as described below. Despite this, significant results claims across contexts were made at the end of the closed WISER programmes, which were often the result of extrapolations of data taken from IPs self-reported data (i.e. data not independently verified).

According to a report exploring investing in climate services, *'[m]onitoring and evaluation data are limited, to date, with respect to the effectiveness and sustainability of climate services, and about how viable past investments into the production, delivery and use of climate services have been.'*[90]

It was also noted that, *'[t]he establishment of defined mechanisms for routinely collating user feedback or conducting surveys with users is hugely inconsistent and there is a near absence of analysis undertaken by NMHS to consider how different user groups access their services.'*[91]

This has been borne out in the closed WISER programmes. In Africa baseline indicators and surveys, mid-term and endline assessments were inconsistent, making it difficult to produce quantitative data reflecting the achievements of WISER. Even when baseline data was collected by a project it was often not submitted[92], and impact assessments were, therefore, based on estimations[93], with little or no evidence of the estimation calculations being given in the reporting. More specifically, any data indicating the potential for transformative results in the future was absent. There were some notable exceptions, the DARAJA endline, Coastal Resilience and Improving Services for Potato Production in Kenya (CRISPP) and Rwanda projects all collected end user data.

[86] One KII noted that WISER was designed with the pressure to 'spend fast' due to international commitments on UK funding – this meant that existing partners and larger institutions were the natural selection to receive funding. (KII 146).
[87] KII 34
[88] KII 43
[89] ARCAN MEL (June 2023) Evidence Gap Map
[90] Dupar, M., Weingartner, L. & S. Opitz-Stapleton. (2021). Investing for sustainable climate services: insights from African experience. ODI.
[91] _WISER Africa EA Extension Closure Report_Mar22
[92] NIRAS (2021) WISER Africa Resilience Indicator Project Impact Report
[93] MHEWS Project Completion Report Bridge

Similar experiences were noted in Asia. No baseline data was available (even pre-Covid-19) and an early agreement between FCDO and UKMO was made to not collect outcome level data. UKMO were not asked to provide value for money data and the range of academic partnerships under ARRCC were slow to start (and some were cut during spending review cuts).[94] No evaluations were commissioned under ARRCC and quantitative claims on the number of people who had improved resilience as a result of ARRCC were never independently verified.[95] FCDO themselves advised in the ARRCC Programme Completion Report (2022) that *'ideally, MEL would be integrated into the actual climate service itself, so that the NHMS can routinely monitor progress as well as quantify the benefits and in essence the return on their investment.'*

GESI was rarely considered in the design, implementation and results reporting of most WISER-funded programmes[96], and this limitation was noted even during the closed programmes themselves. According to an evaluation of the WISER HIGHWAY project, *'[g]ender was not considered in the project and there were no gender-disaggregated indicators neither in the project's logical framework nor in the monitoring, evaluation, and learning reports and the climate resilience studies. The trainings list did not include disaggregated information on the gender of its participants; however, women were regularly present at diverse NMHSs trainings.'*[97]

In Asia, key informants from all NMHS interviewed noted that GESI was not well considered in project design[98] and implementation, with rare exceptions (e.g. Pakistan agromet study[99]). One learning report on ARRCC noted, *'...at the design stage, a programme should identify the causal pathways by which poor and vulnerable populations, in particular women and marginalised groups, will benefit from the interventions.'*[100] There appeared to be a tendency to assume that IPs would be able to ensure that services reached the most vulnerable communities – *'[t]o ensure activities support improved services for vulnerable communities, work package 1*[101] *will work closely with relevant partners including the […] (RCCC) and […] (World Food Programme)'*.[102]

Although Asia had an independent MEL contractor supporting ARRCC, WISER Africa had limited MEL support. No MEL actors (internal to UKMO or external providers) appeared to invest heavily in measuring resilience. Like the MEL delivered internally in UKMO, MEL activities would often be the first to be cut in the context of budget cuts, further weakening the development of a planned evidence base.[103]

FINDING 9. WISER has produced/supported WCIS for some FCAS and/or humanitarian settings and there is scope to enhance this offer.[104]

WISER has historically, and currently, provided WCIS to programmes in FCAS and Humanitarian settings, such as the Afghanistan programme (under ARRCC); Somalia and Kenya under WISER and Yemen under the current PHENOMENAL programme. UKMO is sensitive to not providing a WCIS to other countries where there is an existing NMHS, under the principle of not undermining existing NMHS. Where host governments have weak NMHS, UKMO is focussing on sharing forecasts and building capacity. In one anonymised interview a Government Official in a NMHS noted *'we don't get credible WCIS data from anywhere else, this is our only source'*.

As mentioned previously in the evidence provided (Finding 2), **the WISER programme played an important role in consolidating meteorological and climate services in Somalia, which was classified at the time as an FCAS.** Under the Somalia and South Sudan National Project, WISER-supported activities included enhancing co-production skills amongst

[94] KII 59, KII 60
[95] "An ex-post programme evaluation would be needed to quantify the actual resilience benefits to communities most affected by climate change who now have access to new and strengthened climate service" (ARRCC Programme Completion Report, November 2022).
[96] The ET acknowledges that there has been enhanced focused on all these aspects of GESI in the current three WISER regional programmes.
[97] Report 2024-03 – Evaluation – HIGHWAY Project
[98] KII 35, KII 70, KII 32
[99] ICIMOD_WCIS in Pakistan - Assessing benefits and impacts on key farm outcomes from a user perspective.
The study aimed to identify areas where the agromet advisories produced and disseminated by PMD could be improved. Underpinning this aim was the concept of equity; that is, the different information needs of men, women, and other marginalised groups must be considered to produce useful and usable WCISs. PMD are now producing audio clips that are distributed via WhatsApp and local radio in response to accessibility issue for those with low literacy and without access to WhatsApp – particularly women.
[100] Strengthening climate services in South Asia - Learning from the ARRCC programme. September 2022.
[101] Training and capacity development: Strengthening the knowledge and capabilities of providers and users of climate projection data.
[102] WP1 IBF Afghanistan country report
[103] KII 90
[104] Contribution claim: Key Contributor (For the FCAS evidence gathered, UKMO was alone in supplying technical assistance)

staff, developing the South Sudan Climate Information Services (CIS) plan using co-production techniques, the training of seven staff from South Sudan and seven staff from Somalia in CIS and using the products from ENACTS and various secondments for meteorological personnel from both FCAS.[105] The Institute of Meteorological Training and Research (IMTR) housed at KMD also provided training for staff based in FCAS, allowing them the opportunity to enhance their skills in both production and use of WCIS. [106]

Guidance on integrating WCIS in FCAS was developed in the report, *Best Practices to Inform Climate Information Services' Stakeholders Working in Conflict-Affected Countries: A Case Study of Somalia and South Sudan.* The guidance highlights the experiences, challenges, and learning from the implementation of the W3S project to inform and guide WCIS stakeholders in Somalia and South Sudan. It also showcases how impact was achieved and the strategic relationships forged to support the development and enhancement of WCIS in both countries. The experiences and emerging learning are synthesised to develop best practices for WCIS to guide practitioners operating in countries where NMHS are still in the formative and/or developing stages due to weakened state capacity, social and political unrest among other factors. ICPAC shared the findings from this report during GHACOF 61.[107]

WISER supported WCIS work in Afghanistan up until the point of renewed conflict when it had to withdraw. It also **provides WCIS to Yemen and some services in Bangladesh (cyclone early warning/ sea level rise) reach humanitarian settings in the Rohingya settlements**. Primary data collection under this evaluation in the Rohingya area (not currently covered by WISER) has evidenced a preference for better quality WCIS word of mouth communication – 99% of households currently receive WCIS from non-governmental organisation volunteers (not via mobile phone messaging). See Annex 7 for more detailed evidence and practical suggestions on future options for WCIS in fragile and humanitarian settings. See Annex 8 for a broader review of literature and entry points on WCIS in FCAS.

EQ3: Effectiveness of WCIS in informing decision making at the producer, intermediary and user levels

Table 6: Overview of EQ3 findings including SoE, contribution claim when relevant, and contradictory evidence

EQ3: TO WHAT EXTENT, AND IN WHAT WAYS, WERE IMPROVED WCIS EFFECTIVE IN INFORMING DECISION MAKING AT THE PRODUCER, INTERMEDIARY AND USER LEVELS?			
#	**Finding Statement**	**SoE**	**Contribution Claim**
10	UKMO introduced innovative assets, tools and systems to NMHS' which in general were well-received, although sustained use of these tools is not universal.	High	**Key Contributor:** WISER led specific innovative intervention and did this alone – without any other actor involvement
11	Provision of high-resolution, downscaled forecasts and WCI specifically tailored to the needs of end-users allowed critical preventive action to be taken to mitigate the effects of extreme weather events.	Medium low	**Contributor:** WISER was usually one actor amongst others
12	WCIS on their own are not completely effective in enhancing user-level resilience, without other supporting activities.	Medium low	N/A
Contradictory evidence: None identified			

UKMO introduced innovative infrastructure assets, tools and systems at the producer level (to NMHSs), which were generally well-received, though their sustained use has been uneven across different countries. This represents selective evidence of outcome and intermediate outcome level change in the WISER Global Theory of Change and selective evidence supporting the evaluation hypothesis – *Household level end users of WISER interventions trust, access and use climate information which contributes to improving their resilience. Some countries successfully leveraged these resources, whilst others faced significant challenges due to connectivity issues, financial constraints, and limited technical capacity*. There are significant disparities in the uptake and use of meteorological data across different regions, highlighting systemic barriers, such as funding and infrastructure deficiencies, which are beyond the sphere of influence (and existing budgets) for WISER.

[105] Somalia & South Sudan PCR Update (2021)
[106] KII 34
[107] WISER Africa EA Extension Closure Report (2022)

Tracing intermediary level results from programme reports (e.g. logframe data) is more challenging although there are a range of strong impact stories generated from e.g. BBC Media Action and Red Cross Red Crescent Climate Centre. This could be a function of the role of intermediary not initially being considered in the programme level ToCs. However, through this evaluation we have captured a range of intermediary voices and outcome stories (See **Annex 10**).

There is evidence that the provision of downscaled forecasts and tailored WCIS enabled end-users to take critical preventive actions against extreme weather events. Radio programmes under the WeatherWise initiative were particularly effective, helping communities make informed decisions about agriculture and fishing, as was wheat blast early warning systems in Nepal and Bangladesh. However, the broader success of WCIS in enhancing resilience at the user level was poorly evidenced – in part due to weak monitoring systems. See EQ5 findings for further details.

Table 7 below summarised some selective headline results collated from programme completion reports, highlighting reported results at the producer and user level. Intermediary level data was not routinely reported on.

Table 7: Summary of results achieved across Asia and Africa in WCIS programmes

Data level Programme	Producer	User
WISER (Africa)	29 plans and policies where WCI is better used[108]	8,161,676[109] people with improved resilience 482,219 households using new or improved climate information services 3,317,051 households able to access new/improved climate services through a range of intermediaries and communications channels
ARRCC	16 tools and systems implemented[110]	Number of people with improved resilience not reported. 2,292,000 people supported to better adapt to the effects of climate change [111]

GESI –GESI was an issue in the closed WISER programmes, with many reports and stakeholders highlighting gaps. There were some exceptions. In ARRCC, we note that two of the 16 systems enhanced/tools developed specifically addressed gender and social inclusion needs (IBF pilot in Pakistan adapted communications channels based on female farmer preferences; IBF work in Nepal developed key vulnerability and exposure indicators which accounted for gender and demographics). In Africa, various projects also designed their tools and processes considering GESI (i.e. adjusting radio shows times to be at times to fit round women's domestic and livelihood activities).

FINDING 10. UKMO introduced innovative assets, tools and systems to NMHS' which in general were well-received, although sustained use of these tools is not universal.[112]

Across both regions and partners, NMHS reported that the meteorological infrastructure assets, tools and systems introduced by UKMO were received, in general, positively and in many cases being used in various forms today. Box 3 provides a selection of these:

Box 3: Selective examples of assets, tools and processes well received.

ENACTS - ICPAC's and introduction of objective (rather than non-scientific consensus) forecasts and Installation of a 'super computer' at ICPAC has enabled development of seasonal, monthly and other forecasts for the entire GHA region.

SCIPEA, ENACTS and W2SIP – ICPAC maprooms provided NMHS with the tools and data to produce downscaled forecasts.

WISER Western (Kenya) – using ICPAC maproom data, tools and co-production techniques, the KMD CDMS were able to produce downscaled forecasts at County level.

[108] WISER Africa Programme Completion Report, March 2022
[109] Number of people with improved resilience resulting from WISER support (ICF KPI 4). Not gender disaggregated. To note – target was 14 million. This figure is an aggregate of 2,419, 034 (Uganda National Project); 3, 183, 528 (Rwanda National Project); 1, 136, 854 (HIGHWAY); 953, 260 (DARAJA); 469,000. No data was available for WISER 1.
[110] ARRCC Programme Completion Report, November 2022
[111] ibid
[112] **Contribution claim: Key Contributor** (WISER led specific innovative intervention and did this alone – without any other actor involvement)

Multi-Hazard Early Warning Systems (MHEWS) – Early development of forecasts for the coastal and ocean areas of Tanzania serving fishermen, maritime transport and the gas fields in Mtwara regions.

Bangladesh - UKMO worked with the Institute of Water Modelling (IWM) to create a model on sea level projections under the CARISSA project[113]

Pakistan – Tailoring of the existing Met Office "Climate Grid" software to enable the conversion of observational data into gridded data in Pakistan.

Nepal, Bangladesh and Pakistan IBF development and roll out.

Key stakeholders across contexts highlighted how these interventions (and others like them) had enhanced various institutional capacities.[114] Although often well received across stakeholders, a number highlighted that these new tools, systems and processes were not always demand driven and / or based on their own priorities, which has perhaps had longer term implications for sustainability that were within the programme's control to design for from the beginning.[115] There are also sustainability issues in relation to the on-going use of these assets, tools, and processes due to wider contextual and enabling environment factors discussed in findings below that need to be considered in current or future programming design.

FINDING 11. Provision of high resolution, downscaled forecasts and WCI specifically tailored to needs of end-users allowed critical preventive action to be taken to mitigate effects of extreme weather events.[116]

Where we gathered primary evidence[117] from intermediaries (radio show /hosts and Mtaani leaders) and end users (farmers, fisherfolk / sellers, pastoralists) based in Kenya, they highlighted that through co-production processes the provision of downscaled forecasts, related advisories and targeted WCIS was useful for making a difference to people's lives during the WISER programme. Like the NMHS before them, many of the intermediaries welcomed support, new tools, and training through WISER-supported projects (DARAJA and WeatherWise in Kenya). These intermediary stakeholders often went on to convey improved WCI to their own constituents (i.e. farmers, informal settlement dwellers, fisherfolk and dwellers etc.) during and after WISER support, although with reduced frequency or with some quality comprised, after project support ended. Intermediaries, such as Weather Mtaanis and SAAOs, often used Short Message Service (SMS)/WhatsApp to convey messaging but they and their constituents continued to convey the importance of word of mouth as a medium for WCI flows. These end-users, in turn, often conveyed WCI messages widely within their own communities. Stakeholders reported that improved weather forecasts have helped reduce livestock losses, supported how farmers respond to agricultural disease outbreaks, mitigated the possibility of conflicts, and improved income generation. The overwhelming majority related that they experienced significant challenges related to WCIS accuracy, locality, and accessibility, with on-going funding constraints across contexts and stakeholder types being a significant issue. Please see Annex 10 for further details and understanding of the supporting evidence base on intermediaries and end users' voices. Some examples include:

Nearly all radio show producers, who had participated in WeatherWise, praised the capacity-building workshops provided by the BBC Media Action. They reported that the training significantly enhanced their understanding of meteorological information and improved their ability to communicate this information effectively to their audiences. As one commented, *'(o)ne of the workshops involved the journalists and the scientists. The scientists helped us understand the more complex terms they use so that we can package it in a way our listeners can understand'*. They highlighted the positive collaboration with KMD on the project and how they had significantly increased the number of WCI focused segments on their radio shows during WISER. Many highlighted that the frequency of WCI focused radio shows on their stations has declined since WISER support ended, one commenting: *'We still do once in a while interview the experts of KMD when matters arise to either prepare people for what is coming up in the season occasionally, but that consistency is not there'.*

[113] The IWM work was part of a larger project involving wide actors including Pakistan Meteorological Department. IWM was supported over a period of years to develop their system for providing local-level variations in sea level rise along the coast of Bangladesh, using the new sea-level projections and additional local datasets. This data has been integrated into IWM simulation models of the Ganges-Brahmaputra-Meghna basin, river systems and the Bay of Bengal. The information generated helps to understand inundation and overtopping due to sea level rise and increased storm surge. Whilst there is some evidence that the data and model were used to influence the Bangladesh Delta Plan, IWM have no funds to use the model now and update the data.

[114] For example: KIIs 17, 21, 33, 36, 37, 38, 43, 48, 89

[115] KIIs 33, 40, 89

[116] **Contribution claim: Contributor** (WISER was usually one actor amongst others)

[117] All the data presented for finding 11 is based on the ET data collection as part of the evaluation, and is independent of any other data collected.

Radio programmes produced under the WeatherWise programme (implemented by BBC Media Action and the Network of climate journalists of greater horn of Africa (NECJOGHA) were cited by both listeners and radio presenters as being very successful and useful. A radio presenter reported the ways in which information broadcast assisted listeners in undertaking more profitable livelihoods. *'We covered how goats, especially in the dry season, can be kept in these areas because they are more resistant to the acid areas. We were advising them on how to rear goats when compared to other animals like cows, because when its dry season you have to look for more pasture for cows as compared to goats. We [also] did a story about the importance of using modern boats for fishermen on the coast. Because our oceans have been really affected by climate change, so many have started going to the deeper sea areas. The fishermen who are using traditional boats made of wood cannot make it; they need to use modern vessels. In the show, I was advising the government or our local leaders to buy the fishermen those kinds of boats or facilitate them to invest in modern boats… after a few months I was called by a project called KEMSFEED – a marine project. They told me they had written a proposal, and they were going to buy the boats - they went and did their own research, and they bought about 19 boats for the fishermen.'*[118]

A listener of Ekeyokon Radio in Turkana also mentioned how the weather information provided in the radio programmes was used to make decisions regarding livelihood activities.

'During dry seasons, we used the information to collect livestock feed and store [it], so the animals have feed during rainy seasons. In rainy seasons, we used the information to prepare for better storage for charcoal and harvested crops. We also graze our livestock far away from the riverbanks to prevent them from being washed away by the river. For those of us who are farmers, we look for seedlings so that they are ready to be planted during rainy seasons. We also store water from the rains to be used during dry seasons by both the livestock and crops.'[119]

'Users don't want to receive forecasts; they want advice on action.'

Senior Official, Bangladesh Meteorological Department

The provision of weather information by Weather Mtaani Leaders in the Kibera informal settlements under the DARAJA project also influenced decision-making by end-users, specifically with respect to extreme weather events. Out of the 134 recipients of weather interviewed, 80 (60%) indicated that they use the information they receive in various ways to mitigate the effects of predicated weather events. These included moving their belongings to safer places prior to weather events (38.8%), undertaking repairs to their homes (31.3%) or to their household's drainage (26.3%) and cleaning (28.8%) or repairing (23.8%) community drains.[120] In Kendu Bay, WCI is often used to make consequential decisions regarding agricultural production and fishing. Thinking about the WISER supported period, 72% of respondents who received WCI from the radio say they used the information in decision making. For example, 37% say they changed their fishing patterns or decision to go on the lake in response to WCI. Among individuals engaged in farming and who received WCI during WISER approximately 54%, reported making farming decisions based on WCI.

As part of ARRCC, CIMMYT worked with the UKMO and Cambridge University to pilot an early warning system to deliver wheat rust and blast disease (fungal infections spread by wind which can devastate crops) predictions directly to farmers' phones in Bangladesh and Nepal.

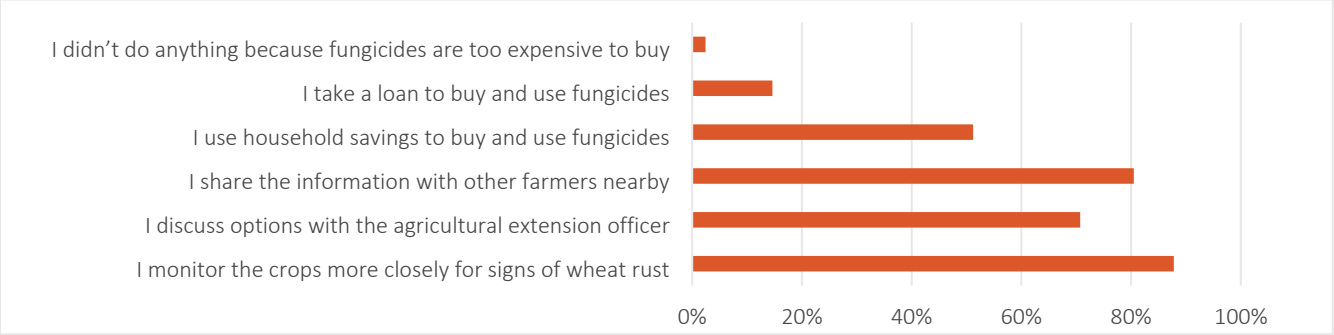
The system was first developed in Ethiopia. It uses weather information from the UKMO, along with field and mobile phone surveillance data and disease spread modeling from the University of Cambridge, to construct and deploy a near real-time early warning system.[121] CIMMYT reported that wheat disease forecasting was providing warnings and advice to 500,000 farmers in Nepal and Bangladesh.[122]

Primary research conduction in Bangladesh under this evaluation, interviewed a random selection of farmers and SAAOs in districts where wheat is a dominant crop.[123] 80% of farmers (N=45) confirmed that they had suffered from wheat rust,

[118] KII 105
[119] KII 117
[120] Primary data collection undertaken during the thematic evaluation
[121] https://www.cimmyt.org/projects/asia-regional-resilience-to-a-changing-climate-arrcc/ and ARRCC Impact Stories, Early Warning Systems for Wheat Diseases.
[122] ARRCC Programme Completion Report, November 2022
[123] See Annex 10: WCIS Voices: Intermediaries and End Users. We were not able to identify participants in the WISER-supported Wheat Rust project in Bangladesh due to the lack of identifying or geographic data from CIMMYT. Therefore, the ET selected districts affected by wheat rust in the past five

with 55% of these farmers stating that they had lost up to 25% of their crops in the year they suffered from wheat rust. Ninety-five percent of farmers had been receiving wheat rust advisories for the last three years and most also received weather forecasts (84%). Most received advisories from SAAOs (81%) and this was the farmer preference. SAAOs felt that advisories and forecasts could be more specific to more localized and specific to farmers crops, using simpler language and most significantly be more regular. This was echoed by the farmers who felt that wheat advisories could be improved by being clearer from a messaging perspective and be more regular (78%) and be more locally relevant (62%). Figure 3 below sets out what farmers in this sample do when they receive advisories.

Figure 3: What do Bangladeshi farmers do with the wheat rust advisories they receive?



See also 'climate grid' evidence under finding three.

FINDING 12. WCIS on their own are not completely effective in enhancing user-level resilience, without other supporting activities.

Closed WISER programmes reported significant 'reach' and 'resilience' impacts by their end in internal programme reporting, although as indicated earlier, there was limited external validation of these figures. Primary data collection undertaken by the thematic evaluation today indicates that in specific contexts for specific target groups, as seen above, they report decision making that contributes to improvements in people's lives and livelihoods. Primary data also indicated that reach of WCIS (either through intermediaries, their constituents and people these constituents had also passed WCI information onto) was high.

However, evidence from these WISER stakeholders highlighted that the ability to implement anticipatory actions was often severely constrained by lack of financial resources to act and / or the wider enabling environment or organisations that might be better placed to support end user resilience. This highlights the importance of working with NMHS to themselves work within wider societal structures to support end user anticipatory actions. For example, to be able to act on early warning weather information (i.e. a large flooding event), government infrastructure at the local or county level (such as the County Disaster Management Units in Kenya) need to be involved early in project design. This would make it more feasible to ensure that provision for funds to support those living in informal settlements to mitigate the effects of floods is included in national and sub-national budgets.[124]

Evidence from Asia noted that future work should: *'Focus greater attention on the uptake and use of climate services. Most ARRCC interventions were focused at the government level in terms of strengthening systems, putting in place new tools and scientific methods, and building institutional capacity. There was an assumption in the theory of change that this would directly benefit vulnerable communities, but in many cases, the causal pathway down to the ground level were not well defined.'*[125]

years (Meherpur, Pabna, and Rajshahi). We then included farmers from these districts who had farmed wheat and resided there during the project period. Our survey focused on how they used sub-seasonal forecasts and advisories, and their actions based on information from local agricultural officers.

[124] We note that in current phase of WISER programming, care has been taken to ensure that city governance infrastructure in Kampala have been involved in designing and planning of the WISER project being implemented in informal settlements in Kampala, as has the Ethiopian Red Cross, which will provide a degree of infrastructural support to enhance the resilience with provision of WCIS, of people living in informal settlements in Addis Ababa (KII 21)

[125] ARRCC Programme Completion Report, P. 3.

EQ4: Factors limiting or accelerating the application of improved WCIS in decision-making, generally and in FCAS

Table 8: Overview of EQ4 including SoE, contribution claim when relevant and contradictory evidence

EQ4: WHAT FACTORS, INTERNAL OR EXTERNAL TO THE PROGRAMMES, MAY HAVE LIMITED OR ACCELERATED THE APPLICATION OF IMPROVED WCIS IN DECISION-MAKING FOR PRODUCERS, INTERMEDIARIES AND USERS? WHAT LESSONS CAN BE LEARNT FOR DELIVERY, IN GENERAL AND SPECIFICALLY IN AN FCAS CONTEXT?			
#	**Finding Statement**	**SoE**	**Contribution Claim**
13	Evidence suggests that NMHS's were not sufficiently involved/consulted at the early stage of WISER project design.	Medium low	N/A
14	More evidence, (i.e. Business Case studies) needs to be produced to demonstrate the value of WCIS in other sectors such as Health, Urban Planning, Agriculture, etc., to enable NMHS' to make the case at national level for greater investment in the provision of timely and accurate WCIS. Existing evidence should be leveraged within FCDO to maximise impact of wider UK Government climate investments.	Medium low	N/A
15	Both external (COVID-19 and budget issues) and internal (UKMO structural constraints) factors had an impact on momentum, delivery timelines and the effectiveness of WISER.	Medium high	N/A
16	Short- and long-term delivery constraints were perhaps not always considered when designing NMHS support packages. There was also little evidence of UKMO/FCDO mapping of WISER to other FCDO / donor investments in WCIS, which could have ensured UK investment added value and sustainability	Medium high	N/A
Contradictory evidence: (in relation to finding 15). Some key informants noted that moving UKMO support and training to an online environment allowed more people to attend. SASCOF also initiated online meetings which allowed broader attendance.[126] Whilst challenges exist (maintaining attention online for long periods/ connect issues etc.), some felt that this increased the access to UKMO support and built broader engagement.[127]			

The evidence gathered during the evaluation identified several high-level factors that influenced the application of improved WCIS. Key informants expressed the need for more inclusive consultation during the design phase of WISER, which could have improved the projects' reach and ensured adequate budgetary provisions, which may have led to more sustainable results. They emphasized the need for more comprehensive engagement with stakeholders across their own countries to improve the usefulness and uptake of WCIS. Evidence suggest that longer term delivery constraints were perhaps not factored in when initial packages of NMHS support was designed, which has ultimately had an impact on the longer-term viability and sustainability of WISER programme support across contexts. These have been more pronounced in FCAS.

Momentum took time to build, understandably, and then was impacted significantly by external factors, such as the COVID-19 pandemic and budget reductions. These significantly affected the implementation of WISER projects, causing delays, reductions in project scope, and challenges in maintaining project continuity.

Key Informants highlighted the need for a more coordinated approach among FCDO, other donors, national governments, and local organisations to ensure sustainability and enhanced outcomes. A politically informed strategy that maps FCDO and donor investments in WCIS, and coordinates efforts across sectors could optimise the value of UK and other international investments, ensuring that WCIS are used effectively to support climate adaptation, particularly in vulnerable regions.

FINDING 13. Evidence suggests that NMHS's were not sufficiently involved/consulted at the early stage of WISER project design.

[126] Observation of SASCOF Users Forum, 2024.
[127] KII 48

Several NMHS key informants interviewed stated they would have liked to have been more involved in design stage of WISER projects. A Kenya KII mentioned that if consultation with NMHS had taken place earlier in the project cycle, provisions could have been made in national and sub-national budgets to ensure the maintenance, protection and use of assets produced under WISER.[128] In Bangladesh, one senior official noted "*UKMO didn't ask us about our needs*".[129] A regional key informant in Asia noted that the UKMO should have consulted and worked with actors 'beyond NMHSs' in each country.[130]

FINDING 14. More evidence, (i.e. investment or business case studies) needs to be produced to demonstrate the value of WCIS in other sectors such as Health, Urban Planning, Agriculture etc., to enable NMHS' to make the case at national level for greater investment in the provision of timely and accurate WCIS. Existing evidence should be leveraged within FCDO to maximise impact of wider UK Government climate investments.

NMHS and other implementing partners, highlighted the importance of being able to demonstrate what enhanced WCI can mean or do for other parts of national government structures. At a national level, to ensure the sustainability of WISER investments in WCIS, it is necessary that budgetary provision be made at the national and sub-national levels. The provision of evidence (communications materials, business case studies and other documentation) of the importance of WCIS in different sectors by NMHS would significantly contribute to making a case for fiduciary inclusion.

For example, the role that WCIS can play in the health sector could be seen in the mitigation of malaria epidemics. A case study from Ethiopia demonstrates the effect of provision of a seasonal forecast indicating increased malaria risk, resulting in "*opportunities for planning and preparedness…[and] mobilising preventative measures and heightened surveillance; while early detection of cases confirms the scale of the epidemic and may indicate the point at which efforts need to switch the balance of intervention from prevention to effective case management*."[131]

Other key informants in Asia also noted the need to 'make the case' for WCIS data in order to secure adequate investments in Meteorological Department staff and infrastructure – citing strong work done in South America around health and WCIS and the opportunities to add value to decision making in infrastructure, energy etc.[132] Others in Asia cited strong demand signals from wider development organisations to provide improved WCI to humanitarian programming, which could provide additional funding streams for NMHS.[133] Understanding and capturing these demand signals could also support longer term commitments to resource NMHS.

WISER evidence should be leveraged within FCDO (and where appropriate across other departments) to inform wider climate investments – e.g. climate research agendas, climate and conflict programming, one UKMO informant noted "*WCIS should be embedded in FCDO humanitarian teams, we need to reach beyond the Research and Evidence Division*".[134]

FINDING 15. Both external (COVID-19 and budget issues) and internal (UKMO structural constraints) factors had an impact on project momentum, delivery timelines and the effectiveness of WISER.

During COVID-19, work on WISER-funded programmes changed in many ways across all type of projects and contexts. Some of the challenges encountered included:

- All interviews (with any type of stakeholder) had to be conducted remotely. This meant it was not possible to easily observe and understand how end-users were applying WCI to inform decision-making.
- There was more staff absent from programmes, leading to slower implementation of activities and delays in achieving scheduled deadlines.[135]
- In general, planned activities during COVID-19 were either cancelled or had their scope drastically reduced. Non-essential travel was restricted in many countries, limiting the ability to provide the same level of training

[128] KII 34
[129] KII 32
[130] KII 20
[131] WHO: Malaria epidemics: forecasting, prevention, early detection and control – From policy to practice, WHO/HTM/MAL/2004.1098, 2004.
[132] KII 48
[133] KII 37
[134] KII 53, KII 49
[135] WISER Africa EA Extension Closure Report March 2022

compared to pre-pandemic levels.[136] This included the HIGHWAY project, which reported that because of COVID-19 related restrictions, carrying out [a resilience study" in Rwanda was not possible….and that ActionAid Uganda was not able to fully complete activities pertaining to their Implementing Agreement….[representing' a USD 42,484 underspend."[137]

- FCDO experienced a turbulent period of funding reductions due to ODA cuts. In ARRCC, the programme budget was reduced more than once, meaning the size and scope of the programme fluctuated and the partners were often uncertain of the future available budget. A study to pilot a methodology for calculating the socio-economic benefits of climate services in the agriculture sector in Pakistan had to be significantly scaled down due to budget constraints.[138]

Some individual projects were significantly affected, with the WISER supported Aircraft Meteorological Data Relay (AMDAR)[139] project reporting:

- Delays in procurement of the AMDAR software reported (request for quotations, raising of the purchase order.
- International travel restriction resulted to grounding of some or all the fleet which resulted to difficult roll-out of the programme operational. [Even when] flights resume[ed], there [were] still very few flights compared to before the pandemic.
- Kenya Airways lost some of the team due to a voluntary exit programme in line with reduced aviation activities worldwide[140].

The DARAJA project reported that, *'[h]ad COVID-19 not occurred, we believe the expansion and scale-up of DARAJA into other Sub-Saharan Africa countries and other global regions would be more advanced.'* A positive comment from the same project was that *'the trusted channels created by the project have been used by the media partners and community leaders to disseminate COVID-19 related messages.'*[141]

Key Informants across groupings interviewed reported that although UKMO provided excellent technical expertise on WCIS, some of the other project management skills were lacking, including the processing of financial reports[142] and delays in procurement of vital equipment such as computers.[143] Some considered these more wider UKMO structural issues that impacted on how it managed and delivered its work, as an FCDO KII commented, *'UKMO are a technical organisation, it's become evident they are not a development organisation'.*[144]

Other factors outside the control of UKMO and FCDO also impacted delivery, with work in Afghanistan coming to an early close due to the conflict.

FINDING 16. Short- and long-term delivery constraints were perhaps not always considered when designing NMHS support packages. There was also little evidence of UKMO/FCDO mapping of WISER to other FCDO/donor investments in WCIS, which could have ensured UK investment added value and sustainability

[136] CRISPP_PCR_2020
[137] HIGHWAY_PCR Resubmission_2020
[138] ARCC Programme Completion Report, November 2022
[139] https://www.metoffice.gov.uk/services/government/international-development/weather-and-climate-information-services-wiser/completed-wiser-projects/aircraft-meteorological-data-relay-amdar
[140] AMDAR_PCR_2021
[141] DARAJA_PCR_2020
[142] KII 47
[143] KII 34
[144] KIIs 4, 6, 89

Although it is understood that UKMO undertook assessments of the NMHS they would work with prior to undertaking any activities, it is unclear if these assessments were as comprehensive as they could have been.

It is important that programme designers understand the wider ecosystems the NMHS operate within and the short and longer term - including their delivery constraints regarding the sustainability of their enhanced WCIS after WISER support ends.[145] The ability of NMHS to sustain capacities, activities, and the use of products supported by WISER needs to be taken into consideration in the design phase of interventions to maximise investments. The sustainability issues described in EQ5 indicate that either these types of assessments were not made or that they were but considered out of the scope of WISER support.

Key elements of potential context mapping for WCIS at a country level

1) NMHS technical capacity assessment
2) A mapping of WCIS data flows and dependencies across Government
3) A mapping of other donors and their investments in WCIS (including clear mapping on all relevant FCDO programmes)

(See Annex 9 for a WCIS framework assessment for future use)

Clear mapping of WCIS data flows and relationships across Government would highlight entry points and barriers for WISER investments (see the PEAs produced as part of the evaluation for examples of WCIS dataflows from a range of WISER countries). Mapping FCDO programmes (central, regional and bilateral) and wider donor programmes would also enable conversations on how synergies and opportunities could be maximised – ideally led by FCDO country teams, as per a recent exercise in Nepal.[146] If design teams note that post WISER sustainability is likely to be an issue, they might design different entry points or programme elements which e.g. build up the links to other funding sources, including the GCF.

Examples demonstrating a lack of understanding of partner constraints:

Over the course of WISER, ICPAC and various partners worked with the majority of IGAD MS to provide them with individual maprooms and carried out numerous training activities to ensure that capacity was built within sectoral user communities. While some NMHS from some MS, such as Kenya and Ethiopian Met services, could successfully leverage the tools and resources provided by ICPAC, others such as Uganda National Meteorological Agency (UNMA), the South Sudan Meteorological Department and the meteorological services agencies in Somalia were not able to exploit these resources to their full potential. In the case of Uganda, the UNMA had to be sent a static maproom copy, due to connectivity and server issues. This meant that the Agency was not able to use the maprooms online and therefore access the required data and tools in real time[147]. With respect to South Sudan and Somalia, both lack the financial resources and the infrastructural technical capacity to make use of these resources. According to one stakeholder, *'downscaling and use of weather data provided by ICPAC back to Somalia has not been possible so far for a number of reasons – funding being a primary one and lack of trained meteorological personnel'* and that currently Somalia does not have any Doctor of Philosophy graduates with expertise in Climate or Meteorological science, both factors limiting their ability to take up the ICPAC products[148]

In Bangladesh, the IWM was selected to create a model on sea level projections under the CARISSA project. IWM (a non-governmental research consultancy) was selected as UKMO felt that they had strong networks and connections with Government decision makers.[149] They worked closely with UKMO over a period of years to develop a system for modelling local-level variations in sea level rise along the coast of Bangladesh, using the new sea-level projections and additional local datasets. This data was integrated into IWM simulation models of the Ganges-Brahmaputra-Meghna basin, river systems and the Bay of Bengal – improving understanding and models on inundation and overtopping due to sea level rise and increased storm surge. Whilst there is some evidence that the data and model were used to influence the Bangladesh Delta Plan, IWM have no funds to use the model now and update the data. Had a different approach been taken, which embedded Government representatives into this work, the sustainability of the investment is likely to have been better.

Future Funding: One senior UKMO official noted that they recognised the need to look for and support NMHS applications to other funding sources, including GCF.[150] This will require close collaboration within FCDO on wider GCF

[145] Please see the WCI information flows within each of the Stories of Change produced as part of the evaluation, which highlight this wider operational environment.
[146] KII 90
[147] KII 46
[148] KII 44
[149] KII 51
[150] KII 51

influencing and a dedicated technical lead/team – either in FCDO or UKMO working on future financing pipelines. See related points under EQ5 below.

Factors influencing WCIS delivery: A range of lessons and evidence on operating in FCAS and humanitarian settings is provided in **Annex 7**. Annex 8 provides a review of literature and entry points for WCIS in FCAS.

EQ5: Sustainability of results following the closure of WISER1&2 and ARRCC programmes

Table 9: Overview of EQ5 findings including SoE, contribution claim when relevant, and contradictory evidence

EQ5: FOLLOWING THE CLOSURE OF THE WISER 1&2 AND ARRCC PROGRAMMES, WHAT PROGRAMME RESULTS HAVE BEEN SUSTAINED, IN WHAT WAYS, FOR WHOM? AND WHY?			
#	**Finding Statement**	**SoE**	**Contribution Claim**
17	Closed WISER programmes do not appear to have been designed from the outset with a view to ensuring the sustainability of results, across the entire WCIS value chain	High	N/A
18	The 'readiness' of NMHS' and their on-going ability to take up or support improved WCIS assets, systems and processes was not always understood, and limited sustainability.	Medium high	N/A
19	Years after WISER programmes have ended, results and the mechanisms through which they have been delivered have been partially sustained for some users (i.e. producers, intermediaries and end-users). There remain significant sustainability challenges (financial and technical) and without ongoing support, these results are likely to taper off.	High	N/A
Contradictory evidence: (Finding 17) In Nepal - an unintended case of short-lived sustainability was evidenced. People in Need (a charity) had no contact with the ARRCC programme when it was live. When ARRCC closed, People in Need took responsibility to continue using one of the EWS mechanisms (WhatsApp's and Viber groups) that ARRCC had supported under its programme. They also funded a technical post within the Nepal Meteorological Service. Unfortunately, this was short lived due to funding constraints.			

This evaluation highlights several issues related to sustainability in the delivery and application of WCIS with no clear pattern or evidence of sustainability at producer, intermediary or user levels. Clear from evidence gathered today is that, while WISER projects successfully enhanced technical capacities at several levels, there was insufficient planning for the continuity of this work post-funding.[151] The expertise, capacity and technological improvements seen under WISER have, overall, reduced under the absence of clear sustainability plans and funding. The rotation of government staff and the lack of budgetary provisions for on-going training and maintenance of equipment further compounded these issues, leading to gaps in service delivery. These issues reflect a broader trend, as noted in external reports, of donor-funded interventions failing to provide strategies for sustainability, leaving developing countries dependent on international aid.

While some WISER interventions produced long-term benefits, the lack of sustainability planning has limited the lasting impact, putting gains made in technical capacity and climate service delivery at risk of erosion without continued financial and technical support.

FINDING 17. Closed WISER programmes do not appear to have been designed from the outset with a view to ensuring sustainability of results across the entire WCIS value chain

As previously indicated (Finding 13), constraints which may eventually hinder the sustained delivery of services stimulated or produced with WISER funding, were not always considered when designing the project. These constraints are evident across the entire value chain and range from maintaining the technical skills of producers and intermediaries, to ensuring that end-users can continue to use WCIS for planning and decision-making, primarily with respect to livelihood focus and anticipatory action.

[151] A question this raises is how far UKMO/ WISER would be responsible for sustainability of investments when programme support ends and is a question for FCDO and UKMO to resolve.

Under WISER, the KMD IMTR was recognised as the WMO training Center for WCIS for Africa. To be able to offer technical capacity building to NMHS staff and partners, the technical capacity of trainers at IMTR must be continually enhanced. One Key Informant stated that while under WISER, technical expertise from UKMO was consistently being transferred to trainers at the IMTR, thereby ensuring their capacity to improve the skills of others. When WISER funding ended, however, the pathway to ensure this continual upgrading of skills for trainers at IMTR was not clear.[152] In order for producers of enhanced WCIS, such as NMHS and regional organisations such as ICPAC, to be able to provide cutting edge technical expertise and skills, they too must have access to the latest technology and training.

The same holds true for intermediaries for provision of WCIS (who can also be producers themselves). Under WISER Western in Kenya, staff responsible for the provision of meteorological and climate information at the County level were trained in how to use the ICPAC maproom data and tools (usually provided by KMD) to provide forecasts which were downscaled to the County geographical level and tailored to the livelihoods primarily undertaken by those living in the County-specific agro-ecological zones. One of the activities of WISER Western was to educate end-users on the benefits of understanding these forecasts. This activity was very successful and engendered considerable demand amongst end-users in the counties involved in the project. As is the case with most government staff, KMD CDMS personnel are rotated around the country to different counties after several years in the same post. Incoming staff are often not equipped with the skills to continue the provision of the downscaled forecasts and require training to build this technical capacity. If provision has not been made in national and sub-national budgets for this type of training, and other costs related to maintaining equipment and ensuring continued connectivity, the provision of downscaled forecasts simply ceases, leaving end-users upset and eroding the confidence and trust that the KMD CDMS has built up over the previous years.[153]

The lack of planning for sustainability is echoed in a report exploring the investment into sustainable climate services, which states *'[s]ustainability strategies are also missing from many donor-funded interventions, meaning insufficient resources are allocated to maintaining or expanding on the initial investment.'*[154] The report further concludes that *'[t]his results in a reliance on ongoing international aid in order to maintain programmatic interventions, often rendering African countries beholden to international partners.'*[155,156]

One UKMO staff member noted that there is *'still a great need for international support to countries who most need it. I'd be concerned that regionally focussed programmes don't enable that. But with the funds available -it is a trade-off… we all need to consider building up other funding sources, like GCF.'* They went on to note, *'ambitions have increased, but budgets haven't.'* [157] Other UKMO staff noted the 'cliff edge' of funding shortfall, which happened at the end of ARRCC.[158] Delays to the start of the new regional programme CARA meant that some relationships and momentum were lost. Capacities which were built up under ARRCC and were expected to carry through into CARA have also been lost as priorities under CARA meant that some work packages were deprioritised (e.g. Bangladesh Meteorological Department had built up a team on climate projections – which now won't be supported under CARA.[159] We also understand that Pakistan is not now supported under CARA – posing a risk that considerable investments and progress could be lost (see Pakistan Story of Change for a more detailed view of progress made to date).

As new bilateral programmes started to progress, there appears to have been some communication gaps whereby UKMO weren't made aware of imminent commercial contracts in Asia where they were expected to be a resource partner (RAIN). UKMO is not sufficiently staffed to be able to respond to the growing demands (of bilateral and regional programmes) and recruitment takes considerable time.

FINDING 18. The 'readiness' of NMHS' and their on-going ability to take up or support improved WCIS assets, systems and processes was not always understood, and limited sustainability.

[152] KII 34
[153] Ibid.
[154] Dupar, M., Weingartner, L. & S. Opitz-Stapleton. (2021). Investing for sustainable climate services: insights from African experience. ODI.
[155] Vogel, C., Steynor, A. & A. Manyuchi. (2019) 'Climate services in Africa: re-imagining an inclusive, robust and sustainable service' Climate Services 15 (100107) (https:/doi.org/10.1016 /j.cliser.2019.100107).
[156] Harvey, B., Jones, L., Cochrane, L. and R. Singh. (2019) 'The evolving landscape of climate services in sub-Saharan Africa: what roles have NGOs played?' Climatic Change 157(1): 81–98 (https://doi.org/10.1007/ s10584-019-02410-z).
[157] KII 52
[158] KII 54
[159] KII 52

Sustainability has been limited at an NMHS level by what appears to be a lack of understanding of wider NMHS capabilities. As mentioned previously (see also evidence presented under **Finding 16)**, the capacity of individual NMHS to use the tools provided by WISER-funded activities differed widely across NMHS. Prior to undertaking WISER activities and even at the design stage of potential project investments, rigorous and comprehensive needs assessments must be carried out to understand the capacity of NMHS'.

One example which demonstrates how a lack of wider knowledge regarding the capacity of an NMHS to both analyse and use data is the WISER AMDAR project. WISER AMDAR involved attaching instruments to aircraft within Kenya Airways' fleet which could collect various types of data to inform better and more precise forecasting by the KMD.

According to a Key Informant, there has been, to date, *'[n]o AMDAR data utilisation … at KMD and Kenya Airways due to administrative and bureaucratic delays which prevented essential project purchasing and contracting processes, leading to delays in technical implementation. [In addition], without AMDAR software capability on all aircraft, there was limited upper air data collection, data transmission, collection and processing by KMD, and ultimately no application and utilization by forecasters to improve forecasters and services.'*[160] The potential of AMDAR was never fully realised, however, KMD had neither the capacity to analyse the data from the aircraft, nor the capacity to include the results of analysis in their forecasts.[161]

In Asia, there was a diverse range of capacities across the NMHSs and sometimes and over-dependency on one senior individual in the NMHS. In Nepal, there was a change of senior staff in the Department of Hydrology and Meteorology (DHM) which, in the absence of a memorandum of understanding, created some turbulence as priorities swung between meteorology and hydrology. In Bangladesh, the Head of Forecasting retired and there was a notable vacuum of leadership and continuity for UKMO work.[162] In Nepal, there were so few forecasters in the DHM that the British Embassy in Nepal and People in Need (an international charity) both temporarily funded a post at DHM to allow early warning projects to continue.[163]

FINDING 19. **Years after WISER programmes have ended, results and the mechanisms through which they have been delivered have been partially sustained for some users (i.e. producers, intermediaries and end-users). There remain significant sustainability challenges (financial and technical) and without on-going support, these results are likely to continue to taper off.**

We have already described above illustrative institutional results that have been sustained after the programme has ended (see Findings 10-12), for this finding the focus will be on the evidence we gathered at an intermediary and end user level. We undertook deeper data collection in our focus countries. We interviewed fisherfolk, sellers, pastoralists, farmers and radio show presenters/producers in Kendu Bay, Marsabit, and Turkana, informal settlement dwellers in Nairobi, KMD CDMS and their staff, and member of the Kenya CDMU. We also interviewed SAAOs and farmers in the same wheat farming districts in Bangladesh in which WISER operated. All are highly vulnerable to the effects of climate variability, and/or have roles that engage with WCIS and have previously received WISER support. We asked them about their experiences under the WISER-funded programme activities and their experiences today (now that WISER funding has stopped), related to weather climate information. Often, we tried to ask and triangulate answers across stakeholder types and through both qualitative and quantitative surveys.

In summary, **many welcomed support and training through WISER-supported projects** (DARAJA and WeatherWise in Kenya) and the importance of WCIS for their farmers and SAAOs for wheat rust affected areas in Bangladesh. **These intermediary stakeholders often went on to convey improved WCI to their own constituents** (i.e. farmers, informal settlement dwellers, fisherfolk and dwellers etc.) **during and after WISER support, although with reduced frequency or with some quality comprised, after the project support ended**. Intermediaries, such as Weather Mtaanis and SAAOs, often used SMS/WhatsApp to convey messaging but they and their constituents continued to convey the importance of **word of mouth** as a medium for WCI flows. These end-users, in turn, often conveyed WCI messages widely within their own communities. **Stakeholders reported that improved weather forecasts have helped reduce livestock losses, supported how farmers respond to agricultural disease outbreaks**, mitigated the possibility of conflicts, and improved income generation. The overwhelming majority related that they experienced significant challenges related to WCIS accuracy, locality, and

[160] KII 17
[161] KII 34, KII 17
[162] KII 52
[163] KII 87, KII 7

accessibility, with on-going funding constraints across contexts and stakeholder types being a significant issue. Detailed examples are given below, these are excerpts from Annex 10: where full references are provided.

Weather information is critical for end user fish sellers in Lake Victoria, with forecasts accessed via radio stations like Ekeyokon and Maata Radio both supported under WeatherWise. Fish sellers reported today that based on WCI shared on the radio they, 'call our customers and advise them not to come to the market if the weather is unfavourable'. Seasonal and monthly forecasts helped pastoralists decide on livestock sales, grazing areas, and water conservation. One KII reported, *'weather forecasts help us sell livestock before droughts and plan water storage to prepare for the dry season'*.

In Marsabit, pastoralists and farmers use weather information to make decisions about livestock sales, migration routes, and water conservation. Before a drought hits, pastoralists have been advised to sell livestock to avoid losses, while others store water or migrate to areas with better pasture. These strategies have helped reduce livestock losses and prevent conflicts with neighbouring communities. One respondent explained, ***'we sell livestock before a drought hits and migrate to places with better pasture, although sometimes this leads to conflict with neighbouring communities.'***

In Turkana, similar adaptive strategies are employed. Respondents emphasized the importance selling livestock before droughts, storing pasture, and using weather forecasts to plan for farming and grazing activities. One respondent noted, ***'with weather information, we can prepare better, selling livestock early and storing pasture for the dry season'.*** However, respondents also highlighted the need for more localized forecasts to prevent "blind" migrations and ensure better planning.

Similarly, in Turkana, weather information plays a crucial role in guiding pastoral and farming activities. Seasonal forecasts are valuable for planning livestock sales before droughts, identifying safe grazing areas, and managing water resources. One respondent stated, ***'weather forecasts help us sell livestock before droughts and plan water storage to prepare for the dry season'***. However, respondents noted limitations in the accuracy and frequency of forecasts, as well as gaps in the coverage of local areas.

In some cases, such as the DARAJA project in Nairobi, this has meant that the frequency of sharing of WCIS and the quality of the WCIS shared has diminished. These results have occurred largely because the Weather Mtaani leaders lack the funds to both share the WCIS through channels which require funds (WhatsApp messages and mobile phone messages) and to co-produce WCI with other stakeholders in a format that end-users find easier to understand. A Mtaani key informant highlighted that, ***'I'm a member of Weather Mtaani group, I used to send information to other people immediately after I got the messages. After our team leader got the message from the office he sent it to us and then we send to others. We used to receive the information through an SMS, which we then forwarded to other members…. Our leaders used to break the information down to a language that the community members would understand. We used to send messages weekly, sometimes after 2 weeks or sometimes monthly. It all depended on how we received the messages. Sometimes we could receive even twice a week.'***

Following the closure of the WISER DARAJA project, this same KII stated that, ***'after the WISER project ended everything changed drastically, when the project was ongoing the messages were being sent to us. We used to receive 500 shillings as a token per month for sending messages. After the project ended, although we do receive the weather information, there is no credit to send the messages. You must use your own money..[and that lately, we have not gotten any messages. Nowadays, we hear the forecast from the Radio, but from the KMD we are not receiving any. I am not sure why we are not receiving the weather information….Currently nothing is happening.'***[164]

Radio presenters and end-users of the WCIS produced during the Weather Wise project expressed many of the same sentiments. One radio presenter stated that during WISER funding ***'…I can attest that my programmes have been impactful to the community….[t]he best example are the farmers. With the information they get from our programmes, they plan for the season, because every beginning of the season I have to let them know how the season will be, the amount of rain, and things like that. For example, there are some crops that don't do well in certain weather conditions like thunderstorms or heavy winds – like watermelons do not do well here. I also advise them of the seeds to plant depending on the weather forecast for that season. I have several examples like that. For instance, there was a season I advised the farmers not to plant maize and those who listened carefully didn't plant maize, but they planted beans, peas and they did***

[164] KII 91

very well. This made it so even other farmers who were not listening to our program or taking the content seriously started to take it more seriously because there is value in it.'

When WISER funding ended, *'we had to change a little bit regarding how to source the content, because you know our local radio stations are not able to facilitate a journalist to travel to distant areas like Tana River or Voi County. So, we have been doing mostly stories and content from Kwale and Kilifi and parts of Mombasa. Going far, to Tana River or Taveta, we were not able to do that after the program ended.'*[165]

In the informal settlements in Nairobi, Weather Mtaani leaders reported that after WISER had ended, participation levels in community-based WCI dropped significantly. While some community members still showed interest and asked for weather information, overall engagement in organised activities like clean-ups decreased drastically due to the lack of incentives and resource. Many also requested better communication regarding the project today and whether it will continue.

Sustainability was a critical issue for nearly every respondent across stakeholder groups for a range of reasons, with sustained budgets being a core issue. For example:

- 97% of SAAOs interviewed in Bangladesh paid for their own travel and phones for their work, this was echoed by Mtaani and radio producers in Africa (see below)
- A major challenge highlighted by all Mtaani was the lack of financial resources to buy airtime for financial support (airtime for SMS, stipends) and logistical support (cleaning tools, protective gear) to continue effective dissemination of weather information and community activities by Mtaanis166
- Many radio stations, although not all, faced significant challenges in sustaining their weather programmes after WISER due to a lack of funding. This, they suggest has led to a decrease in the quality and frequency of the programme

In Asia, CIMMYT continue to support wheat rust early warning (in Nepal and Bangladesh) with small additional UK funding and through new significant philanthropy funding. In Pakistan, IBF work has expanded to new areas and climate gridded data sets work continues to expand (see Pakistan Story of Change Annex 11b2). In Nepal, People in Need temporarily led the IBF work in the pilot areas but have now run out of funds, Red Cross Red Crescent continue to develop work on heat early warning. Nepal Red Cross have integrated IBF into their ongoing Forecast-based Action and Shock-Responsive Social Protection initiative.[167]

3.2. Updating the WISER Global ToC

Following on from the earlier work of the ET, together with FCDO and UKMO on developing a WISER Global ToC, the ET reviewed the evaluation hypotheses and the WISER Global ToC. Evidence supporting or challenging the evaluation hypotheses are shown below (Table 10) and set out in Annex 11a alongside suggested actions for UKMO and FCDO – in particular around using the WISER Global ToC for future projects and risk management. A RAG (red, amber, green) rating was applied.

Table 10: Mapping evidence against the evaluation hypotheses

Evaluation Hypothesis / WISER programme trajectory	Summary	RAG rating
WISER interventions have improved the capacity, systems, and policies of 'producers and intermediaries' to use generate, communicate, access, and use WCIS data (at national/regional levels).	Evidencing - Tools, systems and processes all enhanced to generate improved WCIS as reported by many KIIs by multiple NMHS's in Africa and Asia. Significant bodies of programme documentation across contexts confirms this. - Producers / Intermediaries confirm improvements (e.g. International Federation of Red Cross and Red Crescent Societies, radio shows / producer supported by BBC Media Action WeatherWise, and Mtaani's supported by the DARAJA project). - Regional bodies confirm improvement (e.g. ICPAC, SASCOF).	

[165] KII 105
[166] Under WISER DARAJA funding, Weather Mtaani leaders received a monthly contribution to phone airtime.
[167] ARRCC Programme Completion Report, November 2022

Evaluation Hypothesis / WISER programme trajectory	Summary	RAG rating
	- Primary data collection in Kenya across multiple WISER supported projects across intermediaries and producers confirmed enhanced access, relevant and usability of WCIS following institutional capacity enhancements supported by WISER. Challenging - While enhancements to WCIS have been reported across contexts, which have produced more useful and relevant WCIS, questions remain on the on-going sustainability of tools, processes and systems without on-going support of NMHS, producer or intermediary concerned. - Some limitations remain on the ability of some NMHS's today to fully utilise all new tools due to financial and wider resourcing constraints.	
Co-production processes in the development and dissemination of WCIS lead to improved confidence in the delivery of services and decision making (by producers and intermediaries).	Evidencing - New partnerships have been sustained to this day - e.g. KMD, Kenya Airlines and WMO memorandum of understanding. - Multiple NMHS's confirm satisfaction with technical support and exposure to new tools, and usefulness of co-production processes. Challenging - What is co-production in reality? Co-production processes welcomed across the board but should be enhanced to include *co-design* with national counterparts for future programmes. - Tapering off of co-production processes following the end of WISER support reported across projects and stakeholder groupings. Some concerns on sustainability of services remain.	
Household level end users of WISER interventions trust, access and use climate information which contributes to improving their resilience.[168]	Evidencing - Project specific primary evidence exists in Kenya (from closed WISER programmes) that WCI produced by enhanced WCIS producer and intermediaries is making a difference to end user's / people's lives (i.e. anticipatory actions of informal settlement dwellers, livelihoods planning for fisherfolk / sellers and pastoralists. As with co-production processes, the levels of this being reported by various stakeholders grouping has tapered off following the end of WISER support. Serious constraints remain on funding which limit sustainability. Challenging - While project specific end users have reported the above, it would be challenging from an evidence perspective to extrapolate and generalise this to global / portfolio, regional programme or indeed country level.	

4. Conclusions & Recommendations

This section provides an overview of conclusions and recommendations based on the evidence generated during the evaluation. Please note that to avoid repetition we blended lessons learnt both with our findings above and conclusions section below.

4.1. Conclusions

[168] We suggest this is amended to: 'making a difference in people's lives' in line with the WISER Global vision agreed earlier this year at the joint ToC workshop, or at least is understood to mean this by all parties concerned

The closed WISER programmes have successfully delivered results, enhancing the WCIS skills, processes, assets and confidence of stakeholders to generate and disseminate enhanced WCIS across a range of contexts. It is delivered by a near universally respected key technical partner, UKMO, who continues to be held in high regard by partners in some cases years after support has ended. It is notable that even when WISER has ended there are many instances of stakeholders highlighting how the relationship with UKMO remains.

The regional delivery approach purposefully designed by FCDO at the beginning of WISER has been successful in delivering results, even when there have been times that working through regional or national partners has taken more time and resources to deliver. This has created a demonstration effect that has further supported successful delivery. Substantial NMHS capacity gaps remain at country level. UK support alone will not address all of the needs. A more deliberate approach to financing technical capacity building at a national level is required.

Utilising co-production processes has supported WCIS producers and intermediaries in generating more accessible and usable WCI for end users delivered in formats, times and modalities that are easier, cheaper and more relevant to them. This, in turn, where the WISER projects focused on end users and gathering data from them, has been shown to make a difference on end users' lives.

Even in challenging contexts, including FCAS and humanitarian settings, WISER has been successful in enhancing the WCIS ecosystems it worked within, and sometimes has been the only provider of services.

In some contexts, partners felt they could have been engaged earlier on and have been more involved in design processes. There is also clear evidence that the wider operational environment and longer-term exit strategies for WISER support were not always considered as project support was designed and delivered.

GESI and MEL (including wider needs assessment and political economy analysis) were core limiting delivery factors that impacted on WISER delivery and WISER being able to evidence its supported changes. Covid and budgeting fluctuations too impacted on momentum and results.

Today, there continue to be intermediaries and end users still using WISER supported WCIS to inform household and livelihood decisions. NMHS in many contexts still use WISER supported tools and processes.

Understandably given the scale, differing contexts and changing operational environment, challenges remain. Sustainability of processes, tools, and systems, in some cases two or four years after funding has finished have tapered off without on-going inputs, and are likely to continue to do so without further support. Improvements in designing for sustainability (in terms of project selection matching needs and political contexts as well as future financing strategies) are necessary. Certainly, exit strategies and more holistic assessments could have been undertaken but the complex, dynamic, and multi-stakeholder WCIS value chains within each operational environment are well beyond the resources of WISER to significantly change.

While FCDO are positive about WISER, which appears to be considered a highly effective programme, there are gaps in how FCDO manages and communicates about WISER internally (in terms of using existing evidence to influence other programming or adapting WISER approaches based on wider FCDO programmes).

As WISER continues and expands into new contexts, consideration needs to be given to whether UKMO has all the in-house skills and level of resources needed to deliver complex multi-faceted programmes. This is particularly the case for working on the last part of the Hydromet value chain - enhancing end user resilience.

Significant opportunities exist for WISER to continue to deliver good support to partners to enhance WCIS, in a locally relevant way, across new operational contexts, informed by some of the key lessons generated by this evaluation and enhanced MEL moving forward.

4.2. Recommendations

Recommendations based on evidence and findings gathered in the evaluation are provided below grouped across four key areas, linked back to findings and marked for specific audiences (Table 11). These recommendations are focussed on lesson learning and delivery for future implementation and have been shared and finalised with FCDO and UKMO teams.

Table 11: Recommendations

#	Recommendation	Related findings (code)	Intended audience
BUILDING COHERENCE, LEVERAGING IMPACT			
1	**FCDO needs to take an active role in identifying and linking to wider FCDO programmes (at a country as well as regional / global level) both during WISER and after FCDO funding ends** to build cohesive and coherent programming and sustainability. This may require a strategy to clearly support the delivery of this and dedicated personnel, as it will include engagement across FCDO on many fronts. FCDO could work towards this by improving internal communications across its departments / regional programmes to build a coherent plan for the use of WISER data and evidence (to inform current and future programmes). FCDO and UKMO also need to work together on developing a wiser partnership strategy, based on a meaningful and targeted stakeholder strategy. This would need to be live and opportunistic as well as planned and agreed, meaning active management of the strategy. This should become a key part of programme delivery across regions and part of the Global WISER ToC as well as the regional ToCs.	14, 16, 17	FCDO
2	**NMHS's can amplify their impact by working in partnership with intermediaries, particularly those ones that have experience in enhancing the resilience of end users.** However, attracting, vetting and co-ordinating potential partners requires significant skills, funding and support. FCDO needs to ensure that provision for this work is included in budgets. UKMO can support NMHS during programme implementation by assisting them to identify potential credible partners. **This may require skills beyond those currently existing within UKMO, including humanitarian / social protection, conflict specialists, gender and more MEL.** This will not only enhance opportunities for better results during implementation, but also improve future funding prospects.	6, 7, 16, 18, 19	UKMO FCDO
3	**Enhanced communication of WISER supported Change Stories and showcasing of results:** provision (budget and experienced team members) needs to be made in the WISER programme to include **dedicated evidence, learning and strategic communications component**. This not only showcases WISER achievements, but also enables IPs to provide potential partners and future donors/funders with high quality examples of their successes. It could also support FCDO being able to better communicate internally about WISER.	8, 14	UKMO FCDO
DESIGNING FOR SUSTAINABILITY			
4	**Enhancing strategic programming and capacity building** - UKMO to FCDO secondments should be continued and operate in reverse. FCDO secondments to UKMO could help accelerate UKMO capability building on 'managing and delivering development'.	14	UKMO FCDO
5	**NMHS need to be actively involved at the early stage of project design and development,** to enable them to make provision in their national and sub-national budgets for the maintenance, protection and sustained use of assets and outputs achieved under WISER. Or to make the case for external investments to NMHS to support longer term sustainability (i.e. Green Climate Fund (GCF) funding, Climate Risk and Early Warning Systems (CREWS) etc.).	2, 3, 4, 13, 16, 17	UKMO
6	**FCDO should design WISER programmes embedding appropriate partners from the outset - to ensure appropriate and sustained results.** For example, if changes in livelihood strategies are likely to be necessary, relevant partners should be engaged early (and funding mechanisms planned to ensure their ability to operate post WISER). Sustainability and approaches to delivering it must become part of programme delivery. All current regional programmes (and their component parts) need to be assessed as soon as possible for how sustainable activities / results are beyond FCDO funding / when they end. An active Sustainability Delivery Strategy, with dedicated resources and personnel and check in points on the workplan, needs to be developed.	6, 7	FCDO
7	**If resilience remains a core WISER global goal, and as WISER expands into new operational contexts, including FCAS and humanitarian settings, a gap analysis of UKMO skills needs to be undertaken to identify if all the expertise exists in UKMO to deliver this.** Where gaps	5, 8, 9, 12	FCDO UKMO

	are identified (for example, resilience, humanitarian, GESI / MEL) these need to be filled either within UKMO or with dedicated delivery partners.		
TAKING A POLITICALLY INFORMED APPROACH TO DESIGN AND DELIVERY			
8	**WISER programming across geographies must be informed by WCIS informed PEA and should be aligned with national WCIS policies, plans and commitments** (e.g., NDCs, NAPs) and a deeper understanding of WCI flows. Future interventions could: ▪ Be integrated into the wider FCDO / donor landscape and the enabling environment, i.e., which other donor current investments could be enhanced by WISER, which investments in the future could have greater impact due to provision of WCIS. ▪ Reflect national demand but also consider the capacity of NMHS to take up WCIS interventions. If they require additional support, budgetary provision should be ensured or links to other support identified. ▪ Ensure that the value of WCIS and processes to support it to all stakeholders (producers, intermediaries and end-users) is understood. For co-production to be a successful technique which is leveraged to encourage the buy-in of stakeholders, there must first be consensus on the value of that which is being produced. Sensitisation of stakeholders requires time and financial resources, which need to be funded as part of a WISER project. ▪ Be co-designed by relevant stakeholders who understand the added value of their involvement. ▪ Include in the design and budget continuous feedback loops between service providers and users, and scope for adjustment of activities, should feedback illustrate the need.	4, 6, 8, 9, 12	FCDO UKMO
9	**To deliver sustainable impacts, GESI should be integrated from the needs assessment stage to ensure that climate services address the diverse needs of all community members**. This then needs tracking to understand what adjustments to programming are made, with GESI also forming a part of how the programmes are adaptively managed. FCDO should consider asking UKMO to appoint a specialist gender partner (which would be normal for a programme of this size) and/or appoint GESI specialist in each region to support the programme. If a WISER Global Evidence & Learning Partner is considered (see Recommendation 10), this could be part of that facility. FCDO and UKMO will need to work in partnership on this to develop a viable solution.	8	FCDO UKMO
IMPROVING MEL APPROACHES, USING RESULTS FOR WIDER PURPOSES			
10	**FCDO should ensure financial provision is sufficient for UKMO to invest in a strengthened approach to MEL, including downstream partners** – particularly, establishing robust baselines and consistent monitoring and evaluation systems - crucial for accurately assessing the impact of climate services. This must include end users. As a second phase of regional programmes has been supported by FCDO and the level of investments to date, this is a critical recommendation to respond to. Beyond UKMO MEL budget and personnel strengthening, other options could include: ▪ Requesting that the externally contracted MEL partners of the regional programmes that the WISER component sit under today, include end user data collection in their programmed activities ▪ Developing a WISER Global Evidence & Learning facility that could plan to gather data across all regional programmes. Data could be collected at 5 – 10 sites routinely (every six months) tracking resilience / end user data longitudinally. This does not have to be statistically significant – i.e. 100 household per site (with 20% changing per visit to mitigate bias to those households / villages) but most importantly would happen over time, building up a significant data set. Interesting findings that emerge, could then be responded to with one off studies that would be more rigorous. The ET have shown that with the right local partners this does not have to be an expensive exercise	8, 19	FCDO UKMO
11	**Investment in end-user resilience skills and / or partnerships for WISER / UKMO** – during the evaluation, in an early set of recommendations, the ET suggested reducing the value	5, 9, 12	FCDO UKMO

	chain in WISER programming, so it did not include hope for change at an end user resilience level, as this has been so difficult to evidence robustly to date. This was rebuffed by both the FCDO and UKMO. That being the case, FCDO should ensure that sufficient budget and technical capacity is available for UKMO to design, manage and implement activities aimed at enhancing end user resilience. This includes the need to have skills and resources to measure and report against resilience measures.		
12	**FCDO should review results measurement approaches** with WISER style programming. Current approaches appear to incentivize UKMO to report output level results with less attention on outcome level change and very little incentive to triangulate results with independent third-party monitoring or evaluation.	8	FCDO
13	**FCDO should consider adopting a set of core indicators across WCIS programming** which could also be reported to global initiatives e.g., Early Warning for All Initiatives and/or Climate Risk and Early Warning Systems indicators, and indicators which are aligned to the SDGs and the Global Europe Results Framework (GERF) of the European Union.	8	FCDO

5. References

5.1. WISER literature

1. 3ie (2022) Strengthening resilience against shocks and stressors in low- and middle-income countries: an evidence gap map. https://3ieimpact.org/sites/default/files/2023-05/Resilience-REAPER-EGM-brief.pdf. Consulted November 2023
2. Agyekum et al (2022), The contribution of weather forecast information to agriculture, water, and energy sectors in East and West Africa: A systematic review, Front. Environ. Sci., 29 August 2022, Sec. Interdisciplinary Climate Studies, Volume 10 - 2022 | https://doi.org/10.3389/fenvs.2022.935696
3. FCDO (2020). FCDO Ethical Guidance for Research, Evaluation and Monitoring Activities. Available at: https://bit.ly/3s05Tlq.
4. King, M. F., & Bruner, G. C. (2000). "Social desirability bias: A neglected aspect of validity testing." Psychology & Marketing, 17(2), 79-103
5. Translators without borders (2018) What Matters? Humanitarian Feedback bulletin. https://translatorswithoutborders.org/wp-content/uploads/2018/04/What-Matters-Humanitarian-Feedback-Bulletin-Issue_01-28-February-2018_English-language-.pdf Consulted November 2023
6. Translators without borders (2021) Language characteristics and perspectives of long-term Rohingya refugees. https://translatorswithoutborders.org/wp-content/uploads/2021/05/Language-Characteristics-and-Perspectives-of-Long-term-Rohingya-Refugees_EN.pdf Consulted November 2023
7. Practical Action (2023) Boosting flood preparedness in West Africa through enhanced early warning systems. https://practicalaction.org/news-media/2023/11/15/boosting-flood-preparedness-in-west-africa-through-enhanced-early-warning-systems/ Consulted November 2023
8. Practical Action (2023) The missing voices approach manual. https://practicalaction.org/knowledge-centre/resources/the-missing-voices-approach-manual/#:~:text=The%20Missing%20Voices%20Approach%20developed%20by%20Practical%20Action,a%20way%20that%20prioritizes%20anonymity%2C%20privacy%2C%20and%20confidentiality. Consulted November 2023
9. Pallant, J. (2020). SPSS Survival Manual (7th ed.). Routledge.
10. WMO (2022) Early warnings for all. The UN Global Early Warning Initiative for the Implementation of Climate Adaptation. Executive Action Plan 2023-2027. https://library.wmo.int/idurl/4/58209

5.2. WISER programme documents

11. ARCAN MEL (2023) ARCAN Evidence Gap Map. June 2023.
12. UNECA. The Weather and Climate Information Services for Africa (WISER). Available at: https://www.uneca.org/WISER. Consulted November 2023
13. Met Office. Weather and Climate Information Services (WISER). Available at: https://www.metoffice.gov.uk/about-us/what/working-with-other-organisations/international/projects/wiser. Consulted November 2023

6. Annexes

Annexes are submitted in an accompanying folder, which includes:

Annex 1 Evaluation original terms of reference

Annex 2 Evaluation context

Annex 3 Evaluation approach, methods, data collection and analysis

Annex 4 List of documents reviewed

Annex 5 List of people consulted during implementation

Annex 6 Data collection tools

Annex 7 Delivering WCIS in FCAS and humanitarian settings

Annex 8 Options and ideas for future WCIS delivery in FCAS and humanitarian settings

Annex 9 Framework to inform future needs assessments for WCIS actions at country level

Annex 10 Weather and Climate Information Services Voices – Intermediaries and End-users

Annex 11 Deliverables

- Annex 11a – WISER Global Theory of Change
- Annex 11b – Stories of Change
  - Annex 11b1 – Story of Change – WICS Intermediaries and End Users in Kenya
  - Annex 11b2 – Story of Change – WICS in Pakistan
  - Annex 11b3 – Story of Change – WICS, governance and sustainability in Somalia
- Annex 11c – WICS Political Economy Analysis for deep-dive countries
  - Annex 11c1 – WCIS Political Economy Analysis – Kenya
  - Annex 11c2 – WCIS Political Economy Analysis – Bangladesh
  - Annex 11c3 – WCIS Political Economy Analysis – Nepal
- Annex 11d – Examples of validation workshops slide-deck
  - Annex 11d1 – Validation workshop slide deck – UK MO
  - Annex 11d2 – Validation workshop slide deck – Asia