WORLD METEOROLOGICAL ORGANIZATION

GLOBAL FRAMEWORK FOR CLIMATE SERVICES ADAPTATION PROGRAMME IN AFRICA

(GFCS APA PHASE II)

PROJECT FINAL EXTERNAL EVALUATION

REPORT

PREPARED BY

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The views expressed in this report are those of the author. These views do not necessarily coincide with the official views of the individuals and the organizations mentioned herein.

Contents

List of Tables

List of Figures

EXECUTIVE SUMMARY

This report presents findings of the final external evaluation of the second phase of the Global Framework for Climate Services - Adaptation Programme in Africa (GFCS-APA II). The evaluation aims to assess the extent to which the project objectives have been achieved and to identify lessons learned and best practices.

The GFCS-APA II project aims to strengthen the resilience of vulnerable communities in Tanzania and Malawi, by improving climate risk management and adaptation planning through the provision and use of quality sector-tailored climate services. The project has four outcomes:

i. Outcome 1: Enhanced capacity of National Meteorological and Hydrological Services (NMHS) to provide climate services;
ii. Outcome 2: Strengthened use of climate information by vulnerable communities for food security and livelihoods;
iii. Outcome 3: Strengthened capacity to use climate information for public health preparedness and resilience to climate related health risks; and
iv. Outcome 4: Increased use of climate and weather information to improve disaster risk reduction in vulnerable communities.

The project was approved in December 2017, implementation started in August 2018 and will end in September 2021. There are four international partners implementing the project namely WMO, WFP, WHO, and IFRC.

Methodology

This evaluation applied various methods of data collection (desk review, key informant interviews and focus group discussions). Further, the assessment used the evaluation criteria endorsed by the OECD-DAC: Relevance, Coherence, Effectiveness, Efficiency, Impact, and Sustainability. The methodology complies with the UN Norms and Standards for Evaluation. Qualitative and quantitative data was collected by the evaluator. Results, findings, conclusions and recommendations are based on the analysis from the qualitative and quantitative data collected. The evaluation was conducted between 19th February 2021 and 31st March 2021.

Key findings

A. Highlights of the results

A summary of main highlights is included in the Table below:

Outcome	Main highlights
1. Enhanced capacity of National Meteorological and Hydrological Services (NMHS) to provide climate services;	In Tanzania: i. NFCS was launched in August 2018, Strategic plan to promote the implementation of the NFCS has been prepared ii. Meteorological data digitization (Rainfall and temperature data rescue) led into improved availability of rainfall and temperature data, easy access of data from the archive

	through the developed inventory, increased data coverage in TMA's CLIDATA database system and effective and efficient delivery of better climate services to customers. iii. Downscaled forecast for Kiteto, Longido and Kondoa districts iv. Strengthened collaboration between TMA and other key partners In Malawi: i. Establishment of NFCS and development of National Climate Change Policy and National Meteorological Policy ii. Downscaled forecasts iii. Translation in local language and dissemination of the downscaled forecast to district and end users
2. Strengthened use of climate information by vulnerable communities for food security and livelihoods	i. Establishment of radio hubs ii. Supported airing of radio programs iii. SMS service for the reception of weather and climate information iv. National Agriculture Investment Plan (NAIP) incorporating climate and food security and v. Integration of PICSA in the curriculum of LUANAR.
3. Strengthened capacity to use climate information for public health preparedness and resilience to climate related health risks	i. An application (app) for integrated climate and health surveillance was developed by WHO. The app is used to analyze effect of climate on disease dynamics and use this information for evidence-based health decision making ii. WHO, in collaboration with partners, also developed the Early Warning, Alert and Response System (EWARS) tool. EWARS is a user-friendly tool for analyzing historic dengue, chikungunya and Zika datasets and using this information to predict forthcoming outbreaks and develop an early warning system to detect disease outbreaks in real-time and respond accordingly iii. Ministry of Health staff in both Malawi and Tanzania received training on both the DHIS2 app and EWARS and are developing and piloting climate-informed health surveillance and early warning systems In addition, in Tanzania: i. The Health National Adaptation Plan (HNAP) was developed and endorsed ii. The National Climate Change and Health Communications

	Strategy developed iii. Integration of climate/weather information within cholera and/or malaria surveillance systems In Malawi: i. Agreement with DCCMS and Ministry of Health and Population for Data Sharing ii. ENACTS platform health component in Malawi instituted iii. Seven public health advisories on extreme weather events developed iv. Climate change and health vulnerability assessment (V&A) conducted to inform policy and plans v. Health National Adaptation Plan (HNAP) finalized and validated. A National Climate Change and Health Communications Strategy finalized
4. Increased use of climate and weather information to improve disaster risk reduction in vulnerable communities	In Malawi: i. Development of the National contingency Plan ii. Multi Hazard Early Warning System (MHEWS) protocols developed iii. Dissemination of DRR, climate change, early warning, and COVID-19 messages In Tanzania: i. Dissemination of DRR & agro-ecological techniques & products to communities ii. Preparation of contingency plans to ensure that communities are well prepared to take advantage of seasons

B. Summary assessment results

i. Relevance and strategic fit: there is a general consensus by the project beneficiaries that the project interventions are highly relevant. As such, there are several benefits associated with the project interventions. Notably, with regard to health, the Ministry of Health and overall public health community in Malawi and Tanzania, benefited from strengthening surveillance systems for climate-sensitive diseases. Strengthening surveillance systems (as part of overall health systems) have enabled these countries to be better prepared for potential outbreaks of climate-sensitive diseases and also future pandemics. A clear example is the use of the DHIS2 application to integrate climate/weather information into current surveillance systems at national level. With regards to disaster risk reduction, farming communities are making informed decisions

based on the climate information received. Similarly, a number of respondents from farmers in both Malawi and Tanzania acknowledge increased agricultural production and productivity after applying knowledge and skills acquired from the training conducted by the project.

ii. Validity of intervention design: the project design is believed to be good though there are significant gaps in the logical framework and monitoring and evaluation system. The logical framework is incomplete since it doesn't have some basic information such as means of verification and assumptions, there are not indicators for the project goal, a number of indicators are missing targets, and the indicators progress was not tracked consistently.

iii. Project progress and effectiveness: despite delays due to issues around contracts and the COVID-19 pandemic, implementation progress is good with burn rate of project funds at 94 percent as at 31st December 2020.

iv. Efficiency of resource use: project funds have been used on activities approved by the project management. There is value for money since the project implemented relevant activities in the work plans, the evaluation has found no issues around misappropriation of the project funds.

v. Sustainability of the intervention: sustainability of the project interventions is visible. For example there is high buy in of the project interventions by both the government and communities in Malawi and Tanzania. Local government authorities are currently integrating the project interventions in their plans and budgets, farming communities are seeking and using the climate information in agricultural production and disaster and risk reduction. The trained extension officers on PICSA both in Tanzania and Malawi are likely to continue supporting farmers in this aspect of integrated climate services in agriculture. Moreover, majority of beneficiary farmers are willing to incur transaction costs related to communicating the climate information. With regards to health, sustainability of the project will be ensured as improvements in surveillance have been integrated into existing disease surveillance systems at national level. Although in some cases the lack of data with sufficient time resolution have made the development of predictive models for outbreaks impossible, the project activities have contributed to the overall strengthening of those surveillance systems. Greater investments in surveillance systems will be required to ensure that surveillance data is collected and reported at the required resolution, both temporal and geographical. Convincingly, GFCS APA phase II has to a great extent achieved the objective to ensure sustainability of activities of Phase I.

vi. Impact: There are immediate benefits attributable to the project interventions as communities and government are making informed decisions based on climate information facilitated by the project. Notably, beneficiary farmers in Tanzania report increased agriculture productivity attributable to right crop varieties and timely cropping pattern informed by the climate information delivery by the project interventions. Similarly, beneficiaries in Malawi confirm weather related disaster risk reduction following timely delivery of the climate information attributable to the project interventions. Respondents report changes into behaviors and attitudes attributable to the capacity building through various trainings by the project.

vii. Project management arrangements: the project management arrangement at headquarters level is believed to be effective in communication and decision making. As such the Project management was receptive to views and issues from the partners, further the management worked towards strengthening interaction among the stakeholders for enhanced linkage and synergies among the project interventions. Similarly, respondents had no issues against the

country level project management both in Tanzania and Malawi. However, the evaluation note some delays in reporting the project implementation progress.

viii. Project exit: there seems to be no comprehensive and standard project exit by the implementing partners. For example, an exit meeting bringing together and highlighting roles of the communities (farmers), climate services provides (TMA and DCCMS), and the local government authorities could help to strengthen collaboration after project completion for sustainability of the project interventions.

Project learning

Lessons learned and best practices are mainly found in operational context. Notably, Participatory Integrated Climate Services for Agriculture (PICSA) materials had to be translated into local language of which majority of the farmers were able to read since it was difficult for the farmers to read and understand the materials in English. PICSA was primarily developed as a guide to extension officers not farmers. Moreover, the project had to adopt some mechanisms since not all farmers had telephones and/or radios to receive the climate information messages disseminated via telephones short messages (SMS) or radio broadcasts. As such, downscaled seasonal forecasts increased the reliability and precision of the seasonal forecast at lower level, whereas translation of climate information in local languages, improvised climate information dissemination methods taking into consideration the heterogeneity of the beneficiary communities and strong collaboration among multiple implementing partners constitute key learning from the project implementation.

Performance of the GFCS APA phase two project was more or less similar in both countries especially the level of readiness from the technical, partner and community point of view. However, Tanzania was more successful with the framework attributable to a number of reasons including the fact that the National Framework for Climate Services (NFCS) was in place at the project start as it was launched on 21 August, 2018. In addition, the strategy to promote the implementation of the NFCS was timely prepared. Other factors include advantages around large size of coverage in terms of geography, population and different dominant livelihoods of the farmers supported namely agricultural, pastoralists, and agro-pastoral. This experience provides learning on accelerators of implementation success.

The GFCS APA was the first programme through which WMO collaborated with various partners in implementing a project co-designed and co-developed. Coordination of the project implementation in the four sectors (climate services, agriculture, health, and disaster risk reduction) with implementing partners at international, national and local levels provided experience and learning window around integrated systems of planning, budgeting and communication. In addition, this experience provided a wider exposure to the other domains that the climate services has significant influence. To this end, it was not easy to re-start the project with various partners even though they had worked together before. The lesson here is that previous collaboration does not necessary guarantee smooth future engagements.

Another learning from the project implementation is the fact that it takes a long time to achieve transformational change. Despite of the good progress made, full institutionalization of the project activities will require additional attention. In this respect, it is important connecting to future/planned projects such as the CREWS project for Malawi and WISER II for Tanzania.

Given the COVID-19 pandemic, the project had to keep a flexible approach to attain the expected outcomes. Flexibility was required across the different sectors, but the greatest impact was probably felt by the Health Sector, as the Ministry of Health had to focus on COVID-19 preparedness and response. Innovative ways were found to allow the delivery of activities.

Conclusions

The GFCS APA phase II project is proven as relevant and efficiently implemented despite the delayed project start resulted into the gap between phase I and phase II. The implementation model succeeded in deriving strong synergy and linkage of the involved partners and has promoted utilization of the climate services. Good functional collaboration with partners at all levels has been established. The buy in of the project interventions by communities and the local government authorities is among key indicators of sustainability of the project interventions.

Recommendations

i. The main concerns by the communities on receiving climate information after the project completion need to be resolved. An exit meeting connecting farmers, climate services providers (TMA and DCCMs) and local government authorities is recommended to ensure continued collaboration in terms of supply and demand for the climate information. Therefore proper handing over the project to the government is essential.

ii. Scale up of the project interventions to new districts to reach greater levels of Ministry of Health, more farmers and the vulnerable populations affected by disasters and health impacts of climate is essential. This role can be taken up by the government with support from the development partners.

iii. Conduct impact assessment to establish attribution and contribution of the project interventions to the livelihoods of the beneficiary communities. It should be noted however that project impact assessment is usually conducted some years after project completion since it takes long time realizing project impacts per se.

iv. Continue supporting strengthening of surveillance systems by integrating climate and weather information. This role can be taken up by the government with support from the development partners.

v. Accordingly, from the experience gained by WMO in coordinating project implementation involving multi-sectors, multi-partners and multi-levels, it is recommended to draw an indicative period required for project mobilization phase to cover among other things establishment of contracts, agreements and memorandum of understanding among partners. This will inform future projects design and formulation on the importance of including a provision for the mobilization phase preceding actual implementation of the project. Notably, implementation of the GFCS APA phase two project started approximately eight months after signing of the project financing agreement.

ACRONYMS AND ABBREVIATIONS

CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
COP	Conference of the Parties
COVID-19	Corona Virus Disease 2019
DAC	Development Assistance Committee
DCCMS	Department of Climate Change and Meteorological Services
DHIS2	Disease Health Integrated Surveillance
DQA	Data Quality Assessment
DR	Document Review
DRR	Disaster Risk Reduction
ENACTS	Enhancing National Climate Services
EU	European Union
FGD	Focus Group Discussion
FRI	Farm Radio International
GFCS APA	Global Framework for Climate Services Adaptation Programme in Africa
IFRC	International Federation of Red Cross and Red Crescent Societies
KIIs	Key Informant Interviews
LUANAR	Lilongwe University of Agriculture and Natural Resources
MHEWS	Multi Hazard Early Warning System
MoA	Ministry of Agriculture
MoH	Ministry of Health
MoHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
MRCS	Malawi Red Cross Society
NFCS	National Framework for Climate Services
NMHS	National Meteorological and Hydrological Services
NOK	Norwegian Krone
NORAD	Norwegian Agency for Development Cooperation
OECD	Organization for Economic Cooperation and Development

PDT	Project Delivery Team
PICSA	Participatory Integrated Climate Services for Agriculture
PM	Project Manager
PMO-RALG	Prime Ministers Officer Regional Administration and Local Government
PMO-DMD	Prime Minister's Office Disaster Management Department
RBF	Results Based Framework
RBM	Results-Based Management
SES	Social-Ecological Systems
SMS	Short Messages
SUA	Sokoine University of Agriculture
TADMAC	Tanzania Disaster Management Council
TANDREC	Tanzania Disaster Relief Committee
TMA	Tanzania Meteorological Authority
ToC	Theory of Change
TRCS	Tanzania Red Cross Society
TWG CS	Technical Working Group for Climate Services
UDSM	University of Dar es salaam
UN	United Nations
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UoR,	University of Reading
USD	United States Dollar
VCA	Vulnerability and Capacity Assessment
VPO-DoE	Vice President Office- Department of the Environment
WASH	Water Sanitation and Hygiene
WFP	World Food Programme
WHO	World Health Organization
WMO	World Meteorological Organization

1. BACKGROUND AND PROJECT DESCRIPTION

1.1 Background

The Global Framework for Climate Services Adaptation Programme in Africa – Phase II (GFCS APA II) is a multi-agency project started on 5th December 2017 following signing of the Letter of Agreement by the World Meteorological Organization (WMO) and the Norwegian Agency for Development and Cooperation (NORAD). WMO is the project manager whereas NORAD is the donor who provided funding for the implementation of the GFCS APA Phase II project in Tanzania and Malawi. The genesis and historical background of the GFCS APA Phase II project is presented hereof.

For ten years, the GFCS Office and WMO have been working with the support of the Government of Norway on interventions focusing on improving the quality and availability of climate services in Africa. To this end, the first project was signed in December 2011 with the overarching objective of supporting the GFCS Secretariat and increasing the capacities of National Meteorological and Hydrological Services (NMHS) in providing timely and accurate weather information, seasonal predictions, and severe weather forecasts to local communities.

The second project was signed in November 2013 as a multi-agency GFCS Adaptation Programme in Africa. It was a three year Programme (2014-2017), also referred to as Phase I of the GFCS Adaptation Programme in Africa, and it aimed to increase the resilience of people most vulnerable to the impacts of weather and climate related hazards in the climate sensitive sectors of disaster risk reduction (DRR), food security, and health. Phase I focused on Tanzania and Malawi to institutionalize activities started and to ensure sustainability beyond the project life-span. National implementation of the Global Framework for Climate Services in the two countries made progress across the five GFCS pillars (listed below) and strengthened vulnerable communities and public health preparedness systems through improved climate service delivery.

Pillars of the GFCS. The Global Framework for Climate Services in its Implementation Plan (2014) outlines five pillars of activity required to enable climate services:

1. **User Interface Platform**: a structured means for users, climate researchers and climate information providers to interact at all levels; providing the functions of feedback, dialogue, monitoring and evaluation, and outreach;
2. **Climate Services Information System**: the mechanism through which information about climate (past, present and future) will be routinely collected, stored and processed to generate products and services that inform often complex decision-making across a wide range of climate-sensitive activities and enterprises;
3. **Observations and Monitoring**: to ensure that climate observations and other data necessary to meet the needs of end-users are collected, managed and disseminated and are supported by relevant metadata;
4. **Research, Modelling and Prediction:** to foster research towards continually improving the scientific quality of climate information, providing an evidence base for the impacts of climate change and variability and for the cost-effectiveness of using climate information;
5. **Capacity Development**: to address the particular capacity development requirements identified in the other pillars and, more broadly, the basic requirements for enabling any Framework related activities to occur.

Among key undertakings, Phase I initiated a multi-stakeholder, consultative process to develop a framework for climate services and action plans in Tanzania and Malawi. Through this process the Tanzania Disaster Relief Committee (TANDREC) currently known as Tanzania Disaster Management Council (TADMAC) and the Technical Working Group for Climate Services (TWG CS) in Malawi were initiated as high-level institutions to coordinate climate services development among the climate-sensitive line ministries and national stakeholders and to mainstream climate services in sectoral planning and national policy processes. Other establishments by phase I include user interface platforms to promote dialogue between sectoral users, climate researchers and climate information providers to support the cogeneration of tailored services. Notably, in Malawi, phase I project established user interface platforms including the WFP Planning and Review Days, Radio Listening Hubs, the Red Cross volunteer community exchanges; and the Climate and Health Core Teams at the Ministries of Health.

Furthermore, training at the Tanzanian Meteorological Authority (TMA) and Malawian Department of Climate Change and Meteorological Services (DCCMS) was conducted to enhance the provision of high-quality and reliable climate services. Partners worked to enhance use of climate services through training of intermediaries by World Food Programme (WFP) and CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) and disseminating information through SMS and radio. In the health sector, strategic plans for health adaptation and risk communication were developed through the National Health Adaptation Plans (HNAPs)[1], climate and health communication strategies, and climate inclusion in health sectoral policies. Therefore Phase I was a pilot project to prove the concept, whereas Phase II aims to build on the accomplishments of the initial phase. As such, an external evaluation of the previous programmes highlighted that while good progress was accomplished, further support was required to best ensure the sustainability of the climate service platforms, development, demand, delivery, and uptake among the target sectors. To this end, a proposal for The Global Framework for Climate Services Adaptation Programme in Africa – Phase II was produced jointly between the partnership of the Global Framework for Climate Services Office, International Federation of Red Cross and Red Crescent Societies (IFRC), World Food Programme (WFP), World Health Organization (WHO), and World Meteorological Organization (WMO) in June 2017 for funding by NORAD.

1.2 Project Description

The second phase of the Adaptation Programme in Africa is a multi-agency project which aims to strengthen the resilience of climate vulnerable communities in Tanzania and Malawi, by improving climate risk management and adaptation planning through the provision and use of quality sector-tailored climate services. The main goal of the project is to improve the lives of vulnerable populations through enhanced access and understanding of high-quality, action-oriented climate services and policies supporting mainstreaming of climate services in development and adaptation planning. The programme is funded by the Norwegian Agency for Development and Cooperation (NORAD) and it involves a partnership of four international agencies including International Federation of Red Cross and Red Crescent Societies (IFRC); World Food Programme (WFP); World Health Organization (WHO); and World Meteorological Organization (WMO).

[1] HNAPs were fully developed in GFCS APA Phase II

1.2.1 Project results framework

The GFCS APA Phase II project has a results based framework (RBF) consisting of theory of change (ToC) which describes the cross cutting impact pathways built upon the common principles of the GFCS, promote partner engagement, and serves to link inputs, activities and outputs to desired outcomes and impacts. The theory of change illustrates the anticipated causal relationship between various elements over time as well as the strategy and assumptions. Further, the ToC rests on the three assumptions: (1) Activities will be implemented on time and will successfully deliver high-quality climate services; (2) NMHSs have the capacity and continue to demonstrate an interest and commitment to produce high quality, tailored forecasts as requested by the user communities. (3) Decisions based on improved science and products lead to 'better' decisions that reduce the risks in vulnerable communities.

Furthermore, GFCS APA Phase II project has logical framework made of four outcome areas of which each international partner lead on implementation of one outcome as follows:

i. **Outcome 1**: Enhanced capacity of National Meteorological and Hydrological Services (NMHS) to provide climate services (lead partner - WMO)
ii. **Outcome 2**: Strengthened use of climate information by vulnerable communities for food security and livelihoods (lead partner – WFP)
iii. **Outcome 3**: Strengthened capacity to use of climate information for public health preparedness and resilience to climate related health risks (lead partner – WHO)
iv. **Outcome 4**: Increased use of climate and weather information to improve disaster risk reduction in vulnerable communities (lead partner – IFRC)

1.2.2 Project beneficiaries

Beneficiaries of the GFCS APA Phase II project include different stakeholders at national, district and local level. International development agencies, NGOs, academic partners, donors are expected to benefit from knowledge sharing of lessons learned and good practice to enhance design and delivery of other climate service initiatives. At national level, Climate services providers (TMA and DCCMS) are expected to benefit from enhanced technical capacities to providing services outlined in the five GFCS pillars. As such, TMA is expected to benefit from increased data availability and accessibility through data rescue efforts, TMA and DCCMS are expected to benefit from improved data (quality assurance and quality control measures), data management systems, facilitated stakeholder engagement processes to enhance use of tailored service, and capacity building on improved methods, models and tools for better tailoring of climate information. The Ministry of Health is also a key beneficiary of improved access to and quality of climate and weather data at the national level. Increased cooperation between TMA and DCCMS and respective Ministries of Health facilitates climate-informed health surveillance and early warning systems.

At community level vulnerable communities especially farmers[2] in the target districts are expected to benefit from (i) enhanced provision and access to climate information; (ii) enhanced capacity to understand and use climate services in their decision making for food security and risk management strategies; (iii) a more informed and prepared health service delivery system; (iv) access to more effective early warning and early action programming.

[2] With respect to Tanzania, farmers as project beneficiaries among communities targeted in the project districts, include different dominant livelihoods of the farmers supported namely agricultural, pastoralists, and agro-pastoral.

Accordingly, the activities in Phase II were planned to be implemented in the same districts covered in Phase I with a view to ensure sustainability of processes beyond the life span of this initiative. In Tanzania, initial target project districts were Kiteto, Longido in the northern regions of Manyara and Arusha respectively, and Kondoa in the central region of Dodoma. In Malawi initial target project districts were Karonga in the Northern Region; Kasungu, Salima, and Lilongwe in the Central Region; Balaka and Zomba in the Eastern Region; and Phalombe, Chikwawa and Nsanje in the Southern Region.

1.2.3 Project Sustainability

The programme design underscores the project sustainability strategy. National Framework for Climate Services was among key products of the GFCS APA project. To this end, the backbone of a well-functioning and sustainable National Framework for Climate Services is a National Meteorological and Hydrological Services (NMHS) with strong and relevant capacity, tools, and mechanisms to receive user requests for climate services and respond with co-designed, tailored, reliable, and high-quality climate services. Underpinning this requirement is a process of iterative engagement between users and providers in order to articulate user needs, co-develop tailored services together in a way that addresses user needs, and providing feedback on the quality of services received and used in order to improve the quality of climate services developed. Also crucial, are users with the capacity to access and utilize climate services in their decision making, without which improved outcomes and greater resilience to climate shocks cannot take place.

1.2.4 Cross-Cutting Issues in Norwegian Development Policy

The GFCS APA Phase II project integrated the cross-cutting issues in the Norwegian Development Policy. Cross-cutting issues highlighted by the project include gender, climate/environment and human rights, and anti-corruption for they are integral to economic, social, and environmental dimensions of sustainable development. These cross-cutting issues were embedded in the design of the Phase II with a view to support and reinforce the implementation of project activities and the comprehensive provision of climate services across the GFCS priority areas and pillars.

1.2.5 Project management and governance

The project implementation was assigned to WMO, WFP, WHO, IFRC under national coordination of TMA in Tanzania, and DCCMS in Malawi. International Research Institute for Climate and Society (IRI) also implemented activities related to the ENACTS in both countries and an agreement was signed with WMO in 2020. Global coordination was led by the GFCS Office as the programme lead. NRC employees were deployed to Tanzania and Malawi to support the project coordination and implementation at national level. Accordingly, WMO lead activities related to demand driven climate service development with the NMHS. WFP lead activities on agriculture and food security, WHO on health, and IFRC on disaster risk reduction as an interagency collaboration. The programme is governed by two mechanisms: The Global Project Steering Committee (GPSC) with management oversight of the programme closely monitoring activities and support national partners in troubleshooting implementation challenges. Project Delivery Teams (PDT) in Malawi and Tanzania had the responsibility of planning and implementing the project along with monitoring progress.

1.2.6 Project risks

Accordingly, the project-related risks were analyzed at macro, national, and project level, especially based on the lessons learnt during the implementation of Phase I. Internal nature of these risks enable effective risk prevention or reverting to mitigation strategies. The risks are classified by the probability and potential impacts and are presented along with the thought-through strategies to either minimize them or prevent altogether. Risks analyzed include undesired and/or unexpected impacts for the social ecological systems (SES), poor financial governance, lack of gender mainstreaming, low (key) stakeholder engagement, insufficient NMHS capacities to produce high quality, tailored forecasts required by user communities. Insufficient implementing partners' motivation, lack of communication and transparency of national partners, and implementation delays.

Notably, the COVID-19 pandemic was a non-expected risk impacted the delivery of the project. The implementation of GFCS APA Phase II project like other projects involved travels and face to face meetings, incidentally the measures to combat COVID-19 included travel and meetings restrictions. Therefore the project had to keep a flexible approach to attain the expected outcomes. Flexibility was required across the different sectors, but the greatest impact was probably felt by the Health Sector, as the Ministry of Health had to focus on COVID-19 preparedness and response. Innovative ways were found to allow the delivery of activities.

1.2.7 Project monitoring and evaluation

The project implementation was guided by a detailed work plan developed at the country level in Malawi and Tanzania by the national PDTs after several consultations. The Project follows the WMO standard reporting and evaluation processes and procedures, with a view to accommodate in as much as possible other partners' internal processes and procedures (i.e. timing, formats, etc). Reporting was an integral part of the GFCS Project Manager's responsibility, including coordinating and obtaining the necessary inputs from all the partners. The project indicators and outputs were set out in the Result Based Framework for monitoring by the GFCS Office. In addition, regular meetings between GPSC and PDTs and project manager meant for a regular discussion of the progress and taking appropriate actions to deliver the project outcomes.

The programme to be evaluated in-line with the Monitoring and Evaluation procedures that were developed for GFCS initiatives and the WMO project management handbook. This final evaluation is being done to provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. The evaluation has two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among GFCS partners.

1.2.8 Project budget and dates

The programme duration is three years, starting at the date of signing the contract on 5 December 2017 with project completion date in December 2019. The project secured two no cost extension with new completion date on 30th September 2021, when the final reporting is due. The total proposed budget for the GFCS APA Phase II project in the Norwegian Krone (NOK) is 36,000,000 (NOK Thirty Six million) equivalent to United State Dollar (USD) 4,264,796 (four million two hundred sixty four thousand seven hundred ninety six). The project budget covers costs of activities implementation and management.

3. PURPOSE OF THE EVALUATION

This is a final external evaluation of the GFCS APA Phase II project. The evaluation aims to assess the relevance of the intervention objectives and approach; establish how far the intervention has achieved its planned outcomes and objectives; the extent to which its strategy has proven efficient and effective; identify gaps in the implementation of activities for further interventions and whether it is likely to have a sustainable benefit. As such the evaluation was carried out for the purposes of accountability and organizational learning. In addition, it assesses the extent to which the project objectives have been achieved and to identify lessons learned and best practices.

Scope of the evaluation includes all the activities undertaken by the project during the project period in the two target countries: Tanzania and Malawi. The evaluation covers all stages of the project, including initial project design, work planning, implementation monitoring and reporting. Furthermore, the evaluation also refers to partners' evaluations (i.e. WFP one) the progress reports submitted to the donor, particularly the achieved outcomes and how lessons learned and recommendations were progressively followed up to attain desired results. The evaluation also looks at actual implementation mechanisms in line with initially planned implementation mechanisms, from the institutional set-up to the implementation plan and budget expenditures. The evaluation examines how the project strategies and approaches have progressed, changed or evolved over the two-year implementation period thus drawing lessons from project experience.

Furthermore, the evaluation seeks to verify good practices, benefits and lessons learned from the implementation of the project. Similarly, the evaluation, presents a set of practical recommendations for possible immediate adoption/ application and further integrated into future WMO projects. The evaluation identifies approaches and / or activities that have proven to be particularly innovative, unique or otherwise valuable that can be referred to in regard to capacity building, knowledge sharing, decision-making and sustainable mechanisms for climate services. In addition, the evaluation is expected to indicate the possibility for upscaling of activities in Tanzania and Malawi and in the region in general. The evaluation will also identify opportunities/areas for future interventions.

4. EVALUATION METHODOLOGY

4.1 Approach

GFCS APA Phase II is a multi-agency project comprising four international agencies (WMO, WFP, WHO, IFRC), multi-country covering Tanzania and Malawi, and multi-year (implemented from 2018 to 2021). The project involves multi-levels (national, district, local levels), beneficiaries and stakeholders including communities and NGOs. Given the complexity of the project, the final evaluation devised a robust and comprehensive approach that took into account the above factors to ensure reliability of the results and findings. To this end mixed methods of qualitative and quantitative data collection were employed. Specifically, data collection involved the following methods (i) desk review (DR), (ii) key informant interviews (KII), and (iii) focus group discussion (FGDs). This method offered complementary, supplementary and triangulation of data and information collected thus enhancing integrity of findings, results, suggestions, conclusions and recommendations of the evaluation. In view of quality control and assurance of the evaluation outputs, an inception report was prepared to present the proposed

evaluation methodology and data collection tools for prior review and approval by WMO. A standard framework of the evaluation questions is presented under annex 1.

4.2 Conceptual Framework

The evaluation applied a standard and widely used conceptual framework which is consistent with Results-Based Management (RBM). As such the project uses results based framework (RBF), especially it was designed with a theory of change and a logical framework presenting indicators of results chain of outputs, outcomes and impact. To this end, the evaluation framework is based on the classical and global standard evaluation criteria developed by the Development Assistance Committee of the Organization for Economic Cooperation and Development (OECD-DAC). The six OECD-DAC criteria used in the conceptual framework of the evaluation are described hereof:

(i) **Relevance:** The extent to which the project objectives and design respond to policies, strategies and beneficiaries' needs, priorities, culture and norms;
(ii) **Coherence:** Project compatibility in terms of linkages and synergies of the interventions within the project or other interventions of WMO or development partners;
(iii) **Effectiveness:** The extent to which the project implementation achieved, its objectives, and its results versus its plans;
(iv) **Efficiency:** The extent to which the project implementation delivered results in an economic and timely way. It entails how resources such as money, expertise, time were converted to results ;
(v) **Impact:** The extent to which the project has generated or is expected to generate significant positive or negative, intended or unintended, higher-level effects (outcomes and impacts). This criteria assessed immediate benefits attributable to the project interventions (it should be noted however that it takes considerable longer period to realize impacts of project interventions); and
(vi) **Sustainability:** The extent to which the net benefits of the project are likely to continue, maintain, replicate and reproduce benefits in the long run after project completion.

4.3 Sampling

Taking into account levels and stakeholders involved in the project, the evaluation employed appropriate sample size and sampling technique sensitive to gender thus ensuring appropriate representation of key stakeholders. As such, the method guaranteed collection of adequate and reliable data for analysis with a view to generate credible findings and results for valued suggestions, recommendations, and conclusions. Notably, sampling of respondents ensured proper representation of gender, four project outcomes, and key project districts in Tanzania and Malawi. The evaluation engaged respondents with substantial experience in the project management or/and implementation.

Accordingly, a purposive sampling technique was used in selection of respondents who participated in the evaluation. In this regard, selection of respondents was done with assistance from project management at global and national levels.

4.4 Data Collection

Data collection was done from 1st to 23rd March 2021 involving 121 respondents in total of whom 70 representatives (58 percent) were female respondents. Key informant interviews were held with 37

respondents involved in management or/ and implementation of the project (6 at Global level, 14 from Tanzania and 17 from Malawi). Of the total respondents in key informant interviews, 38 percent were female respondents. Similarly, 10 focus group discussions (FGDs) were conducted with 84 representatives (67 percent female) from beneficiary communities in Tanzania (6 FGDs) and Malawi (4 FGDs). Key respondents that participated in field data collection include: Donor, project partners (WMO, WFP, WHO, IFRC, TMA, DCCMS), government ministries and allied institutions (MoA, MoH, MoHCDGEC, TRCS, TADMAC, DCCMS), project management, project delivery team, universities (UDSM, UoR, LUANAR), and communities. Refer to annex 2 for details of the respondents who participated in the evaluation.

Desk review was done as follows; firstly, the Project Management (global and in country) was requested to share outlined relevant documents for the evaluation. The documents received include project proposal/concept note, baseline report, progress reports, and publications/newsletters. Secondly, the documents were categorized into four main groups namely: project background documents (design/formulation); implementation/progress documents plans and budgets; review/assessment, RBF documents; and others or supplementary documents. To this end, about 40 documents were gathered and classified accordingly. Thirdly, actual reading of the documents was conducted in sequence starting with design documents followed by baseline documents to inform on project scope, budget and timeline and situation at start of the project. Implementation documents were read to inform on progress and learning from the project. In addition other documents such as publications were reviewed to provide supplementary information. As such, the project documents were quite comprehensive and informative such that they provided substantial data and information required for the project final external evaluation. Fourthly, analysis of project data and information gathered through desk review was done based on the evaluation criteria, to this end desk review was used to shape the field data collection strategy. As such, information gaps were highlighted after desk review, therefore field data collection served the purpose to validate, verify supplement and complement data collected through the desk review.

Field data collection involved: development of data collection tools (checklists and guides for interviews and FGDs), identification of respondents and gathering of contacts of the respondents (email and telephone numbers), formal communication with identified respondents for the purpose of introduction and to seek for consent and appointment. In this case, a checklist of interview questions was shared in advance with the respondents for the purpose of familiarization with the interview questions. This innovative approach assisted the respondents to prepare well in advance for the interviews thus responses were focused and organized. Actual interviews were conducted from 8th March 2021 to 23rd March 2021, through Zoom meetings, Skype, WhatsApp and telephone calls. The interview time ranges from 30 minutes to an hour. The interviews were conducted in English, however beneficiaries and other respondents in Tanzania, interviews were conducted in English or/and Kiswahili. Furthermore, respondents were allowed to respond verbally or/and in written form. Notably, a voice recorder was used to capture audios of the interviews for ease of records of the conversations to facilitate analysis of information and data collected. Information collected was analyzed according to the evaluation framework.

The focus group discussions were held with 5 to 10 participants each FGD. In Tanzania, two FGDs were held physically by the participants and evaluator in each project district of Kiteto, Kondoa and Longido. Accordingly, to strengthen the gender balance and gathering of substantial feedback from female beneficiaries, one FGD was designated for female participants only whereas the second FGD was for both male and female participants represented equally. Similarly, a voice recorder was used to capture audios of the FGDs for ease of records of the conversations to facilitate analysis of information and data collected. In Malawi, FGDs were done through zoom platform, participants gathered in one place with an interpreter of a local language (Chichewa) spoken by the participants. Likewise, a voice recorder was used to capture audios of the FGDs for ease of records of the conversations to facilitate analysis of information and data collected. The participants showed enthusiasm and interest in the project thus they actively participated in the discussions. Figure 1 presents a group photo of women in a focus group discussion in Kondoa District in Tanzania. Photograph taken in the field in March 2021.

Figure 1: A group photo of women in a focus group discussion in Kondoa District in Tanzania

4.5 Work Plan

The inception report presented a detailed work plan and deliverables to undertake the evaluation. To this end, the evaluation was done in four distinct phases namely: Phase 1- Desk review of project documents; Phase 2- inception report presenting methodology and detailed work plan, Phase 3- Field data collection and data analysis, and Phase 4- report writing.

4.6 Limitation

This evaluation was affected by two limitations. Firstly, there were travel restrictions due to COVID-19 thus the evaluator could not travel to Malawi to collect field data. However, online interviews and discussions were deployed to collect data from the respondents. Secondly, there was poor internet connectivity thus affecting quality of online interviews and discussions. In extreme cases, telephone calls were used as backup to online platforms. To a great extent, the mitigation measures worked well to ensure quality and timely data collection.

5. PROJECT STATUS AND FINDINGS

5.1 Project status

5.1.1 Outcome 1: Enhanced capacity of National Meteorological and Hydrological Services (NMHS) to provide climate services

Project interventions under outcome 1 contribute to five results namely: (i) Climate services mainstreamed into policy, planning, and development processes at the national level; (ii) Enhanced NMHS (TMA and DCCMS) capacity to respond to user needs with high-quality climate services (capacity building contributes to Programme sustainability); (iii) Climate services (e.g. crop advisories, SMS, maprooms) are tailored to meet user needs (explore use of ACMAD Service Delivery and Business Plan); (iv) Lessons learned developed to support scalability (dissemination avenues including the AMCOMET platform); and (v) Project partners contribute to National Framework for Climate Services.

Accordingly, there is good progress against implementation of outcome 1 in both countries. **In Tanzania**, with GFCS APA phase II project support, **the NFCS was launched in August 2018, Strategic plan to promote the implementation of the NFCS has been prepared**, short and long training[3] of TMA staff on statistical and dynamical downscaling of seasonal and sub-seasonal forecasts, and workshops were conducted to share experience and also to improve verification methods for probabilistic forecast. In addition, TMA staff received more other trainings besides the statistical and dynamical downscaling of seasonal and sub-seasonal forecasts trainings. **Meteorological data digitization (Rainfall and temperature data rescue) led into improved availability of rainfall and temperature data, easy access of data from the archive through the developed inventory, increased data coverage in TMA's CLIDATA database system and effective and efficient delivery of better climate services to customers**. Further, the project supported production of **downscaled forecast for Kiteto, Longido and Kondoa districts**. The project has supported TMA to **strengthen collaboration with other key partners** such as WFP, WHO, TRCS, MoA, MoHCDGEC, PMO-RALG, PMO-DMD, VPO-DoE, UDSM, CAN International, World Bank, UNDP and FRI in the implementation of GFCS and NFCS activities. TMA utilized 84 percent of the transferred funds USD 469,584 as at 31st December 2020. Activities are ongoing, it is expected that TMA will accomplish planned activities and exhaust allocated funds resources. Refer to Table 1 for detailed financial status of the implementing agents.

Table 1: Financial status by the implementing agents

Implementing Agent	Budget (USD)	Transferred funds (USD)	%Transfer against	Expenditures (USD)	Burn Rate Vs Budget	Burn Rate Vs	Status as at

[3] Five TMA staff were supported to undertake MSc Degree at Sokoine University of Agriculture (SUA) and University of Dar es salaam (UDSM) in order to enhance accuracy and timely delivery of climate services.

			budget			Transfer	
WMO/DCCMS[4]	341,000	341,000	100%	339,805.95	99.6%	99.6%	31/12/2020
WMO/TMA	469,584	469,584	100%	396,670.53	84%	84%	31/12/2020
IRI	233,229	139,937	60%	165,548.27	71%	118%	31/12/2020
IFRC	460,518	460,518	100%	436,715	95%	95%	14/1/2021
WFP	1,298,980	1,298,980	100%	997,875.93	77%	77%	31/12/2020
WHO	983,983	983,983	100%	883,382	90%	90%	31/12/2020
TOTAL	**3,787,294**	**3,694,002**	**93%**	**3,219,998**	**86%**	**94%**	

Source: Field data (2021)

In Malawi, the project supported **establishment of NFCS and development of National Climate Change Policy and National Meteorological Policy**. Similarly, the project supported DCCMS to conduct training on crop-weather modeling and Production of 10-Day Rainfall and Agro-meteorological Bulletin to enhance capacity of the department. The project supported **downscaling forecasts, translation in local language and dissemination of the downscaled forecast to district and end users**. Furthermore, the project supported DCCMS staff to in international events such as conferences, workshops and meetings on climate services[5]. The project supported training on PICSA in collaboration with WFP. By 31st December 2020, DCCMS had already achieved nearly 100 percent implementation of the planned activities with 99.6 percent burn rate of funds allocated for the outcome 1.

5.1.2 Outcome 2: Strengthened use of climate information by vulnerable communities for food security and livelihoods

Outcome 2 has four strategic results which are (i) Strengthened capacities at district and community levels to use climate and weather information, (ii) Ensuring sustainable delivery of tailored climate and weather services to vulnerable communities through public/private partnerships; (iii) Mainstreaming key issues related to climate services and food security in national policy/processes (i.e. NAPs); and (iv) Scaling up and replication - knowledge management/lessons learnt. WFP lead on the implementation of activities in outcome 2 whereby ministry of agriculture was the counterpart on the side of the government both in Malawi and Tanzania. Further, WFP collaborated with other partners to implement project activities, these partners include District Authorities, Farm Radio Trust, Farm Radio International, and University of Reading. Refer Annex 4 for details of project partners and beneficiaries.

In Malawi, main activities implemented by the project included training of agricultural extension officers, **establishment of radio hubs, supported airing of radio programs, SMS service for the reception of weather and climate information, National Agriculture Investment Plan (NAIP) incorporating climate and food security and the integration of PICSA in the curriculum of LUANAR**. The project supported similar activities in Tanzania including PICSA training, radio programs, etc. Notably, PICSA approach was adapted to meet the needs of beneficiaries this was a case with nomadic pastoralist communities in Longido and Kiteto. Activities under this outcome were mainly implemented at end

[4] WMO implemented activities in the Outcome 1 through the national climate services providers: DCCMS in Malawi and TMA in Tanzania.

[5] The project supported DCCMS officers to participate in the Technical Conference and Expo at WMO Technical Conference and Meteorological Expo held in Amsterdam from 7-13 October 2018

users level. WFP had a lion share of the total budget receiving USD 1,298,980 (34 percent) see budget shares by the implementing partners presented under figure 2. Funds utilization was at 77 percent by 31st December 2020. However, WFP is expected to accomplish planned activities by project completion on 30th September 2021.

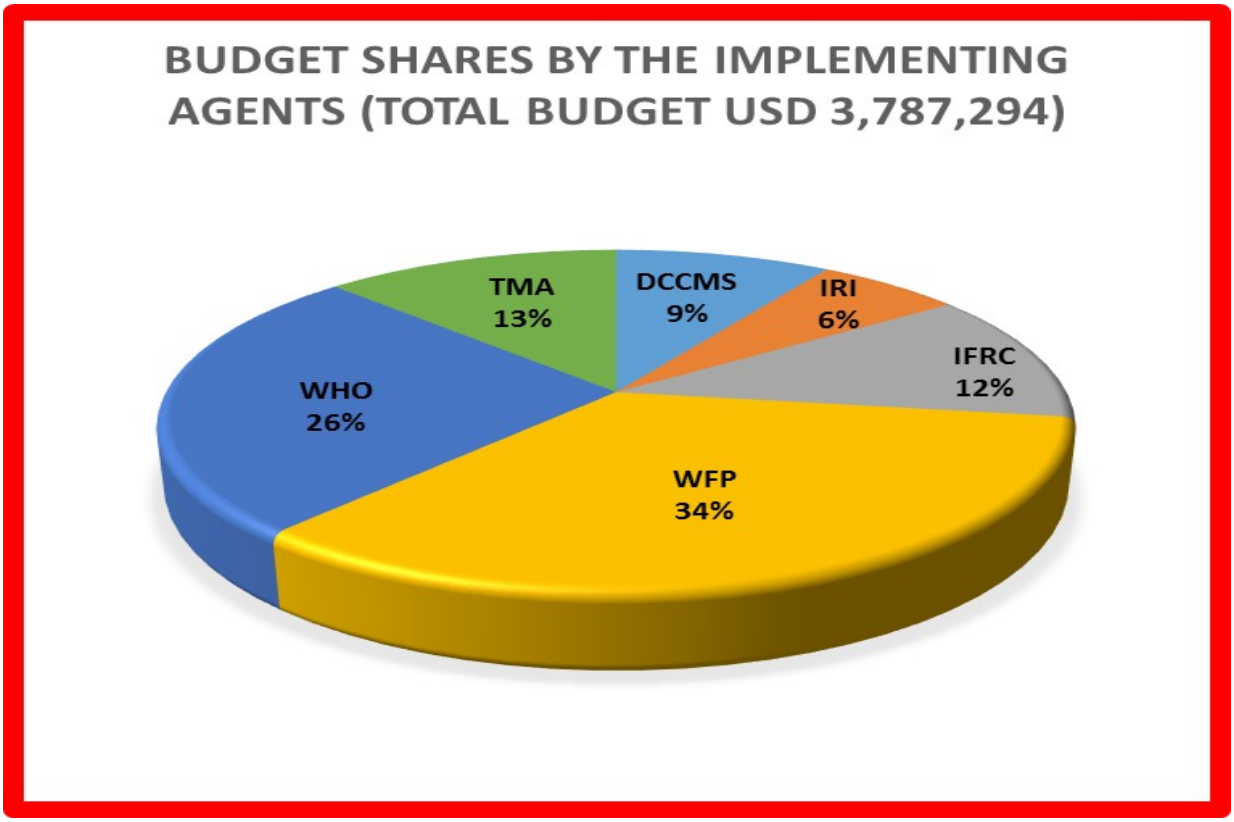

Figure 2: Budget shares of the implementing partners

5.1.3 Outcome 3: Strengthened capacity to use of climate information for public health preparedness and resilience to climate related health risks

Activities under the outcome 3 are expected to produce four results including (i) Capacity of health professionals to understand and use climate information for health decision-making strengthened; (ii) Reliable access of climate services to the health community; (iii) Mainstreamed climate knowledge and decision tools enhance health policy and operations; and (iv) Lessons learned developed to support scalability in the health sector. WHO and its counterpart the Ministry of Health in both countries lead on planning, budgeting and implementation of the activities under this outcome.

An application (app) for integrated climate and health surveillance was developed by WHO which is compatible with the widely used health repository and surveillance tool, District Health Information System 2 (DHIS2). The DHIS 2 app is an add-on package which can easily be installed in existing DHIS2 software. The app is used to analyse effect of climate on disease dynamics and use this information for evidence-based health decision making. WHO, in collaboration with partners, also developed the Early Warning, Alert and Response System (EWARS) tool. EWARS is a user-friendly tool for analyzing historic dengue, chikungunya and Zika datasets and using this information to predict forthcoming outbreaks and develop an early warning system to detect disease outbreaks in real-time and respond

accordingly. Ministry of Health staff in both Malawi and Tanzania received training on both the DHIS2 app and EWARS and are developing and piloting climate-informed health surveillance and early warning systems.

In Tanzania, the project strengthened intersectoral collaboration between the MoH, the National Climate Change designated authority, Vice Presidents' Office – Department of Environment (VPO), and the TMA. Climate change considerations have been incorporated in two key health sector policies. **The Health National Adaptation Plan (HNAP) was developed, endorsed and printed**. The **National Climate Change and Health Communications Strategy has been developed and printed**. The strategy provides guidance for effectively communicating the impacts of climate change on health in Tanzania and empowers health professionals to confidently discuss the science and practice around climate change and health. A Climate Change and Health Training Manual for health professionals has been developed and pre-tested through training of regional and district environmental health practitioners.

The project supported **integration of climate/weather information within cholera and/or malaria surveillance systems.** A roadmap for developing and piloting an early warning dashboard for climate sensitive diseases drafted and a climate-informed disease surveillance dashboard is under development. This dashboard will be included a module within DHIS2.

In Malawi, the project supported the establishment and regular meetings of the Health and Climate Change Core Team (HCCCT). Team membership includes heads of academic programs, researchers, civil society organization representatives, Department of Climate Change and Meteorological Services (DCCMS) and Ministry of Health, and members from various sectors and academic institutions. A Technical **Agreement with DCCMS and Ministry of Health and Population for Data Sharing** was developed to advance integrated surveillance with climate and health data via DHIS2. MoH together with DCCMS developed the ENACTS concept note and finalized MoU for collaboration with DCCMS on instituting **ENACTS platform health component in Malawi**. Malawi is piloting the EWARS tool for cholera in 3 districts (Zomba, Chitipa, Salima). Weekly cholera and meteorological data have been collected and the tool has been calibrated for Zomba district. Furthermore, eighteen health facilities in 6 districts were identified for the Integrated Risk Monitoring in Malawi. The assessment for data readiness for the integrated climate and health surveillance system was carried out in nine districts across all three regions in the country. The process of integrating climate and health data in DHIS 2 using the EWARS tool to predict outbreaks of climate-sensitive diseases, including water-borne (e.g., cholera) and vector-borne (e.g., dengue, malaria) diseases in pilot districts in Malawi is in progress. An analysis was conducted resulting in the report: *Cholera transmission dynamics and the role of climatic variables in selected districts in Malawi: Case study of Chikwawa and Zomba districts*, which assessed the quality of disease data in Malawi, the inadequacy/ limitation of climate data at pilot health facilities in Malawi, and quantified the sensitivity of cholera to rainfall, humidity and temperature in Zomba and Chikwawa districts. Furthermore, **seven public health advisories on extreme weather events were developed:** precautionary measures during strong winds; injuries during flash floods/riverine floods; heavy thunderstorm health advisory; heat wave and high temperatures health advisor; health advisories on lightning strike; health advisories on extreme cold weather/flash floods/ riverine floods. These advisories have been translated to vernacular languages (Chichewa and Chitumbuka).

The first national **climate change and health vulnerability assessment (V&A) was conducted to inform policy and plans**. A policy brief was developed, which outlines the policy options to build health systems

resilient to climate change and this has been printed and disseminated to senior management in the MoH. A thematic area, Emergencies, Health, and Climate Change was created in the Environmental Health Policy. Furthermore, climate change and health considerations have been integrated in the Health Sector Strategic Plan 2017-2021. Finally, a **Health National Adaptation Plan (HNAP) has been finalized and validated. A National Climate Change and Health Communications Strategy has been finalized** and validated. This strategy will contribute to the effective communication of health-related climate change information at all levels and will also serve as a tool to facilitate resource mobilization and the implementation of the 2016 National Climate Change Management Policy (NCCP).

Climate Change and Health has been incorporated into the training curriculum of the Health Surveillance Assistant training program and 100 health workers at the district level (HSA, Environmental Health Officers, nurses, etc.) were sensitized on climate and health issues. 30 District Executive committee members from Zomba district were also sensitized on climate change and health and committed to include climate change in the District Implementation Plans. A generic health and climate change curriculum for universities and colleges was developed and is being incorporated into the academic system.

5.1.4 Outcome 4: Increased use of climate and weather information to improve disaster risk reduction in vulnerable communities

The fourth outcome area worked around the following results (i) Inclusion of Climate Services into the NAP and DRR/DRM and development planning processes; (ii) Increased access of vulnerable communities to climate information through capacity building; (iii) DRR activities are developed on the basis of climate information and linked to health and agriculture; and (iv) Lessons learned and community voices are captured to improve the provision of climate services. IFRC partnered with TRCS and MRCS to implement the project activities in Tanzania and Malawi respectively. As at 14 January 2021, funds utilization was at 95 percent which means that IFRC is likely to complete allocated funds by the end of the project on 30th September 2021. The project supported TRCS and MRCS representatives to participate in the Africa – Arab Platform for disaster risk reduction in Tunis in October 2018. In both countries dissemination of climate information was done through radio programs, meetings, and SMS.

In Malawi, MRCS facilitated the participation of a farmer/volunteer at a climate experts' meeting in Nairobi. Furthermore, MRCS contributed to the **development of the National contingency Plan**. MRCS conducted a Vulnerability and Capacity Assessment (VCA) to understand vulnerabilities and capacities in the targeted communities, to inform targeted actions to reduce specific vulnerabilities and enhance capacities. The project supported development of **Multi Hazard Early Warning System (MHEWS) protocols**; moreover, the project conducted training in DRR for volunteers, Climate Change, Early Warning, and climate smart agro-technologies, **disseminated DRR, climate change, early warning, and COVID-19 messages**. The project supported exchange visits. Notably, the project supported the release of the severe weather forecast (5 - 9th January 2020) that was issued by DCCMS. Agro-meteorological messages from DCCMS were disseminated in the targeted communities.

In Tanzania, TRCS and local government staff organized training activities for volunteers and extension workers. TRCS supported identification of needs of the target population and developed the seasonal calendar by leveraging on the activities of WFP especially the Participatory Integrated Climate Services for Agriculture (PICSA). PICSA was the main reference manual in agriculture/livestock component of the project. The project supported **dissemination of DRR & agro-ecological techniques & products to**

communities. The project supported **preparation of contingency plans to ensure that communities are well prepared to take advantage of seasons**. The project supported documenting and disseminating lesson learned. Moreover, the learning from the project was incorporated into the Disaster Risk Management Policy and Disaster Risk Management Strategy and Strategic Development Plan for 2021 - 2025. Further, the project supported environmental clubs in primary and secondary schools and on recruiting and training of the TRCS volunteers. Other project support include exchange visits between communities (agriculturalist and pastoralist) to share knowledge and skills on how they have been using climate information and services to support DRR and climate change adaptation work.

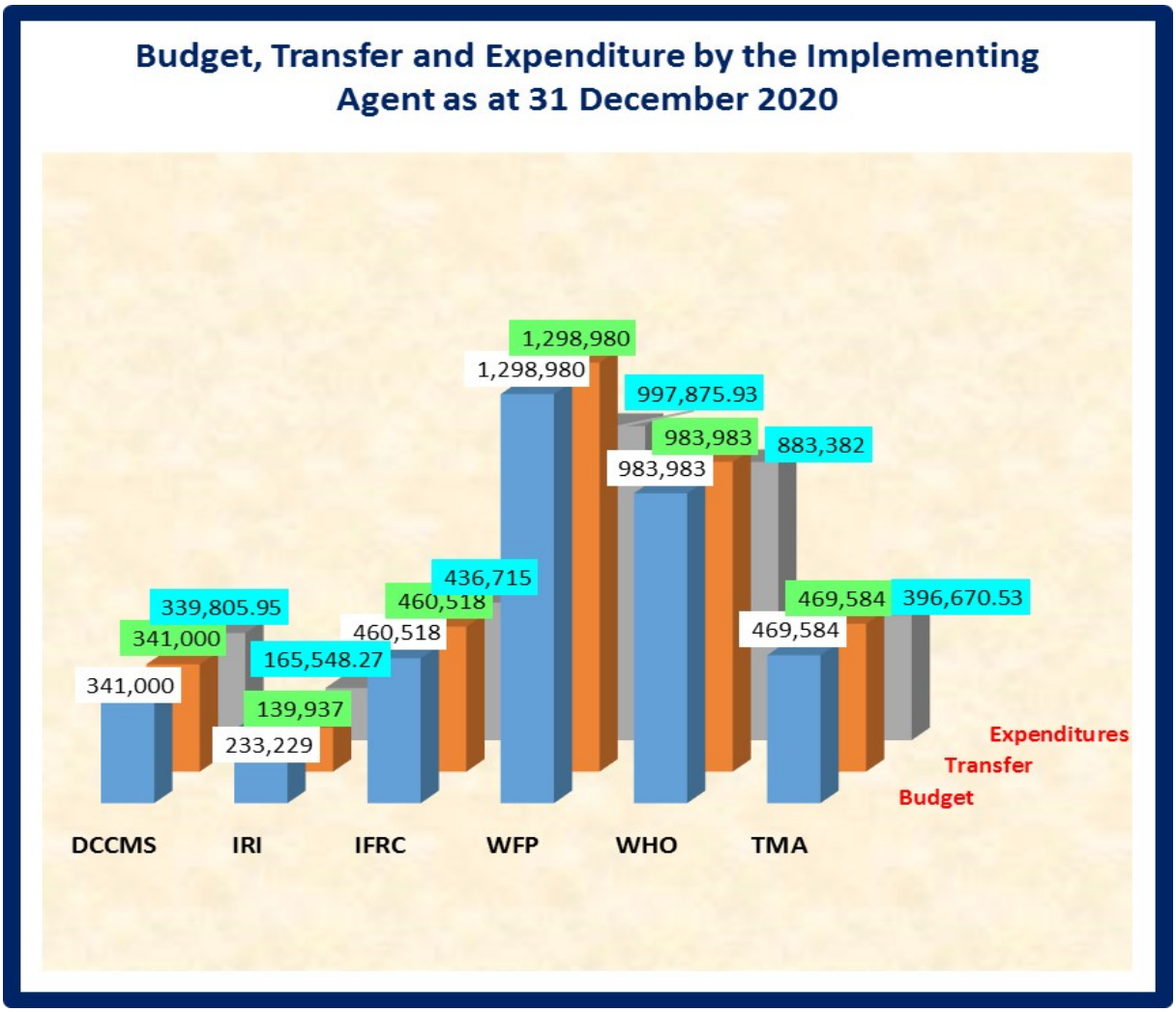

Figure 3: Budget, transfers and expenditures by implementing agents

5.2 Findings

5.2.1 Relevance and strategic fit

At all levels (national, district and community) in both countries there is high enthusiasm and appreciation among respondents of the project interventions in climate services. All respondents

acknowledge that the climate services is typically a new area which potentially had not been well tapped in the agriculture, DRR and health sectors. Certainly, the project implemented relevant activities both strategic and operational for example the project activities included support of development of policies, strategies and plans. Furthermore, the project provided capacity building in terms of trainings, exchange visits, and participation in workshops, meetings and conferences inside and outside the project countries. Therefore the project beneficiaries report a relatively improved knowledge and skills and change into behaviors and attitudes after the trainings as comparison to before the project start.

5.2.2 Validity of intervention design

Overall, the project design seems fine. GFCS II project was a continuation of Phase I in which the interventions were already identified. To this end, it may not have needed a totally bottom up approach as the issues were known. However, our findings note that there were new emerging issues of which the project design could have taken aboard by updating the design through a bottom up approach to ensure inclusion of the most relevant interventions in the local context. At implementation start, some activities had to be revised, this was a case in Malawi. The project logical framework has 41 indicators (10 outcome indicators and 31 output indicators), there are indicators for each outcome and output. Table 2 presents number of results indicators and activities in the logical framework. However, evaluation of the results framework and the monitoring and evaluation system reveals number of deficiencies as follows:

i. The logical framework seems incomplete since it doesn't have some basic information such as means of verification and assumptions
ii. Indicators underlying the project goal/impact are not specified which means that it will pose a challenge in measuring achievement of the project goal during impact assessment.
iii. The baseline was not conducted at the project level except that there were baseline surveys conducted by WFP and IFRC for outcome 2 and outcome 4 respectively and readiness assessment as the baseline for the health component.
iv. A number of indicators are missing targets. As such, both baseline and target data serves as important references in impact assessment of the project indicators progress.
v. The logical framework misses indicators definitions to specify unit of measure, timeframe and the actual meaning of the indicators. The absence of indicators definitions can cause misinterpretation of the project indicators.
vi. Tracking of indicators progress was not consistent. An example of a comprehensive indicators progress tracking matrix is presented under annex 3
vii. Mid-term review was not done to inform the second half of the project implementation, it was not planned in the project design phase. As such, mid-term review provides opportunity to make necessary adjustments of the project interventions with regard to implementation methods, project targets, what works well and what doesn't work well "challenges".
viii. Field monitoring and evaluation visits were performed at national level through PDTs to verify and validate project progress reported. However, the project management at global level did not manage to conduct field visits. As such field visits enhances data quality assessment (DQA) in terms of data precision, reliability, integrity, validity and timeliness.

Table 2: Number of indicators and activities in the project's results framework

				ACTIVITIES	
RESULTS	**INDICATORS**	**OUTPUTS**	**INDICATORS**	**TANZANIA**	**MALAWI**
GOAL/IMPACT					

OUTCOME 1	**4**	Output 1.1	2	8	8
		Output 1.2	1	8	5
		Output 1.3	1	4	5
		Output 1.4	1	2	5
		Output 1.5	3	2	0
Subtotal	**4**		**8**	**24**	**23**
OUTCOME 2	**3**	Output 2.1	2	3	3
		Output 2.2	3	5	5
		Output 2.3	1	1	1
		Output 2.4	2	2	2
Subtotal	**3**		**8**	**11**	**11**
OUTCOME 3	**2**	Output 3.1	2	3	3
		Output 3.2	2	2	2
		Output 3.3	1	1	3
		Output 3.4	2	1	1
Subtotal	**2**		**7**	**7**	**9**
OUTCOME 4	**1**	Output 4.1	2	1	1
		Output 4.2	2	2	2
		Output 4.3	2	5	5
		Output 4.4	2	1	1
Subtotal	**1**		**8**	**9**	**9**
GRAND TOTAL	**10**	**17**	**31**	**51**	**52**

5.2.3 Project progress and effectiveness

Overall, the project progress is good, activities implemented are consistent with the project immediate objectives, expected outputs and outcome targets. Based on the expenditures status in table 1, implementation progress has reached 94 percent. As such, all the implementing agents were optimistic to accomplish implementation of pending activities by the end of the project on 30th September 2021. Similarly, beneficiaries especially communities acknowledge receiving project services presented in the progress reports. However, the evaluation findings show that gender disaggregation in progress reports was not consistent. For example: in the annual report 2018; there was no disaggregation by gender of 245 district officials and 560 community members reached with tailored information in Malawi refer outcome 1.3. Similarly, without gender disaggregation, TRCS report 80 volunteers recruited to augment the existing volunteers in Tanzania refer outcome 4.2. As such, lack of disaggregation of data by gender is noticed in several reports and documents reviewed.

The project implementation was quite delayed from the start, due to challenges related to contract processing. Even though the contract with NORAD was signed in December 2017, the contracts between WMO and the rest of the partners were not ready until September 2018. The gap between Phase I and Phase II, which was also due to significant re-programming needs due to a reduction of the project budget from NORAD's side, halted the momentum of activities initiated in Phase I. It seemed that the Phase II of the program was almost detached from Phase I, phase II project implementation started eight months in September 2018 after its approval in December 2017 and over one year after the

completion of phase I in 2016. To this end, the structures and collaboration that had been established during phase I had to be re-established. NORCAP deployed project coordinators to the two countries to accelerate project implementation traction. In summary, delay in project implementation is attributable to three major issues: (i) delays in establishing contracts and MoUs among implementing partners; (ii) there was delay in funds flow due to incompatibility or and/lack of experience in systems of the international counterparts by the local partners; and (iii) the COVID-19 crisis.

5.2.4 Efficiency of resource use

The evaluation findings show that the project resources were properly managed and used. To this end, the evaluation did not find elements of misappropriation/misallocation of funds. As such, the project has achieved more results above the budget allocation. The evaluation outlines a number of reasons underlying big achievements vis-à-vis the project budget including the project observed value for money, the implementing partners had experience in the domains and areas and they were familiar with the systems of the counterparts, there was leveraging of government funding since many respondents acknowledge that some project activities were taken up and included in the government plans and budgets. Moreover, respondents from implementing agents report that they were obliged to follow the policy and procedures underlying procurement and financial management by the budget holders (WFP, WHO, IFRC, WMO) this helped to promote good practices thus saving funds from misprocurement elements.

5.2.5 Sustainability of the intervention

Sustainability of the project interventions is visible. The evaluation findings show that there is high buy-in of the project interventions by both the government and communities in Malawi and Tanzania. There is evidence that climate services is being mainstreamed and integrated into the government systems such as policies, strategies, plans and budgets. For example, in Malawi, agricultural colleges and the Lilongwe University of Agriculture and Natural Resources (LUANAR) have integrated PICSA in their training modules so that graduates are equipped with knowledge and skills in applying climate information in the agricultural sector. Furthermore, a number of NGOs working in food security related projects such as CRS, CADECOM, CARE Malawi, Christian Aid, Self Help Africa, MRCS, and CARITAS have started using of downscaled district seasonal rainfall forecasts. Similarly, communities of farmers and pastoralists in both countries acknowledge use of the climate information to make informed decisions in farming and disaster risk reduction. For example, as a collateral benefit from the project, in Malawi some respondents acknowledged benefiting from the project interventions in terms of knowledge and skills and that they have constructed strong houses on proper locations in order to withstand strong winds and cyclones. Notably, due to the perceived project benefits, respondents from the project beneficiary farmers in Tanzania were eager and willing to receive climate information even if telephone companies put small charge to receive climate information via SMS. Similarly, PICSA, downscaling of seasonal forecasts, integration of health and climate change in health institutes, environmental clubs, etc. are some of the sustainability aspects of the project interventions in Tanzania.

With regard to health, sustainability of the project will be ensured as improvements in surveillance have been integrated into existing disease surveillance systems at national level. Although in some cases the lack of data with sufficient time resolution have made it impossible to develop predictive models for outbreaks, the project activities have contributed to the overall strengthening of those surveillance systems. Greater investments in surveillance systems will be required to ensure that surveillance data is collected and reported at the required resolution, both temporal and geographical. In addition, capacity building of MoH staff at the national level in both Tanzania and Malawi was a strong focus of this project

and knowledge and skills developed will continue to be utilized to improve surveillance systems after the project closure.

5.2.6 Coherence

The project implemented interventions complementing the interventions by the previous project of WMO "GFCS APA phase one". Therefore, there is compatibility in terms of linkages and synergies of the interventions by the projects of WMO. Further, the project interventions are being adopted by other development partners thus enhancing cross linkages and synergies among projects by different development partners. From the implementation point of view, there was collaborations among implementing partners especially outcome 1, outcome 2, and outcome 4. Whereas outcome one (TMA and DCCMS) generated climate information "supply side", outcome 2 (WFP) and outcome 4 (MRCS and TRCS) made use of the climate information generated "demand side". However, in some areas the implementing partners worked in same district with different geographical coverage. Therefore the project beneficiaries within one district received varying packages of the interventions, for example this was a case with TRCS which was dealing with farmers from DRR point of view and WFP which was focusing on training all the extension officers in Kiteto district in Tanzania whereby TRCS was working with 4 villages within the district, while WFP covered the whole district.

5.2.7 Impact

There are immediate benefits attributable to the GFCS APA phase II project interventions. For example, farming communities are making informed decisions based on the climate information received, a number of respondents from farmers in both Malawi and Tanzania acknowledge increased agricultural production and productivity after applying knowledge and skills acquired from the training conducted by the project. The evaluation observes that Ministries of Health and communities are adopting use of the climate information against health issues and disaster risk reduction. The COVID-19 pandemic made the health component of this project even more relevant as it made evident that surveillance systems in Tanzania and Malawi needed to be strengthened in order to ensure effective surveillance of health outcomes and risks. The integration of climate and weather information into dengue, malaria and cholera surveillance systems will contribute to overall health systems' resilience in these countries.

Similarly, extension officers continue using PICSA to support farmers even if the project implementation has completed, this is a case with Kondoa district in Tanzania and also in Malawi. Moreover, respondents report changes into behaviours and attitudes attributable to the capacity building through various trainings and climate information provided by the project through radios, SMS and volunteers. There is improved climate services delivery by TMA and DCCMS to rural communities. However, an impact assessment can be done after the project completion to document intended or unintended, higher-level effects of the project outcomes and impacts. This is because it takes a considerable long period to realize the long impacts of project interventions.

5.2.8 Project management arrangements

Accordingly, the project management arrangement is essentially effective. Communication and decisions at different levels were made on time. However, our findings note that some management meetings were done after a long period of time. For example, there was no annual consultation meeting in 2018, instead the first meeting was done in February 2019 from project agreement signing in December 2017. In 2017 and 2018 the project was under a different manager, all the annual meetings were organized by the new project manager. Similarly, some PDT meetings were not held in 2020 due to COVID-19 whereas some meetings were conducted virtually. The GFCS APA phase II project proposal presents comprehensive project risks management with clear mitigation steps though progress reports have no section presenting consistent monitoring of the project risks.

5.2.9 Capacity building and institutionalization

The project provided orientation and capacity building to the project focal persons in the counterpart institutions in the government. Similarly, a number of government staff attended training workshops and conferences inside and outside the project countries in 2018 and 2019. In Malawi, the project supported DCCMS staff to participate in three international events namely: WMO Technical Conference and Meteorological Expo held in Amsterdam, Netherlands from 7-13 October 2018; UNFCCC COP24 in Katowice, Poland; and AMCOMET in Cairo, Egypt from 18-22 February 2019. In Tanzania, 15 TMA staff were trained on statistical and dynamical downscaling of seasonal and sub-seasonal forecasts; 5 TMA staff were supported to undertake MSc Degree at Sokoine University of Agriculture (SUA) and University of Dar Es Salaam (UDSM). Moreover, in Tanzania, the project supported a number of trainings to journalists, extension officers as well as other government officials.

Capacity institution building was also a key focus of Component 3. Ministry of Health staff and project focal points in both Tanzania and Malawi were supported to attend COP25 in Madrid, Spain. In Malawi, an ongoing coordination mechanism for climate change and health was established whose composition includes heads of academic programs, researchers, civil society organization representatives, Department of Climate Change and Meteorological Services (DCCMS) and Ministry of Health, and members from various sectors and academic institutions. In Malawi, a module on climate change and health was integrated in the National Health Surveillance Assistants (HSA) Curriculum and 100 health workers at the district level were trained. 30 District Executive committee members from Zomba district were also sensitized on climate change and health and committed to include climate change in the District Implementation Plans. In Tanzania, intersectoral collaboration between the MoH, the National Climate Change designated authority, Vice Presidents' Office – Department of Environment (VPO), and the TMA was strengthened. Furthermore, a Climate Change and Health Training Manual for health professionals has been developed and pre-tested through training of regional and district environmental health practitioners.

5.2.10 Project hand over to the government

The GFCS APA phase II project proposal did not include the project exit strategy. As such, implementing partners are exiting in different forms. Some partners have conducted project exit meetings while other have not. It all depends on implementing partners experience and policies. Notably, in some districts and villages, WFP has conducted project exit meetings. It should be noted however that project exit strategy needs to be integrated at the beginning of project implementation so that it contributes to the sustainability of the project interventions. As such some respondents were not aware of the GFCS APA phase II project completion date and whether climate information flow will be maintained.

5.2.11 Project learning

There are a number of lessons learnt and best practices that happened in the course of GFCS APA phase two project implementation in both Tanzania and Malawi. These lessons and best practices can inform both design and implementation of future projects or and scaling and replication of the GFCS APA phase two project. Notable lessons and best practices are summarized hereof:

i. Project implementation adopted a range of methods to disseminate climate information since no one method could fit the whole range of project beneficiaries. For example while disseminating climate information through radio programs was among top priority dissemination method, however few women had access to radios in some areas especially in pastoralists communities in Tanzania. Similarly, mobile phones SMS were appropriate to farmers who can read the SMS. Therefore different methods were adopted to disseminate climate information including radio hubs, meetings, and mobile telephone SMS and voice messages. For example, FRI supported listening groups with solar powered MP3 radios to counteract lack of access to radios by women in the pastoralists' communities in Tanzania. In Malawi, planning and review days prior to each season were adopted on top of the community meetings.

ii. Downscaled seasonal forecast specific to the particular local area is essentially important than general seasonal forecasts. The project learned that generic climate information was not effective when applied by the local communities since it did not reflect the local context per se. To this end the project interventions supported downscaling of season forecasts in project districts of which project beneficiaries made informed decision on when, what type of crops and varieties to grow given the climate information provided. Similarly, pastoralists used the downscaled climate information to plan well on animal feeding and breeding schedules. Moreover, communities used the downscaled climate information against health issues and disaster risk reduction.

iii. Translation of the climate information in local languages helped in dissemination and adoption of the climate services. Normally, climate information was provided in technical language not understood well by the rural communities. Therefore, climate information was translated into Kiswahili and Masai languages in Tanzania and Chichewa language in Malawi.

iv. Strong collaboration has been forged among partners in the sectors sensitive to the climate change. As such, the project delivery team meetings enhanced and cemented interactions among the implementing partners.

v. TMA involved UNDP and World Bank and other partners in the GFCS APA two project. In Malawi, the project collaborated with UNDP-MCLIMES project, World Bank, FAO, Norway Meteorological Institute and there is a Digital Public Goods project and EU FOCUS Africa project on going in Malawi as a result of these collaborations. World Bank provided Automated Weather Stations to boost weather station coverage in Malawi. This collaborations and engagements are best practices which mobilized support to climate services from many development partners.

vi. There are many challenges to make arrangements of contracts and MoUs when many partners are involved in a project. For example WMO had to engage with TMA and DCCMS, WFP had to engage with MoA, UoR; WHO had to engage with MoH and MoHCDGEC; IFRC had to engage with TRCS and MRCS. Therefore, it took substantial period of time to conclude arrangements of contracts and MoUs. This led into the unexpected delays in the project implementation both in Tanzania and Malawi.

vii. Working with government enhances sustainability of the project interventions. The project is ending but government is already taking over some interventions.

6. CONCLUSIONS

The GFCS APA phase II project is proven as relevant and efficiently implemented despite the delayed start and the gap detaching phase II from phase I. The implementation model succeeded to derive strong synergy and linkage of the involved partners and has promoted utilization of the climate services. Good functional collaboration with partners at all levels has been established. To this end, sustainability of the project interventions is virtually guaranteed.

7. RECOMMENDATIONS

Given that GFCS APA phase II project is in the completion phase, the recommendations below, emanate from issues raised on sustainability and future directions.

i. The main concerns by the communities on receiving climate information after the project completion, it is recommended that the project organizes a meeting for beneficiary communities, NMHS, and local government authorities (districts) to discuss and agree on arrangements for a continued climate information flow after the project completion.
ii. Given high level of the project success, there needs to conduct a closure of project meeting in each country in which all partners and stakeholders will take stock of what was achieved and communicate
iii. Given the benefits from the project activities around climate information and PICSA, it is recommended that the project reach out to many farmers and vulnerable communities prone to weather and climate related hazards. This can be done by scaling up of the project interventions to new districts. The project was implemented in three districts in Tanzania which is about 2 percent of all districts in the country. Similarly, in Malawi, there are 28 districts though the project was implemented in about 10 percent of total districts. Replication of the project interventions in other countries is also recommended.
iv. There is high buy in of the project interventions by government and communities, it is worth conducting impact assessment after project completion to establish attribution and contribution of the project interventions.
v. Continue supporting strengthening of surveillance systems by integrating climate and weather information. This can be done by the government with support from development partners
vi. Accordingly, from the experience gained by WMO in coordinating project implementation involving multi-sectors, multi-partners and multi-levels, it is recommended to draw an indicative period required for mobilization phase to cover among other things establishment of contracts, agreements and memorandum of understanding among partners. This will inform future projects design and formulation on the importance of including a provision for the mobilization phase preceding actual implementation of the project. Notably, implementation of the GFCS APA phase two project started approximately eight months after signing of the project financing agreement.

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ANNEXURES

Annex 1: Evaluation Questions

Evaluation criteria	Evaluation Questions
1. Relevance and strategic fit	1.1 To what extent the project continued its relevance and responsiveness to address capacity gaps and institutional limitations of climate services in the region and at country levels?
	1.2 To what extent were project strategies, tools and approaches flexible or adapted to the regional and national contexts to ensure appropriateness and respond to the changing situations and varying capacities in the countries covered?
	1.3 To what extent the project has informed the country's climate change plans, policies, strategies and initiatives?
	1.4 To what extent has the project facilitated application and utilization of climate information and products for reducing vulnerability and enhancing resilience of the targeted communities
	1.5 Have gender considerations been taken into consideration in the project?
	1.6 What is the extent to which the project approach is strategic and based on the WMO comparative advantages?
	1.7 Were the project strategies and interventions appropriate for enhancing climate services capacities and uptake?
2. Validity of intervention design	2.1 Were the design and the logframe valid and consistent? Have there been adjustments in the logframe throughout the project implementation?
	2.2 Did the design appropriately identify risks and key assumptions? Did the project have a mitigation strategy taking into account the situation in the region and the countries covered?
	2.3 How was the process of consultation and identification of problem and strategies done during the project design stage? How did the consultation results affect the project design?
	2.4 Did the project design adequately consider the gender dimensions of the problem, challenges, and interests of the women target groups and of the planned interventions?
	2.5 Have there been adjustments made on the project design during the course of project implementation?
3. Project progress and effectiveness	3.1 To what extent has the project attained its objectives?
	3.2 What were the major factors influencing the achievement or non-achievement of the project objectives?
	3.3 What were the challenges faced by the project in achieving the expected outcomes and how were they addressed?
	3.4 To what extent was the project successful in addressing gender equality?
	3.5 To what extent has the project contributed to improving behavior change in terms of uptake and use of climate services for planning, decision making and increased

Evaluation criteria	Evaluation Questions
	resilience?
4. Efficiency of resource use	4.1 Have resources (funds, human resources, time, expertise etc.) been allocated and delivered strategically to achieve the project objectives?
	4.2 Given the size of the project, its complexity and challenges, were the existing management structure and technical capacity sufficient and adequate?
	4.3 How well did the project manage finances (including work and financial planning, budget forecasts, spending and reporting)? What monitoring system was put in place to assess and improve resource utilization and its efficiency?
5. Sustainability of the intervention	5.1 Has the policy environment in the region and the countries covered made more conducive to increasing resilience to climate impacts due to the project's interventions and support on capacity development, knowledge sharing and strengthening of institutions?
	5.2 Any available evidence of better management of risks and taking consideration of opportunities made available from climate variability and change?
	5.3 Are there any good practices and tools of promoting the use of climate data and services in policy-making from this project? Have these been well-documented?
	5.4 Has there been evidence of better understanding of user communities and key stakeholders of climate services at the national level? Provide elaboration of the evidence and how this understanding has led to improved policies or institutional practices.
	5.5 Are there any follow-up actions required to continue the momentum of the project?
	5.6 What are the remaining gaps/needs in the project countries and at regional level?
6. Effectiveness of management arrangements	6.1 What is the quality and frequency of operational work planning and risk management? Describe how coordination was done across the target countries, WMO and the partners.
	6.2 What are the internal and external factors that have contributed to the pace of project implementation? What are the lessons learnt to ensure effective project management?
7. Learning, Capacity building and institutionalization	7.1 How did the project engage with the global/country level partners during project implementation and to sustain project interventions?
	7.2 Which types of capacity building activities have been more and less effective and what lessons can be derived from these experiences?
	7.3 How likely are the project outcomes going to be sustainable? What are the actions needed to increase the likelihood of sustainability?
	7.4 What are potential good practices, especially regarding models of interventions that can be applied further, shared and replicated?
	7.5 What is the potential for upscaling in the region and/or applying the good practices and lessons learnt acquired through the project in other regions?

Annex 2: List of Respondents

Annex 2a: Key informant interviews

No	Name of respondent	Gender	Organisation	Contact	Country
1	Astrid Thesen Tveteraas	F	NORAD	Astrid.Thesen.Tveteraas@norad.no	Norway
2	Veronica Grasso	F	WMO (Global Project Mnager)	VGrasso@wmo.int	Switzerland
3	Jacqueline Tesha	F	National Project Manager, GFCS-APA II Tanzania	jacquetee07@yahoo.co.uk	Tanzania
4	Vivaoliva Shoo	F	Tanzania Red Cross Society	vivaoliva@trcs.or.tz	Tanzania
5	Dr Ladislaus Chang'a	M	Project Delivery Teams (PDT)-Tanzania	ladislaus.changa@meteo.go.tz/ changa60@hotmail.com	Tanzania
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7	Anicetus Emmanuel	M	Ministry of Health Community Development, Gender, Elderly and Children	hanicetus@gmail.com	Tanzania
8	Prof. Pius Yanda	M	University of Dar es Salaam – Tanzania	yanda@ira.udsm.ac.tz/ pyanda@gmail.com	Tanzania
9	Tasiana Mzozo	F	National Project Coordinator	tasianamzozo@yahoo.com	Malawi
10	Martha Chiwaya	F	Malawi Red Cross Society	mchiwaya@redcross.mw	Malawi
11	Doshanie Kadokera	F	Ministry of Agriculture, Irrigation and Water Development	doshaniek@yahoo.com	Malawi
12	Jolamu Nkhokwe	M	Project Delivery Team (PDT)-Malawi	jnkhokwe@gmail.com	Malawi
13	Samuel Gama	M	Department of Disaster Management Affairs (DODMA)	samuelgama2011@gmail.com	Malawi
14	Charles Msangi	M	Prime Minister' s Office Disaster Management Department (PMO-DMD)	charles.msangi@pmo.go.tz/ cmsangi@gmail.com	Tanzania
15	Clement Boyce	M	Department of Climate Change and Meteorological Services	clemboyce@gmail.com	Malawi
16	Sellina	F	Senior Programme Associate	sellina.tengatenga@wfp.org	Malawi

	Tengatenga		Zomba (WFP)		
17	Gift Kamanga-	M	PICSA expert LUANAR - university	kamangathole@yahoo.com	Malawi
18	Alinafe Kamdonyo	F	Senior Programme Associate Balaka (WFP)	alinafe.kamdonyo@wfp.org	Malawi
19	Wongani Mwandira	F	Balaka (WFP)	wongani.mwandira@wfp.org	Malawi
20	George Vilili,	M	Executive Director, Farm Radio Trust (WFP)	gvilili@farmradiomw.org georgevilili@gmail.com	Malawi
21	Sam Chinkhadze	M	Balaka – project focal/government	schinkhadze@yahoo.com	Malawi
22	McKenly Dupu	M	Zomba– project focal/government	mckdupu@gmail.com	Malawi
23	Haruni Mvungi	M	Kiteto – project focal/government	haruni.mvungi@trcs.or.tz	Tanzania
24	Hassan Kiseto	M	Kondoa – project focal/government	kisetohr@yahoo.com	Tanzania
25	Hamida ramadhani	F	WAEO, Kondoa	+255789529143	Tanzania
26	Edward Kasiga	M	Longido – project focal/government	+255710346664	Tanzania
27	Peter Dorward	M	University of Reading	p.t.dorward@reading.ac.uk	UK
28	Graham Clarkson	M	University of Reading	g.clarkson@reading.ac.uk	UK
29	Samuel Poskitt	M	University of Reading	samuel.poskitt@reading.ac.uk	UK
30	Erimelinda Temba	F	Farm Radio International	etemba@farmradio.org	Tanzania
31	Hendricks Mgodie	M	Ministry of Health	hendricks2007@yahoo.co.uk	Malawi
32	Hamid Mponda	M	World Health Organization	mpondah@who.int	Malawi
33	Holystone Kafanikhale	M	Ministry of Health	hkafanikhale70@gmail.com	Malawi
34	Allone	M	Ministry of Health	amganizani@gmail.com	Malawi

	Ganizani				
35	Dr Neema Kileo	F	World Health Organization	kileon@who.int	Tanzania
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37	Ally Msangi	M	Longido District Council	+255783421825	Tanzania

Annex 2b: Focus Group Discussion

No	Name	Sex	Village	District	Country	Contact
1	Esupat Simon	F	Makame	Kiteto	Tanzania	0622751160
2	Rahel Paulo	F	Makame	Kiteto	Tanzania	0734094043
3	Helena Oloiting'idak	F	Makame	Kiteto	Tanzania	
4	Sara Mathayo	F	Makame	Kiteto	Tanzania	0738457193
5	Salome Mollel	F	Makame	Kiteto	Tanzania	0622472022
6	Sesilia Sokoine	F	Ndedo	Kiteto	Tanzania	0622469901
7	Patina Alais	F	Ndedo	Kiteto	Tanzania	
8	Paulina Martin	F	Ndedo	Kiteto	Tanzania	
9	Paulina Lemorond	F	Ndedo	Kiteto	Tanzania	0624653047
10	Amina Bakari	F	Ndedo	Kiteto	Tanzania	0622991257
11	Isaya Yakobo	M	Olpopongi	Kiteto	Tanzania	0783754020
12	Abel Samba	M	Olpopongi	Kiteto	Tanzania	0693485103
13	Teressia Sakaya	F	Olpopongi	Kiteto	Tanzania	0682316105
14	Nageleki Lowasare	F	Olpopongi	Kiteto	Tanzania	0627067778
15	Amina Juma	F	Ndaleta	Kiteto	Tanzania	0784116001
16	Daniel Mollel	M	Ndaleta	Kiteto	Tanzania	0717198379
17	Emmanuel Taiko	M	Ndaleta	Kiteto	Tanzania	0788699504
18	Veronica Safari	F	Ndaleta	Kiteto	Tanzania	0692259541
19	Olendimama Olengudi	F	Ndaleta	Kiteto	Tanzania	0692308367
20	Eliamani Julius	M	Ndaleta	Kiteto	Tanzania	0678099959
21	Kaundime Athumani	F	Ausia	Kondoa	Tanzania	0655785409
22	Mariam Abdi	F	Ausia	Kondoa	Tanzania	0763218585
23	Sofia Athumani	F	Ausia	Kondoa	Tanzania	0719394199
24	Zuwena Regi	F	Ausia	Kondoa	Tanzania	0676189807

No	Name	Sex	Village	District	Country	Contact
25	Mwajuma Yahaya	F	Ausia	Kondoa	Tanzania	0678946924
26	Zulfa Hassani	F	Ausia	Kondoa	Tanzania	0678987051
27	Habiba Juma	F	Ausia	Kondoa	Tanzania	0678024646
28	Zauda Hamisi	F	Ausia	Kondoa	Tanzania	0742861925
29	Hadija Hasani	F	Ausia	Kondoa	Tanzania	0769579595
30	Saumu Omari	F	Ausia	Kondoa	Tanzania	0673355707
31	Abasi Ally	M	Mulua	Kondoa	Tanzania	0718181546
32	Halifa Kopera	M	Mulua	Kondoa	Tanzania	0758501547
33	Mashaka Kawa	M	Mulua	Kondoa	Tanzania	0679339635
34	Rajabu Suka	M	Mulua	Kondoa	Tanzania	0762046019
35	Halidi Lumuri	M	Mulua	Kondoa	Tanzania	0762831231
36	Rabia Adam	F	Mulua	Kondoa	Tanzania	0763068000
37	Habiba Ramadhani	F	Mulua	Kondoa	Tanzania	0768978347
38	Zainabu Mohamed	F	Mulua	Kondoa	Tanzania	0682750518
39	Amina Mohamed	F	Mulua	Kondoa	Tanzania	0768327914
40	Asha Dara	F	Mulua	Kondoa	Tanzania	0654596944
41	Eva Kibao	F	Mulua	Kondoa	Tanzania	0711919486
42	Grace Daniel	F	Kitendeni	Longido	Tanzania	
43	Leah Paulo	F	Kitendeni	Longido	Tanzania	078432991
44	Nasyiku Saiti	F	Kitendeni	Longido	Tanzania	
45	Tito Saloniki	F	Kitendeni	Longido	Tanzania	
46	Nasha Oning'o	F	Kitendeni	Longido	Tanzania	
47	Mariamu Yusuf	F	Kitendeni	Longido	Tanzania	
48	Nalipo Naanyu	F	Kitendeni	Longido	Tanzania	0783781086
49	Ivolata Logela	F	Kitendeni	Longido	Tanzania	0747425883
50	Nookisha Kaela	F	Kitendeni	Longido	Tanzania	0687843932
51	Nalipo Nairowa	F	Kitendeni	Longido	Tanzania	
52	Nookiponi Sadiki	F	Kitendeni	Longido	Tanzania	
53	Paulina Julius	F	Lerangwa	Longido	Tanzania	0683962442

No	Name	Sex	Village	District	Country	Contact
54	Mary Mathias	F	Lerangwa	Longido	Tanzania	0685236880
55	Ezekieli Kivuyo	M	Lerangwa	Longido	Tanzania	0769483910
56	Michael Sako	M	Lerangwa	Longido	Tanzania	0782456423
57	Noorkimnyaki Kimani	F	Lerangwa	Longido	Tanzania	0686251556
58	Nashilu Laandalama	F	Lerangwa	Longido	Tanzania	0783715366
59	Jackson Meshana	M	Lerangwa	Longido	Tanzania	0765087549
60	Anthony Mtae	M	Lerangwa	Longido	Tanzania	0762661121
61	Darlington Magola	M	Matola	Balaka	Malawi	0998899038
62	Josophina Kambwan	F	Mpulula	Balaka	Malawi	0881 868 108
63	Kumbukani Juma	M	Mtandire	Lilongwe	Malawi	0994327346
64	Thomson Chikomeni	M	Mtandire	Lilongwe	Malawi	0999282535
65	Grace Chizimba	F	Mtandire	Lilongwe	Malawi	0999470199
66	Medson Longwe	M	Mtandire	Lilongwe	Malawi	0997104189
67	Evelyn Malenga	F	Mtandire	Lilongwe	Malawi	0995158900
68	Annie Chakhwima	F	Mtandire	Lilongwe	Malawi	0996539275
69	Samuel Banda	M	Mtandire	Lilongwe	Malawi	
70	Prisca Msangwa	F	Mtandire	Lilongwe	Malawi	
71	Noah Kamasho	M	Ndamera	Nsanje	Malawi	0888650922
72	Ruth Fatch	F	Thaundi	Nsanje	Malawi	0992117030
73	Patrick Dales	M	Thaundi	Nsanje	Malawi	0881098635
74	William Nyangazi	M	Ndamera	Nsanje	Malawi	0996098259
75	Samala Gume	M	Ndamera	Nsanje	Malawi	0997558675
76	Rose Phaundi	F	Ndamera	Nsanje	Malawi	0992116390
77	Fatima Hasani	F	Ndamera	Nsanje	Malawi	
78	Innocent Grey	M	Ndamera	Nsanje	Malawi	
79	Grace Banda	M	Mpokwa	Zomba	Malawi	0999442627
80	McLean Chisuse	M	Mpokwa	Zomba	Malawi	0999624518
81	Catherine Nankhwele	F	Mpokwa	Zomba	Malawi	0 994206828
82	Edina Chakana	F	Likangala	Zomba	Malawi	0991694612
83	Lackson Kachitsa	M	Likangala	Zomba	Malawi	0994088188

No	Name	Sex	Village	District	Country	Contact
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Annex 3: Project Indicators Progress Tracking Table

Results	Indicators	Unit of Measure	Baseline	Targets (end of project)[6]	Actual results (Year 1- 2018)	Actual results (Year 2- 2019)	Actual results (Year 3- 2020)	Cumulative Actual Results (2018/2019/ 2020)	Performance (% actual results)	Explanation against extreme results (overachievement or underachievement +10% or -10%)
Impact Level										
The lives of vulnerable populations are improved through enhanced access and understanding of high-quality, action oriented climate services and policies supporting mainstreaming of climate services in development and adaptation planning										
Outcome Level										
Outcome 1										
Enhanced capacity of NMHS to provide climate services	Percentage of users attending the National Climate Outlook Forum (or equivalent) report satisfaction with climate services	Percent		80%						
	No. of new tailored climate services	Number		11						
	Measure of enhanced skill in climate forcast products	Percent		7%						
	No. of different groups	Number		7.00						

[6] End of Project targets of the results indicators are as provided into the results framework of the GFCS APA phase II project

Results	Indicators	Unit of Measure	Baseline	Targets (end of project)	Actual results (Year 1-2018)	Actual results (Year 2-2019)	Actual results (Year 3-2020)	Cumulative Actual Results (2018/2019/2020)	Performance (% actual results)	Explanation against extreme results (overachievement or underachievement +10% or -10%)
	within the priority sectors present at NCOF									
Outcome 2										
Strenghtened use of climate information by vulnerable communities for food security and livelihoods	1. At least 40% of households within the targeted communities (Kiteto, Longido, and Kondoa in Tanzania and Balak and Zomba in Malaawi) use the extension worker climate advice to make DRR, agro and/or livelihood related decisions, by mid 2020	Percent		40%						
	2. By mid 2020, at least 50% of the households in the targeted communities (Kiteto, Longido, and Kondoa in Tanzania and Balak and Zomba in Malaawi) are reached by radio and/or SMS climatic advisories	Percent		50%						
	3. At least 40% of households within the targeted communities (Kiteto, Longido, and Kondoa in Tanzania and Balak and Zomba in Malaawi) have received	Percent		40%						

Results	Indicators	Unit of Measure	Baseline	Targets (end of project)	Actual results (Year 1-2018)	Actual results (Year 2-2019)	Actual results (Year 3-2020)	Cumulative Actual Results (2018/2019/ 2020)	Performance (% actual results)	Explanation against extreme results (overachievement or underachievement +10% or -10%)
	seasonal agricultural advice from farm intermediaries on an annual basis									
Outcome 3										
Strengthened capacity of health professionals to use of climate information for public health preparedness and resilience to climate related health risks	No. of references to climate information in health policy and operational documents	Number		5						
	No. of relevant products and services available for health professionals to use at appropriate levels	Number		5						
Outcome 4										
Increased use of climate and weather information by vulnerable communties (four in Tanzania and four in Malawi) to improve disaster risk reduction in vulnerable communities	Percentage of vulnerable households reporting to use climate information to prepare for and reduce the risk of disasters	Percent		40%						
Output Level										
Output 1.1: Climate services mainstreamed into policy, planning, and development processes at the national level	Existance of governance documents and signed decree for NFCS	Number	0	4						
	No. of references made to climate services in policies and plans	Number	0	1						
Output 1.2a: Enhanced TMA	No. of staff trained/training	Number	0	30						

Results	Indicators	Unit of Measure	Baseline	Targets (end of project)	Actual results (Year 1- 2018)	Actual results (Year 2- 2019)	Actual results (Year 3- 2020)	Cumulative Actual Results (2018/2019/ 2020)	Performance (% actual results)	Explanation against extreme results (overachievement or underachievement +10% or -10%)
capacity to respond to user needs with high-quality climate services (capacity building contributes to programme sustainability)	event (gender disagregated)									
Output 1.2b: Enhanced DCCMS capacity to respond to user needs with high-quality tailored climate services (capacity building contributes to programme sustainability)	No. of staff trained/training event (gender disagregated)	Number	0	30						
Output 1.3: Climate services (e.g. crop advisories, SMS, maprooms) are tailored to meet user needs (explore use of ACMAD Service Delivery and Business Plan)	No. of tailored (including by gender) climate services available	Number	0	17						
Output 1.4: Lessons learned developed to support scalability (dissemination avenues will include the AMCOMET platform)	No. of lessons learned documented	Number	0	11						
Output 1.5 Project partners contribute to National Framework for Climate Services	No. of partners that review the governance documents and national framework for climate services	Number	0	4						
	No. of partner engagements with relevant national institutions	Number	4	10						

Results	Indicators	Unit of Measure	Baseline	Targets (end of project)	Actual results (Year 1- 2018)	Actual results (Year 2- 2019)	Actual results (Year 3- 2020)	Cumulative Actual Results (2018/2019/ 2020)	Performance (% actual results)	Explanation against extreme results (overachievement or underachievement +10% or -10%)
	(TANDREC and TWG CS)									
	No. of user interface platforms attended (national climate outlook forums, planning and review days)	Number		32						
Output 2: Enhanced TMA capacity to respond to user needs (capacity building contributes to programme sustainability)										
Output 1.3 Climate data recovered and digitized	Number of files digitized		Baseline to be assessed at inception							
Output 1.4 Downscaled seasonal forecasts are produced and verified	% increase in skill measures for the forecasts		Baseline assessed at training workshop							
	NMHSs offer seasonal to subseasonal climate service products		User satisfaction							
Output 1.5 Tailor made climate services are prepared and disseminated	Users satisfaction with the tailored climate service products		baseline at first training							
	number of climate services produced		assessment at inception							

Results	Indicators	Unit of Measure	Baseline	Targets (end of project)	Actual results (Year 1-2018)	Actual results (Year 2-2019)	Actual results (Year 3-2020)	Cumulative Actual Results (2018/2019/2020)	Performance (% actual results)	Explanation against extreme results (overachievement or underachievement +10% or -10%)
Output 1.6 NMHS trained on seasonal forecast development and verification	NMHS have improved capacity on seasonal forecast development		assessment at inception							
Output 1.5 Relevant governance documents for TANDREC, Malawi developed, NFCS decree signed	existance of governance documents and signed decree		0							
Output 1.7 Output 4.1 Strengthened inclusion of Climate Services into the NAP and development planning processes	Number of national planning and policy processes that NMHS contribute to;		CSIRO report							
	Number of draft/adopted planning/policydocumets integrating climate service		0							
Output 1.8 Project partners contribute to National Framework for Climate Services	Number of partners that review the governance documents and national framework for climate services		0							
	Number of partner engagements with relevant national institutions (TANDREC and TWG CS)		4/year							

Results	Indicators	Unit of Measure	Baseline	Targets (end of project)	Actual results (Year 1- 2018)	Actual results (Year 2- 2019)	Actual results (Year 3- 2020)	Cumulative Actual Results (2018/2019/ 2020)	Performance (% actual results)	Explanation against extreme results (overachievement or underachievement +10% or -10%)
	Number of user interface platforms attended (national climate outlook forums, planning and review days)		assessment at inception							
Output 2.1: Strengthened capacities at district and community levels to use climate and weather information	2.1.1 At least 75 farmer intermediaries in targeted districts (Kiteto, Longido, and Kondoa in Tanzania and Balak and Zomba in Malaawi) in each country are trained on the use of climate information each year.	Number		150						
	2.1.2 number of households within the targeted communities (Kiteto, Longido, and Kondoa in Tanzania and Balak and Zomba in Malaawi) that have received seasonal agricultural advice from farm intermediaries	Number		75%						
Output 2.2: Ensuring sustainable delivery of tailored climate and weather services to vulnerable	2.2.1 '30 radio shows on agro-climatic content broadcast on the radio in the season	Number		60						

Results	Indicators	Unit of Measure	Baseline	Targets (end of project)	Actual results (Year 1- 2018)	Actual results (Year 2- 2019)	Actual results (Year 3- 2020)	Cumulative Actual Results (2018/2019/ 2020)	Performance (% actual results)	Explanation against extreme results (overachievement or underachievement +10% or -10%)
communities through public/private partnerships	2.2.2. 35 new radio listening hubs established each year ;	Number		95						
	2.2.3 % of households in the targeted communities (Kiteto, Longido, and Kondoa in Tanzania and Balak and Zomba in Malaawi) reached by radio and/or SMS climatic advisories	Percent		75%						
Output 2.3: Mainstreaming key issues related to climate services and food security in national policy/processes (i.e. NAPs)	No. of meetings of national policy/processes addressing key issues related to climate services for food security (Agriculture Policy, Climate Change Policy, NAPs) (2 meetings per year)	Number		4						
Output 2.4: Scaling up and replication - knowledge management/lessons learnt	2.4.1 No of technical guidances, lessons learnt and case studies developed and/or disseminated, with a focus on supporting replicability of interventions;	Number		6						
	2.4.2 Lessons learned from programme implementation on improving climate services are communicated through	Number								

Results	Indicators	Unit of Measure	Baseline	Targets (end of project)	Actual results (Year 1-2018)	Actual results (Year 2-2019)	Actual results (Year 3-2020)	Cumulative Actual Results (2018/2019/2020)	Performance (% actual results)	Explanation against extreme results (overachievement or underachievement +10% or -10%)
: 2097/2021.12.HSTSC	relevant local, national, regional and global fora									
Output 3.1: Capacity of health professionals to understand and use climate information for health decision-making strengthened.	Number of health professionals trained in using tailored climate information products for decision-making	Number		T: 26 M: 201						
	Number of communication products disseminated to target audiences	Number		5						
Output 3.2: Reliable access of climate services to the health community	Number of health risk advisories developed using climate information tested and reliable	Number		7						
	Number of times maprooms accessed through interoperable open-access interfaces (DHIS2).	Number		60						
Output 3.3 Mainstreamed climate knowledge and decision tools enhance health policy and operations	No. of health programmes or policies report using tailored climate products for national and district level decisionmaking	Number		4						
Output 3.4: Lessons learned developed to support	Number of documents, briefs, lessons and information published and/	Number		4						

Results	Indicators	Unit of Measure	Baseline	Targets (end of project)	Actual results (Year 1- 2018)	Actual results (Year 2- 2019)	Actual results (Year 3- 2020)	Cumulative Actual Results (2018/2019/ 2020)	Performance (% actual results)	Explanation against extreme results (overachievement or underachievement +10% or -10%)
scalability in the health sector	or disseminated									
	Number of prototype products and guidance documents produced	Number		4						
Output 4.1 Inclusion of Climate Services into the NAP and DRR/DRM and development planning processes	Number of national planning and policy processes that TRC and MRC contribute to;	Number		4						
	Number of draft/adopted planning/policydocumets integrating climate service	Number		2						
Output 4.2 Increased access of vulnerable communicites to climate information through capacity building	No of TRC/MRC staff and volunteers trained in disseminating climate information, EW alerts and DRR Advisories;	Number		500						
	No of people/households using area-specific products for livelihoods/DRR decisions	Number		5000						
Output 4.3 DRR activities are developed on the basis of climate information and linked to health and agriculture	No agro-meteorological products disseminated to communities;	Number		4						
	No of Contingency Plans developed or reviewed/updated on the	Number		8						

Results	Indicators	Unit of Measure	Baseline	Targets (end of project)	Actual results (Year 1- 2018)	Actual results (Year 2- 2019)	Actual results (Year 3- 2020)	Cumulative Actual Results (2018/2019/ 2020)	Performance (% actual results)	Explanation against extreme results (overachievement or underachievement +10% or -10%)
	basis of seasonal forecasts integrating health and agricultural responses									
Output 4.4 Lessons learned and community voices are captured to improve the provision of climate services	No of community meetings held to share information and solicit feedback, including planning meetings;	Number		8						
	No of lessons learned documents/briefs developed, published and/or disseminated	Number		2						

Annex 4: Project Stakeholders Matrix

Annex 4a: Project Stakeholders in Malawi

Outcome	Lead Global Partner	Government counterpart	Implementing partners	Beneficiary Districts	Number of villages covered	Number of schools covered	Implementation start date	Remark
Outcome 1: Enhanced capacity of NMHS to provide climate services	WMO	DCCMS	DCCMS, WFP, MOA, WHO, MOH, MRCS, DODMA, Districts Officials, IRI, NOAA, ICPAC, URV, LUANAR, UOR, MNREM, EAD, Crops Dept, Extension Dept, Land Resources Dept Other partners co-implementing eg UNDP-MCLIMES, FAO and Farm Radio Trust.	Nsanje, Lilongwe, Balaka, Zomba, Salima, Karonga, Kasungu, Chikwawa, Phalombe; and other 19 districts	N/A	N/A	September 2018	DCCMS was implementing where the other partners were also implementing. Seasonal Forecast product was produced and disseminated in all districts across the country
Outcome 2: Strengthened use of climate information by vulnerable communities for food security and livelihoods	WFP	MoA	WFP, District officials, Farm Radio Trust, University of Reading,	Zomba	9 EPAs Malosa, Nsondole, Thondwe, Masaula, Dzaone, Likangala, Mpokwe, Chingale, Ngwerero	N/A	2016, 2017, 2018, 2019	Trained Extension workers in PICSA TOT, monitored implementation by Extension workers in PICSA, PICSA roll out to beneficiary farmers, radio listening. Provided phone numbers of beneficiaries for delivery of SMS by

Outcome	Lead Global Partner	Government counterpart	Implementing partners	Beneficiary Districts	Number of villages covered	Number of schools covered	Implementation start date	Remark
				Balaka	6 EPAs covering the entire district			FRT. Participated in Training of PICSA expert. Made available downscaled weather information (up to EPA level) provided by DCMS for farmers to make informed choices.
Outcome 3: Strengthened capacity of health professionals to use of climate information for public health preparedness and resilience to climate related health risks	WHO	MoH	-MoH, Health Education Unit (HEU). -ACADEMIA: LUANAR, Malawi College of Health Sciences (MCHS), UNIMA-Polytechnic, -DCCMS, -CSO (CISSONEC), -Environmental Affairs Department (EAD) -WFP,MRCS, MoA, Water department	Zomba, Chikwawa, Salima, Chitipa, Karonga, Phalombe, Nkhatabay, Lilongwe and Kasungu	Health facilities Nathenje, Bwaila, Matawale, Migowi, Nambozo, Chitipa Didtrict Hospital, Karonga District Hospital, Naisi, Khombeza, Chikwawa District Hospital, Dolo, Mapelera,	N/A	September 2018	-4 districts (Chikwawa, Zomba, Chitipa and Salima) are implementing both EWARS model and health and climate change activities -5 districts (Karonga, Nkhatabay, Lilongwe, Phalombe and Kasungu implementing health and climate change activities EAD; Provide policy directions and guidance, support HNAP integration in NAP.

Outcome	Lead Global Partner	Government counterpart	Implementing partners	Beneficiary Districts	Number of villages covered	Number of schools covered	Implementation start date	Remark
								ACADEMIA Capacity building and research agenda CSOs (CISONECC) To increase advocacy and raise public awareness for health and climate change DCCMS; Support MoH with climatic data and interpretations -WFP, MoA,MRCS,DoDMA DCCMS: Provided technical supports through the join planning meeting which MRCS organized and also through the PDTs -HEU Supported development of health and climate change communication strategy and public health advisories.
Outcome 4: Increased use of climate and weather information by vulnerable communities (four in Tanzania and four in Malawi) to improve disaster risk reduction in vulnerable communities	IFRC	DoDMA	MRCS volunteers, DCCMS, WFP, MoA, WHO, MoH, District	Nsanje, Lilongwe Balaka, Zomba	8	5	September 2018	**DCCMS:** was key in production of weather and climate information products which MRCS and

Outcome	Lead Global Partner	Government counterpart	Implementing partners	Beneficiary Districts	Number of villages covered	Number of schools covered	Implementation start date	Remark
			Civil Protection Committee (DCPC) through various departments and organizations Village Civil Protection Committees (VCPCs) including Early Warning Teams Malawi Red Cross Volunteers					DoDMA supported with co-production and dissemination to communities through VCPs and MRCS volunteers. DCCMS also took lead in capacity building related to Climate Change and early warning and weather information dissemination **WFP and MoA:** Led production of agrometeorological products after release of seasonal forecast by DCCMS. MRCS and DoDMA disseminated these products to targeted communities through VCPCs, lead farmers and MRCS volunteers **WHO and MoH:** MoH through district offices supported with facilitation health related activities eg health talks

Outcome	Lead Global Partner	Government counterpart	Implementing partners	Beneficiary Districts	Number of villages covered	Number of schools covered	Implementation start date	Remark
								DCPC: Through a number of government departments and sections eg Disaster, Forestry, Agriculture supported implementation of various activities through facilitation of capacity building sessions, monitoring WFP, MoA, MoH, WHO, DCCMS: Provided technical supports through the join planning meeting which MRCS organized and also through the PDTs In Balaka and Zomba MRCS volunteers supported WFP with implementation of some activities

Annex 4b: Project Stakeholders in Tanzania

Outcome	Lead Global Partner	Government counterpart	Implementing partners	Beneficiary Districts	Number of villages covered	Number of schools covered	Implementation start date	Remark
Outcome 1: Enhanced capacity of NMHS to provide climate services	WMO	TMA	TMA, Districts Officials, IRI, ICPAC, UoR	Kiteto, Longido		Bwakaro Secondary School Laalakiri Primary School	September 2018	TMA operated at a district level. They enhanced the capacity of extension officers and other intermediaries in the districts, to understand and interpret weather and climate information, for them to be able to disseminate the information to end users at village level. However, during this implementation period they have conducted sensitization meetings in 10 villages. But they disseminate weather and climate information in all villages.
Outcome 2: Strengthened use of climate information by vulnerable communities for food security and livelihoods	WFP	MoA	WFP, TMA, District officials, FRI, University of Reading,	Kiteto, Kondoa, Longido			September 2018	Same as TMA, WFP liaised with DAICOs and other extension officers at ward level. They build them capacity on PICSA for them to disseminate and apply the knowledge in their respective villages.
Outcome 3: Strengthened capacity of health professionals to use of climate information for public health preparedness and resilience to climate related health risks	WHO	MoH	MoH, TMA	National-wide		5 health institutes • Mpwapwa school of hygiene • Muhimbili school of hygiene • Kagemu school of hygiene • Ngudu school of hygiene	September 2018	MoH operated at the national level. They developed documents and systems that enhanced the capacity of health officials country-wide

						• Muheza vector school		
Outcome 4: Increased use of climate and weather information by vulnerable communities (four in Tanzania and four in Malawi) to improve disaster risk reduction in vulnerable communities	IFRC	TRCS	TRCS, TMA	Kiteto	4 villages; Ndedo Ndaleta Makame Olpopong	5 schools • Ndaleta P/R school • Olpopong P/R school • Makame P/R school • Ndedo secondary school • Njoro secondary school	Septembe r 2018	

Annex 5: Terms of reference for project final external evaluation

INDIVIDUAL CONSULTANT FOR PROJECT FINAL EXTERNAL EVALUATION
(special service agreement SSA)
Duration: 2 months (February 2021 – March 2021) – 35 working days

1. Introduction and rationale for evaluation

The Adaptation Programme in Africa Phase II is a multi-agency project which aims to strengthen the resilience of climate vulnerable communities in Tanzania and Malawi, by improving climate risk management and adaptation planning through the provision and use of quality sector-tailored climate services. The APA comes to end in March 2021.

A final project evaluation is being requested to extract lessons learnt and improve implementation of climate services projects in the field.

The final independent evaluation will be carried out for the purposes of accountability and organisational learning. The evaluation aims to assess the extent to which the project objectives have been achieved and to identify lessons learned and best practices. The evaluation will assess the project with an evaluation criterion that includes relevance, validity of design, effectiveness, efficiency, impact and sustainability.

2. Brief Background on project and context

On 5th December 2017, WMO signed a Letter of Agreement with the Norwegian Agency for Development and Cooperation (NORAD) for the multi-agency Global Framework for Climate Services Adaptation Programme in Africa – Phase II (GFCS APA Phase II). The implementation was planned for two focus countries: Tanzania and Malawi.

The programme partnership involves four international agencies: International Federation of Red Cross and Red Crescent Societies (IFRC); World Food Programme (WFP); World Health Organization (WHO); World Meteorological Organization (WMO).

The main goal of the project: The lives of vulnerable populations are improved through enhanced access and understanding of high-quality, action-oriented climate services and policies supporting mainstreaming of climate services in development and adaptation planning.

3. Purpose, scope and clients of evaluation

3.1. Purpose

Project evaluations are conducted to provide an opportunity for the WMO and its

development partners to assess the appropriateness of design as it relates to the WMO's strategic priorities, regional and national policy frameworks, and consider the effectiveness, efficiency and sustainability of project outcomes. Project evaluations also test underlying assumptions about contribution to a broader development goal.

The purpose of this evaluation is to assess the relevance of the intervention objectives and approach; establish how far the intervention has achieved its planned outcomes and objectives; the extent to which its strategy has proven efficient and effective; identify gaps in the implementation of activities/areas for further interventions and whether it is likely to have a sustainable benefit. It is an opportunity to take stock of achievements, performance, benefits, good practices and lessons learned from the implementation of the project.

Knowledge and information obtained from the evaluation will be used to inform the design of future similar activities.

Clients and users of the evaluation are

- WMO
- Representatives of governments and NMHSs in the countries covered (Tanzania and Malawi)
- NORAD as the funding entity
- Project Partners
- Project beneficiaries.

3.2. Scope

The evaluation will include all the activities undertaken by the project during the project period and will cover the two target countries: Tanzania and Malawi.

The evaluation shall include all stages of the project, including initial project design, work planning, implementation monitoring and reporting. The evaluation shall also refer to partners' evaluations (i.e. WFP one) the progress reports submitted to the donor, particularly the achieved outcomes and how lessons learned and recommendations were progressively followed up to attain desired results. The evaluation should also look at actual implementation mechanisms in line with initially planned implementation mechanisms, from the institutional set-up to the implementation plan and budget expenditures. How the strategies and approaches have progressed, changed or evolved over the two-year implementation period shall be examined to draw lessons from project experience.

The evaluation shall verify good practices, if any, benefits and lessons learned from the implementation of the project. At the end of the evaluation, a set of practical recommendations for possible immediate adoption/ application should be made available, and could be further integrated into future WMO projects. The evaluation shall identify approaches and / or activities that have proven to be particularly innovative, unique or otherwise valuable that can be referred to in regard to capacity building, knowledge sharing, decision-making and sustainable mechanisms for climate services. The evaluation shall also indicate the possibility for upscaling of activities in Tanzania and Malawi and in the region in general. The evaluation will also identify opportunities/areas for future interventions.

4. Evaluation questions and criteria

The evaluation will focus and assess the following:

- ***Relevance and strategic fit:*** To evaluate the outcomes of the project and assess whether the project has achieved its immediate objectives as well as contributed to broader policies and frameworks, specifically the project's expected outcomes at both regional and national levels (please refer to the Project Document/Results based framework).
    1. To what extent the project continued its relevance and responsiveness to address capacity gaps and institutional limitations of climate services in the region and at country levels?
    2. To what extent were project strategies, tools and approaches flexible or adapted to the regional and national contexts to ensure appropriateness and respond to the changing situations and varying capacities in the countries covered?
    3. To what extent the project has informed the country's climate change plans, policies, strategies and initiatives?
    4. To what extent has the project facilitated application and utilization of climate information and products for reducing vulnerability and enhancing resilience of the targeted communities
    5. Have gender considerations been taken into consideration in the project?
    6. What is the extent to which the project approach is strategic and based on the WMO comparative advantages?
    7. Were the project strategies and interventions appropriate for enhancing climate services capacities and uptake?

- ***Validity of intervention design:*** Assess the appropriateness of the results framework and appropriateness of its indicators, targets and the overall M&E strategy and practices
    1. Were the design and the logframe valid and consistent? Have there been adjustments in the logframe throughout the project implementation?
    2. Did the design appropriately identify risks and key assumptions? Did the project have a mitigation strategy taking into account the situation in the region and the countries covered?
    3. How was the process of consultation and identification of problem and strategies done during the project design stage? How did the consultation results affect the project design?
    4. Did the project design adequately consider the gender dimensions of the problem, challenges, interests of the women target groups and of the planned interventions?
    5. Have there been adjustments made on the project design during the course of project implementation?

- ***Project progress and effectiveness:*** Assess the progress of the project against its immediate objectives, expected outputs and outcome targets, as well as the delivery of quality outputs (please refer to the Project Document/RBF framework).
    1. To what extent has the project attained its objectives?
    2. What were the major factors influencing the achievement or non-

achievement of the project objectives?

3. What were the challenges faced by the project in achieving the expected outcomes and how were they addressed?
4. To what extent was the project successful in addressing gender equality?
5. To what extent has the project contributed to improving behavior change in terms of uptake and use of climate services for planning, decision making and increased resilience?

- ***Efficiency of resource use:*** Measure how economically resources/inputs (funds, expertise, time, etc.). are converted to results
    1. Have resources (funds, human resources, time, expertise etc.) been allocated and delivered strategically to achieve the project objectives?
    2. Given the size of the project, its complexity and challenges, were the existing management structure and technical capacity sufficient and adequate?
    3. How well did the project manage finances (including work and financial planning, budget forecasts, spending and reporting)? What monitoring system was put in place to assess and improve resource utilization and its efficiency?

- ***Sustainability of the intervention:*** Provide the overview of sustained impact of the project against the following outcomes
    1. Has the policy environment in the region and the countries covered made more conducive to increasing resilience to climate impacts due to the project's interventions and support on capacity development, knowledge sharing and strengthening of institutions?
    2. Any available evidence of better management of risks and taking consideration of opportunities made available from climate variability and change?
    3. Are there any good practices and tools of promoting the use of climate data and services in policy-making from this project? Have these been well-documented?
    4. Has there been evidence of better understanding of user communities and key stakeholders of climate services at the national level? Provide elaboration of the evidence and how this understanding has led to improved policies or institutional practices.
    5. Are there any follow-up actions required to continue the momentum of the project?
    6. What are the remaining gaps/needs in the project countries and at regional level?

- ***Effectiveness of management arrangements:*** To what extent the management system is appropriate to achieve desired results and outcome within a timely, effective and efficient manner; including
    1. What is the quality and frequency of operational work planning and risk management? Describe how coordination was done across the target countries, WMO and the partners.
    2. What are the internal and external factors that have contributed to the

pace of project implementation? What are the lessons learnt to ensure effective project management?

- ***Capacity building and institutionalization:*** The implementation arrangements put in place by the project to ensure appropriate capacity building of its institutional counterparts.
    1. How did the project engage with the global/country level partners during project implementation and to sustain project interventions?
    2. Which types of capacity building activities have been more and less effective and what lessons can be derived from these experiences?
    3. How likely are the project outcomes going to be sustainable? What are the actions needed to increase the likelihood of sustainability?
    4. What are potential good practices, especially regarding models of interventions that can be applied further, shared and replicated?
    5. What is the potential for upscaling in the region and/or applying the good practices and lessons learnt acquired through the project in other regions?

4.1. Gender Mainstreaming

- The gender dimension should be considered as a cross-cutting concern throughout the methodology, deliverables and final report of the evaluation. In terms of this evaluation, this implies involving both men and women in the consultations, evaluation analysis and evaluation team. Moreover, the evaluator should review data and information that is disaggregated by sex and gender and assess the relevance and effectiveness of gender-related strategies and outcomes to improve lives of women and men. It shall also draw lessons on which strategies had been effective in bringing about gender balance and what had remained as challenges. All this information should be accurately included in the reports.

5. Methodology to be followed

The evaluation will use a combination of quantitative and qualitative methods and the final methodology will be determined by the evaluator, taking into account suggestions from the stakeholders, in consultation with the WMO and the project team. The detailed methodology will be elaborated by the evaluator on the basis of this TORs and documented in the Inception Report.
It is expected that the evaluation will apply mixed methods that draw on both quantitative and qualitative evidence and involve multiple means of analysis.
These include but not limited to: -

- Desk review of relevant documents and related to the background of the project, context of the countries covered (statistics, national action plans, etc.) performance and progress related to the project, including the project document, progress reports, annual reports, letters of agreements with partners, etc.

- Interviews with the concerned staff in the WMO lead department and collaborating departments through interviews early in the evaluation process.

An indicative list of persons to interview will be prepared by the project manager.

- Interviews with the donor, project implementing partners, project target groups (participants in project activities) and other stakeholders deemed relevant to answer the evaluation questions. Focus group discussions can also be arranged with selected implementing partners and beneficiaries in at least one of the countries covered.

- Field trip(s) to at least one of the countries covered (if possible) for more in depth reviews at outcomes level of the respective project interventions. These will be based on suggestions from the project manager.

- Identify project good practices that contribute towards enabling the society to better manage the risks and exploit opportunities arising from climate variability and change.

- Collect media/newspaper articles on the project.

While the evaluator can propose changes in the methodology, any such changes should be discussed with and approved by the project manager.
All data should be sex-disaggregated and different needs of women and men and those vulnerable groups should be considered throughout the evaluation process.
It is expected that the evaluator will work to the highest evaluation standards and codes of conduct and follow the UN evaluation standards and norms. Transparency and objectivity will be observed at all times.

6. Main deliverables: inception report, draft and final reports

The evaluation shall result in a concise evaluation report detailing:

The overall and specific performance of the project as assessed in terms of relevance and strategic fit of the intervention; validity of intervention design; intervention progress and effectiveness; efficiency of resource use; effectiveness of management arrangements; and sustainability of the intervention. The assessment shall provide information, such as below, but not limited to;

- progress made against indicators of achievement;
- contribution to the WMO Strategic Priority(ies), Donor strategy, country level national action plans and any other broader national processes; validity of the design and quality of implementation;
- evaluation of the processes applied within the project particularly in terms of the timely delivery of project outcomes;

Key deliverables are as follows:

(1) Draft **inception report**- upon the review of available documents and an initial discussion with the project manager. The inception report should set

out any changes proposed to the methodology or any other issues of importance in the further conduct of the evaluation. The inception report will
    - describe the conceptual framework that will be used to undertake the evaluation;
    - sets out in some detail the approach for data collection, the evaluation methodology, i.e. how evaluation questions will be answered by way of data collection methods, data sources, sampling and selection criteria, and indicators;
    - sets out the detailed work plan for the evaluation, which indicates the phases in the evaluation, their key deliverables;
    - set out a plan for data collection, interviews or discussions;
    - sets out the list of key stakeholders to be interviewed

(2) Conduct interviews and consultations with relevant stakeholders and hold informal feedback meetings with stakeholders
(3) Validate the findings
- upon completion of field trips, to share the preliminary findings with the project partners, and WMO
- collect feedback and comments for finalization of the final report

(4) Produce and submit the following:
- a draft evaluation report, including an Executive Summary of key findings, conclusions and recommendations
- Final evaluation report incorporating feedback from WMO and implementing partners

The total length of the report should be a maximum of 40 pages for the main report, excluding annexes. Annexes can provide background and further details on specific components of the project evaluated.

The evaluation report should include:

1. Title page
2. Table of contents
3. Executive summary
4. Acronyms
5. Background and project description
6. Purpose of evaluation
7. Evaluation methodology and evaluation questions
8. Project status and findings by outcome and overall
9. Conclusions and recommendations
10. Lessons learnt and potential good practices and models of intervention (for upscaling in the region and replication in other regions)
11. Annexes (list of interviews, overview of meetings, proceedings stakeholder meetings, other relevant information)

7. Management arrangements, work plan, formatting requirements and time frame

Management arrangements

Financing: This evaluation will be fully financed by the APA Phase II project. The funds will cover the professional fees of the evaluator and evaluation mission(s), if possible.

Coordination of the Evaluation

The evaluator reports to the project manager. The project manager will keep the Project Executive informed of the evaluation process and will seek advice on the methodology, approach and quality assurance of the evaluation report, as appropriate.

Administrative and logistic support

The Project team led by the Project Manager (Veronica Grasso) will provide relevant documentations, administrative and logistic support to the evaluator. The project manager through the support of the NRC deployees and project partners will also lead in organizing a detailed evaluation mission agenda, and to ensure that all relevant documentations are up to date and easily accessible by the evaluator.

Roles of other key stakeholders

All stakeholders particularly those relevant WMO staff, the donor, regional and country level stakeholders and key project partners – will be consulted throughout the process and will be engaged at different stages during the process. They will have the opportunities to provide inputs to the draft final evaluation report.

Work plan

Key Steps	**Number of days**
1. Evaluation consultant start the evaluation assignment with desk review.	5
2. Writing detailed evaluation plan, including time line, country visits and methodology for data collection and analysis. 3. Share with the PM, integrate comments (by WMO) and finalize the evaluation plan	9
4. Country visit(s), if possible or video conference interviews with key stakeholders in the countries	5
5. Evaluation consultant prepares a draft report of final	10

evaluation to be submitted to the PM. PM to share the draft report with the project stakeholders.	
6. PM consolidates comments to the draft report and share with the evaluation consultant for revisions	
7. Evaluation consultant to finalize the report and submit the final report to the PM. The PM will share the final report with the project stakeholders for feedback, including to the PCU for quality assurance.	6
8. PM to endorse the final evaluation report and Department Director to approve.	

The evaluation is estimated at take a total of approximately 35 workdays

8. Activities

8.1. Desk review of project reports from implementing partners, project document, annual reports, RBF, and reports from the project steering committee;

8.2. Propose detailed outlines and methodologies for project final evaluation, in line with the five evaluation criteria endorsed by the OECD-DAC: Relevance, Effectiveness, Efficiency, Impact, Sustainability, and in compliance with the UN Norms and Standards for Evaluation; Develop questionnaires for interview and submit for feedback to WMO and implementing partners.

8.3. Conduct systematic interviews of (i) staff involved in project implementation in WMO, Norwegian Refugee Council (NRC) Deployees, implementing partners, (ii) key partners and stakeholders in Tanzania and Malawi and (iii) users of climate services including early warnings (contacts to be provided by partners);

8.4. Develop a project evaluation report in English, with executive summary in English;

8.5. Prepare a Powerpoint presentation;

8.6. Deliver the report and presentation at a validation workshop with partners;

8.7. Provide any additional comment(s) or clarification(s) after report delivery, if required.

9. Management arrangements

Payment

- 60% upon delivery of the draft report
- 40% upon completion of contract

In addition, a mission (travel and per diem) could be organized and financed by WMO, if allowed under the current pandemic.

10. Qualification and Selection Criteria

The following qualifications, expertise and experience are required:

- master's degree in meteorology, hydrology or related fields;
- experience (minimum 10-y) in designing, implementing or evaluating projects;
- fluency in English language, both spoken and written;
- acceptance of the UN code of conduct for evaluators.

The selection among qualified candidates will be based upon:

- relevance of education, expertise and experience;
- quality of previous deliverables
- availability.

Deadline for application: 1 Feb 2021; documents to be submitted: CV