CREWS Project Presentation Note to the Steering Committee

Project Title	**Proposal for additional financing to the ongoing project: Seamless operational forecast systems and technical assistance for capacity building in Western Africa**	
Document Reference	CREWS/RProj/03/Additional financing West Africa	
Geographic coverage	Sahel and West Africa (19 countries: Benin, Burkina Faso, Cabo Verde, Cameroon, Central African Republic, Chad, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo)	
Timeframe	3 years (Jan 2020 - December 2022)	
Total cost of CREWS Contribution	US$ 3,500,000	
Lead Implementing Partner	WMO	
	a. Allocation requested for execution by Partner	US$ 1,946,902
	b. Fees of Implementing Partner	US$ 253,097
	c. Total	US$ 2,200,000
Additional Implementing Partner	WBG/GFDRR	
	a. Allocation requested for execution by Partner	US$ 1,181,818
	b. Fees of Implementing Partner	US$ 118,181
	c. Total	US$ 1,300,000
Project Recipient/Beneficiary	Regionally: ANACIM (regional specialized meteorological center for severe weather forecasting), ACMAD (current interim regional climate center for West Africa), AGRHYMET (regional training center and undergoing an accreditation process as future regional climate center for West Africa) + 19 national meteorological and hydrological services in PRESASS , ECOWAS, CILSS Member States. In Sierra Leone: Office of National Security (ONS), Sierra Leone Meteorological Agency (SLMet), National Water Resource Management Agency (NWRMA), the Freetown City Council (FCC), the Western Area Rural District Council (WARDC), the Environmental Protection Agency (EPA).	
Additional Implementing Partners	Royal Netherlands Meteorological Institute (KNMI), Deutscher Wetterdienst (DWD), Météo-France, Hydrologic Research Centre (HRC), University of Reading (UKRU), International Research Institute for Climate and Society (IRI), Météo-France, University of Njala (Sierra Leone)	
Total Project Amount	US$ 3,500,000	
Main objective(s)	The project improves operational multi-hazard forecast systems (severe weather, floods and climate extremes) in the Sahel and West Africa region, underpinned by on-going observations and continuously updated historical data, robust forecasting systems, as well as related knowledge. It further supports CREWS-related activities in Burkina Faso, Chad, Mali, Niger, Togo, and other countries in the region, through enhanced capacity of regional centers to support national level provision of warning services. In addition, WMO and WBG will jointly implement capacity building activities in Sierra Leone, which is one of the most vulnerable	

	countries to climate change.	
Initial state of play - project rationale	a. Vulnerability, exposure to risks, disasters impacts (on people and economy)	West Africa is highly vulnerable to climate variability and change. It is highly exposed to climate shocks and stresses and has relatively low adaptive capacities (IPCC Fifth Assessment Report, 2014). Hydrometeorological hazards, including riverine flooding, flash flooding, urban flooding, sand and dust storms, convective storms, coastal inundation, are major causes of human losses and property damages. It is anticipated that the intensity and frequency of extreme events in the region may increase due to climate variability and change. In West Africa, Sierra Leone is one of the most vulnerable countries to climate change. With a topography characterized by mountains, steep slopes and low-lying coasts coupled with high annual rainfall, the country is highly exposed to natural hazards, such as floods, wind storms, landslides, mudslides, debris flows, and coastal erosion. In the last four decades, Sierra Leone was hit by thirty adverse natural events that affected over 300,000 people. In the medium to long term, the country could suffer from annual losses of about US$ 7.72 million due to flooding alone (the 2nd highest flood annual losses in Sub-Saharan African relative to capital stock). In 2017, there was a catastrophic landslide which killed over 1,000 people and displaced more than 3,000 people with an estimated economic loss of over US$ 30 million. Compared to other African capital cities, a significant share of the built-up area in Freetown is located on either steep slopes or exposed to sea-level rise: approximately 38 percent of the built-up expansion has taken place in either medium or high-risk areas. The 2018 World Risk Report ranked Sierra Leone 24th out of 172 countries in terms of risk to natural disasters, 8th in terms of vulnerability, and 6th in terms of lack of adaptive capacities. This elevated level of risk is evidenced by frequent adverse natural events that affect the population, disrupt livelihoods and economic production, destroy physical infrastructure, and impose high public and private costs for rehabilitation.
	b. Status of the EWS, DRM agencies and NHMSs, actors / players present	The implementation of the CREWS West Africa regional project started in September 2018 and has received strong support from ECOWAS[1], CILSS[2] and PRESASS[3] Member States, in relation with consultations held for all its components and subcomponents namely: 1.1 & 1.2 - Assessment of observation processes and needs / Database improvement (WACA&D) 1.3 - Data base on impacts of Climate Extreme events (WACE) 1.4 - Early warning system integration, operational procedures and seamless service delivery

[1] ECOWAS: Economic Community of West African States, with 15 Member States: Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo

[2] CILSS: Permanent Interstate Committee for Drought Control in the Sahel, with 13 Member States: Benin, Burkina Faso, Cabo Verde, Chad, Côte d'Ivoire, The Gambia, Guinea, Guinea Bissau, Mali, Mauritania, Niger, Senegal, Togo

[3] PRESASS: Regional Climate Outlook Forum for Sudano-Sahelian Africa, with 17 countries in West and Central Africa: Benin, Burkina Faso, Cameroon, Central African Republic, Cap Verde, Chad, Côte d'Ivoire, the Gambia, Ghana, Guinea Bissau, Guinea Conakry, Mali, Mauritania, Niger, Nigeria, Senegal, and Togo

		2 - Analysis and Climate Watch Services (WACWS) 3 - Improved short- to medium-range forecast capabilities focusing on severe weather (SWFP) 4 - Flood Forecasting Component 5.1 & 5.2 - Subseasonal to seasonal forecast (PRESASS) 5.3 - Pilot drought services (AgM) In the meantime, 1. AGRHYMET (Niamey) has initiated a process to become in the future the Regional Climate Center for West Africa, resulting in additional resources requirements to ensure optimal use of weather, climate and water services in the region; 2. ANACIM (Dakar) needs additional high performance computing capability to serve all member countries in particular in PRESSAS area in line with its accreditation in June 2019 as WMO Regional Specialised Meteorological Center for severe weather forecasting; 3. In Sierra Leone, there is a coordination mechanism in place for early warning at the national level, but it requires stronger political buy-in and significant strengthening. Communication channels and engagement mechanisms for urban poor exist but effectiveness can be improved. The overall technical capacity to provide hydromet services and forecast extreme events in Sierra Leone is very weak. 4. Chad and Togo are joining as CREWS beneficiary countries, resulting in a need to provide additional operational and advisory services from the regional level (climate services, integration of observations in global and regional numerical weather prediction models, severe weather forecasting, flood forecasting, flash flood guidance, etc.); 5. Additional investments related to early warning systems are under preparation or starting implementation in Burkina-Faso (33 million USD), Côte d'Ivoire (30 million EUR), Mali (32 million USD) and Sierra Leone (67 million USD). At the same time flash flood warnings in urban areas, require more localized warning and information systems, which will be developed in Sierra Leone. While provision of meteorological, hydrological, climate and early warning services is clearly a national responsibility, a number of support functions can be best performed at regional scale, with economies of scale and enhanced quality of services resulting for specialized regional cooperation, including through cascading approaches for numerical weather prediction, sand and dust storm warning advisories, flash flood guidance, climate watch and climate analysis, training of meteorological and hydrological staff, etc. Following the meeting of the CREWS West Africa Steering Committee on 19 Dec 2018 (see report), WMO and WBG/GFDRR are proposing together to scale-up the project from 1.8 million USD (see presentation note approved in Aug 2018) to 5.3 million

		USD, to cover to immediate needs for 2020-2021. Another request for additional financing is expected to be submitted to cover 2022 - 2023.
	c. Projects and programs dealing with EWS and hydromet under implementation or preparation	Several investments and technical assistance activities have been rolled out, focusing mostly on drought risk management, food security and nutrition since the 1970's, and more recently focusing on flood risk. Most relevant recently completed or ongoing projects addressing elements of warning systems include (i) the WMO METAGRI project (2012-2015), which supported farmers on more optimal use of weather and climate information, and GFCS project (2014-2019), which supported the development of national frameworks for climate services in a number of countries; (ii) WBG regional projects for Sahel (pastoralism, irrigation, environment, social protection, hydromet), which all contribute to resilience to climate change and to development of early warning capacities; (iii) the AfDB ISACIP, PIDACC and SAWIDRA regional projects; (iv) the ACP-EU Climate Services project and (v) the WMO 'Volta Basin integrated Flood and Drought Management (VFDM)' (2019-2023) focused on developing warning systems for flooding and drought. In addition, the World Bank Group is leading a series of Hydromet and disaster risk management investments coupled with CREWS technical assistance in Burkina Faso, Mali, Niger, Chad and Togo (pipeline). In Sierra Leone, the ongoing WB Freetown Emergency Recovery Project is providing some support to emergency preparedness and response systems, which will be built on by this CREWS support and inform the roll out of the WB Resilient Urban Sierra Leone Project, which is under preparation.
	d. Describe the multiplier /leveraging potential of the CREWS investments	In line with the principles of the cascading model for numerical weather prediction, which demonstrated benefits across the globe, the regional project is supporting (i) access to and optimal use of global outputs at regional level, (ii) access to and optimal use of regional outputs in participating countries and (iii) through a feedback mechanism, access to better local observation by global models. Therefore this scaled-up regional project will (i) provide an adequate cooperation framework to strengthen sustainably the capacity of national hydrological and meteorological services; (ii) enable more optimal use of resources available for meteorological and hydrological forecasting and climate prediction in the region; (iii) enhance the services provided to stakeholders involved in early warning (with specific focus on civil protection, urban development, agriculture and targeted communities at risk); (iii) help inform the technical design of future investments. The combination of technical assistance from CREWS and future investments in the sector will increase the chances for CREWS beneficiary countries to make significant advances in the provision of modernized early warning systems to vulnerable communities. The CREWS project will also facilitate coordinated interventions from Governments and international partners to maximize opportunities and synergies.

	e. Describe measures to ensure coherence with existing initiatives	Coherence with existing initiatives will be assured by close support and on-the-ground work with relevant institutions. Since Sept 2018, the CREWS West Africa project has already established close linkages with ongoing initiatives in the sub-region, as reflected during the first meeting of the Steering Committee (see report EN / FR) and in the "synergies" matrix.
Project design	a. Project components and activities	The additional financing will be allocated in line with the initial objective of the project. The additional financing will: (i) extend the provision of services by WMO, as described in the original project proposal from 3 to 19 countries for the ongoing activities: 1.1: Analysis of observation networks and data archives (WIGOS) and 1.2: Setting-up the West Africa Climate Assessment and Database (WACA&D) System in several countries (in addition to regional implementation) - 30,000 USD 1.3: Setting-up an extreme event catalogue (e.g KRONER) - 10,000 USD 1.4: Harmonized approaches to early warning and rapid warning operational procedures (MHEWS) - 10,000 USD 2: Enhancing Climate Watch Advisories (CWAs) - 10,000 USD 3: Improved short term and severe weather forecast capabilities (SWFP) extended to all ECOWAS and PRESASS member States - 900,000 USD 4: Flood forecasting extended to all ECOWAS and PRESASS member States - 900,000 USD 5.1: Sub-seasonal to seasonal prediction and regional optimization and 5.2: Sub-seasonal to seasonal forecast tailoring to national scales - 20,000 USD 5.3: Pilot services on severe drought - 20,000 USD (ii) initiate activities jointly implemented by WMO and WBG/GFDRR: **6 - SUPPORTING REGIONAL INSTITUTIONS IN RELATION WITH WARNING SERVICES** **6.1: Developing a long-term strategy for sustainable provision of regional climate early warning services** - 50,000 USD WMO + 300,000 USD WBG/GFDRR It is well recognized in West Africa that regional entities such as the AGRHYMET Regional Center (CRA) have been playing a critical role in supporting national capacity for delivering key hydromet and climate early warning. While regional cooperation coordinated by institutional anchors like the CRA is key to realizing the economies of scale and cost effectiveness and quality multi-hazard early warning systems, ensuring the CRA operations are streamlined and sustainable, remains a big challenge. This is partly due to the heavy reliance of the CRA budget on development financing, which makes it difficult for the CRA to operate for the long-term vision. The needs and demands

		of the countries in the region are constantly changing as their capacity evolves and technological innovation advances, requiring the CRA to keep their service strategy and operational system up-to-date. Therefore, this sub-component will allow the CRA **to update their service strategy, the concept of operation, and a business model** aligned with new regional requirements and emerging new technologies, and to ensure its institutional sustainability and service delivery focus. A new strategy to engage public and private sectors will be developed to achieve a more cost effective and sustainable operation of the CRA. This component will also pilot the use of innovative technology such as the internet of things (IoT) in observation so that region can strategize the use of emerging and innovative technologies to enhance the regional monitoring capacity, and complement components 1.1 and 1.2. **Outputs for sub-component 6.1:** a) Service delivery strategy and the concept of operations for AGRHYMET b) Public-private engagement strategy c) Piloting the innovative technology in meteorological monitoring. **6.2: Improvement of regional training capacity and services in support of national capacity to provide key public services** - 50,000 USD WMO + 200,000 USD WBG/GFDRR CRA has been playing a critical role in building capacity and the human resources pipeline in the West Africa sub-region by providing relevant training to CILSS member countries and beyond, and it is critical to ensure the CRA training capacity on meteorology, hydrology, agromet services, water resources management and food security management is up to the international standards. Hence, this component will improve the regional training capacity at the CRA, and also support the role of CRA in coordinating training needs and consolidating Member countries requirements to reflect in a regional training strategy. **Outputs for comp 6.2: Improvement of regional training capacity and services in support of national capacity to provide key public services** a) Regional training needs assessment and training plan b) Provision of priority key training in West Africa, both for regional trainers and countries **7 - PILOTING LOCAL WARNING SERVICES IN SIERRA LEONE** **7.1:Community early warning and preparedness planning for Freetown** - 300,000 USD WBG/GFDRR This component will support the design and piloting of effective flash floods early warning-early action systems at the community level through local community engagement, preparedness planning and capacity building. Most of the disaster-prone communities are concentrated in informal settlements of Freetown thus the urban poor will be the main beneficiaries of the system. While this project will geographically focus on

		Freetown, experience and lessons learned through this project would be reflected in a nation-wide rollout of such services in the future. ***(a) Community warning and last-mile service delivery*** Early warning information products and dissemination system will be designed based on the assessment of vulnerable communities' information needs of users such as content, format, language, timing and frequency of dissemination, and building on existing community communications systems. The design will pay particular attention to the gender and social inclusion aspect so that the requirements of the most vulnerable are duly considered.Currently, Freetown City Council (FCC), Office of National Security (ONS) and Federation of Rural and Urban Poor (FEDURP) (through the Community Disaster Management Committees)/Center of Dialogue on Human Settlement and Poverty (CODHSAPA) are playing important roles in community awareness and sensitization and the project will identify potential for their enhancement regarding flow of information and key influencers while addressing key bottlenecks in the current systems. To enhance last mile connectivity, it is also vital to engage local communities to ensure that the population is well informed about emergency procedures, the meaning of warning messages, and actions to be taken when a warning is received. Based on communities' feedback on the usefulness and accuracy of the warnings, Emergency Preparedness and Response (EP&R) products and operating protocols need to be improved so that local government officials and community leaders can take appropriate actions. To develop more targeted impact-based warning services for the communities, it is also important to understand the vulnerability of communities and the locations of key infrastructure such as schools, hospitals and health centers, roads, water supply and sanitation infrastructure, as well as drainage channels. The project would consider innovative approaches such as the use of drones to accurately map specific communities and work with the communities and local students to geo-reference key community infrastructure and design community warning and contingency plans. These activities are highly participatory and aim to bring together training and awareness of flood risk in selected communities so that communities can better prepare and respond in case of disasters. Open data approaches are considered, and all data produced will be freely and widely available on community-based platforms such as OpenStreetMap. ***(b) Capacity building and training in contingency planning*** This component will provide institutional support and training of public agencies (such as the Freetown City Council (FCC), the Western Area Rural District Council (WARDC)) and other civil protection stakeholders by conducting simulation exercises. This task consists of the development of a training program on disaster risk reduction with emphasis on early warning, targeted public education and awareness programs for warning systems and related public actions, and the organization and implementation of frequent simulation exercises in selected

		communities. Gender specific needs will be integrated in such training. **Outputs for comp 7.1: Community early warning and preparedness planning for Freetown** a) New/ enhanced weather and early warning information product design b) Enhanced community communication systems c) Key infrastructure mapping of vulnerability communities in Freetown d) Community capacity building e) Development and implementation of training program for public agencies **7.2: Detailed design and guidance for establishment of urban flash flood warning services** - 200,000 USD WMO + 500,000 USD WBG/GFDRR This component supports the development of key information services feeding into the flash floods early warning systems (7.1). Consideration will be given to public private partnerships to jump-start the provision of quality and targeted services while such partnerships will also be framed to support long-term institutional capacity building of key agencies. The component will also contribute to the implementation of a 5-year strategic plan of SLMet to roll-out priority activities building on reflections of past experiences, starting with the extent of meteorological infrastructure and the institution destroyed during the 11-year civil war. Outputs of these planned activities will leverage the proposed Resilient Urban Sierra Leone Project (P168608) which aims at, inter alia, enhancing local and national capacity for emergency preparedness and response. ***(a) Enhancing flash flood forecasting and alerting systems*** This component aims at strengthening national capacity to deliver timely and accurate meteorological forecasts and more targeted services including flash flood warning services, through (i) support the access to NWP digital data and products (short-, medium-, extended- and long-range forecasts) from a global centre(s) and move from deterministic to ensemble prediction systems (EPS) for production of probabilistic forecasts; (ii) implementation of real-time forecast process monitoring and verification; (iii) quality control of observations; and (iv) developing and implementing a flood forecasting and guidance system. Planned activities include the development and implementation of the flash flood guidance and warning system as well as research and development into system enhancements. Partnerships with private sector actors will be sought so that the government can jump-start the provision of quality service while their institutional capacity is being built. Training and capacity building on system operations and applications to disaster risk reduction will be an integral part of this component. The products to be developed will be informed by the design done in 7.1.

		(b) Strengthening data collection and management systems This component will support the improvement of observation and data management systems, which underpin the development of weather and climate information services. User requirements as well as financial and technical capacity constraints will inform the optimal observation network design and consider innovative technologies to enhance the capability of hazard monitoring while keeping the O&M requirements manageable. This component will also support SLMA to upgrade a meteorological data management system from the current system, which requires tedious manual processes. Data rescue and digitization will be supported to enhance the historical dataset, which in turn will support the development of better calibrated early warning products. **Outputs for comp 7.2: Detailed design and guidance for establishment of urban flash flood warning services** a) Enhanced weather and climate information products and services b) Flash Flood guidance system established and operational c) Meteorological and hydrological observation strategy d) Improved meteorological data management system The above estimates would only partially cover the additional costs related to extension of severe weather forecasting and flood forecasting to the 19 countries for the initial two years (tentatively 2020 - 2021). It is expected that a second proposal for additional financing would be presented for the consideration of the CREWS Steering Committee to cover operational and advisory services. In addition, WBG and WMO would work together to ensure provision of advisory services to beneficiaries, in relation with each individual investment.
	b. Work plan	See attachment 1
Organization and operating procedures	a. Institutional framework	The project will be implemented by WMO and WBG/GFDRR, guided by the CREWS West Africa Steering Committee, which met for the first time on 19 Dec 2018 (see draft minutes). The next meeting is expected to take place on 12 Nov 2019. This committee provides - feedback, guidance and approval for specific projects' deliverables; - scientific and technical orientation to heads of national meteorological and hydrological services for planning and implementing activities related to the development of early warning systems in relation with (i) institutional strengthening, (ii) equipment upgrades and (iii) service delivery; - exchange of information among stakeholders, and recommends coordinated actions in order to optimize early warning systems' performance and coherence, with a multi-hazard approach and recognizing the responsibilities and working arrangements of institutions

		In Sierra Leone, the Government counterparts will include the Office of National Security (ONS), Sierra Leone Meteorological Agency (SLMet), National Water Resource Management Agency (NWRMA), the Freetown City Council (FCC), the Western Area Rural District Council (WARDC), the Environmental Protection Agency (EPA), and the Ministry of Finance (MoF).
	b. Monitoring and evaluation system	For this additional financing, the established Monitoring and Evaluation Processes used at WMO and WBG/GFDRR will both be used, taking into account the CREWS M&E framework. The Steering Committee will meet regularly and evaluate the progress in line with the work plan. Reports will be made available to all project stakeholders and partners. At completion, an independent consultant will conduct a project evaluation.
Project viability and sustainability	a. Main identified risks	Political / Institutional: **Medium**- The project assumes (i) an overall agreement of ECOWAS and West African NMHSs in supporting AGRHYMET in becoming the West Africa Regional Climate Center (RCC), in line with WMO Regional Association I (Africa) recommendation, and in compliance with technical criteria; and (ii) alignment of partners work plans with the ACP-EU AGRHYMET-led project and other partners' support to regional institutions (EU, AfDB, WB, etc). - MITIGATION: since the ECOWAS Hydromet Forum in Abidjan 19-21 Sept 2018, WMO is providing guidance to ECOWAS in line with high-level commitments from Commissioners of ECOWAS and Executive Secretary of CILSS to support the ongoing accreditation of AGRHYMET as RCC; In addition, all partners will participate in the CREWS West Africa Steering Committee together with representatives from regional and national institutions from West Africa. Financial / Resources: **Medium** - The resources allocated on 7th August 2018 by CREWS were not sufficient to ensure a sustainable development of capacities. This could be addressed by the current request for additional financing. The funds will be implemented by WMO and the World Bank and through Implementation Arrangements with KNMI, DWD, IRI, HRC and UK Reading University which all have satisfactory financial management systems. Human Resources / Capacity: **Medium** - The project assumes availability of WMO Secretariat to support various stages of implementation, which has resulted in some issues in other projects. In addition, the human resources in AGRHYMET are limited since most staff are engaged in supporting other ongoing projects. The project pays for 1/3 of a full time staff in HWR. Technology: **Medium** - The partners are already supporting the European RCC network with similar solutions and will guide AGRHYMET and NMHSs to address issues related with quality management and compliance for basic climate services; SWFP has been formally requested by the Member States and is a well-proven solution; the roll-out of the flood forecasting component, however needs to be better articulated with initiatives ongoing in the region and be designed with more careful attention to specific local (i) low Internet bandwidth and (ii) request for open-sources solutions. Discussions are ongoing with partners working on flood risk management in the region (HKV, SMHI, AGRHYMET,

		river basin authorities) to address issues encountered with previous versions of flash flood forecasting solutions. Social & Environment: **Low** - The project does not support civil works, and will be implemented by consultants and existing staff in the partner institutions, eligibility for equipment is limited to small devices below USD 4,000. The overall risk rating for the project is **Medium**. As part of risk mitigation, the project will continue to maintain close links with all partners including ECOWAS, ACMAD, AGRHYMET, ANACIM and others, and identify as required mitigation measures.
	b. Critical assumptions	The project was prepared under the assumption that NMHSs will support operationalization of Resolution 60 (Cg-17), on the international exchange of meteorological, hydrological and climate data and products. The project also assumes that there is collaboration between ACMAD, ANACIM (RSMC Dakar), and AGRHYMET, and this collaboration will be strengthened.
	c. Judgment on the project sustainability	The additional financing proposed is economically viable and technically feasible and has strong social, environmental, and economic co-benefits. WMO and the World bank as well as their technical partners will provide guidance, expertise and assistance, all most needed to improve the technical capability of regional institutions involved in warning processes.

ACRONYMS

AFD : Agence Française de Développement

AfDB : African Development Bank

AGRHYMET : Centre Régional de Formation et d'Application en Agrométéorologie et Hydrologie Opérationnelle

CILSS : Comité permanent Inter-état de Lutte contre la Sécheresse au Sahel

CREWS : Climate Risk & Early Warning System

DRM : Disaster Risk Reduction

EAMAC : Ecole Africaine de la Météorologie et de l'Aviation civile

EU : European Union

EWS : Early Warning System

GFDRR : Global Facility for Disaster Reduction and Recovery

MESA : Monitoring of Environment and Security in Africa

NMHS : National Meteorological and Hydrological Services

WMO : World Meteorological Organization

WBG : World Bank Group

Attachment 1: Revised timeline for implementation

	18	2019				2020				2021				2022				2023				2024	
Task	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
PRE-EXISTING TASKS - scaled-up from 3 to 5 or 19 countries (WMO implementation)																							
1.1: Analysis of observation networks and data archives (WIGOS)			x	x	x																		
1.2: Setting-up the West Africa Climate Assessment and Database (WACA&D) System	x	x	x	x	x	x	x	x	x														
1.3: Setting-up an extreme event catalogue (e.g KRONER)					x	x	x	x	x	x	x	x	x	x	x								
1.4: Early warning operational procedures (MHEWS)						x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
2: Enhancing Climate Watch Advisories (CWAs)					x	x	x	x	x	x	x	x	x	x	x								
3: Improved short term and severe weather forecast capabilities (SWFP) (scaled up with capacity development of ANACIM)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4: Flood forecasting (scaled-up from 3 to 19 countries)			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
5.1: Sub-seasonal to seasonal prediction and regional optimization		x	x	x	x	x	x	x	x	x	x	x											
5.2: Sub-seasonal to seasonal forecast tailoring to national scales				x	x	x	x	x	x	x	x	x	x	x	x	x	x						
5.3: Pilot services on severe drought					x	x	x	x	x	x	x	x											
NEW TASKS (WB and WMO)																							
6.1: Development of a recommended methodology for urban flood forecasting at the regional level						x	x	x	x	x	x												
6.2: Improvement of regional training capacity and services in support of national capacity to provide key public services						x	x	x	x	x	x	x	x										
7.1: SIERRA LEONE : Community early warning and preparedness planning for Freetown						x	x	x	x	x	x	x	x	x	x	x	x						
7.2: SIERRA LEONE : Detailed design and establishment of urban flash flood warning services						x	x	x	x	x	x	x	x	x	x	x	x						

Attachment 2: Simplified Logical framework

		CREWS indicator (proposed)		Project indicator			
Activity	**Output**	**Indicator description**	**Project contribution**	**Indicator description**	**Baseline Aug 2018**	**Target Dec 2020**	**Target Dec 2022**
1.1: Analysis of observation networks and data archives (WIGOS)	AGRHYMET operates as sub-regional climate center (with support from ACP-EU Climate Services and WB Hydromet Grants)	# countries with access to enhanced regional climate services	+19	Regional WIGOS center operational	No	No	Yes
1.2: Setting-up the West Africa Climate Assessment and Database (WACA&D) System				West Africa Climate Assessment and Dataset available	No	Partially	Yes
1.3: Setting-up an extreme event catalogue (e.g KRONER)				Database of climate extremes available	No	Partially	Yes
2: Enhancing Climate Watch Advisories (CWAs)				Climate Watch Service available	No	Partially	Yes
1.4: Early warning operational procedures	AGRHYMET provides sub-regional guidance to strengthen national MHEWS procedures	# countries with MHEWS operational procedures	+2	AGRHYMET harmonized framework for MHEWS available	No	No	Yes
3: Improved short term and severe weather forecast capabilities (SWFP) (scaled up with capacity development of ANACIM)	ANACIM operates as regional specialised center for severe weather	# countries with access to severe weather forecasting guidance	+19	Number of NWP numerical outputs (global / LAM) available from ANACIM to PRESASS member States	0	2	5
4: Flood forecasting (scaled-up from 3 to 19 countries)	ANACIM and AGRHYMET operate together as regional centers for FFGS	# countries with access to flood forecasting guidance	+19	Anticipation and accuracy of flood models	-	3-10 days, 300-400 sqkm av. (FANFAR)	24h - 10 days, 100 sqkm av (FANFAR + FFGS)
5.1: Sub-seasonal to seasonal prediction and regional optimization	AGRHYMET operates as sub-regional climate center (with support from ACP-EU Climate Services and WB Hydromet Grants)	# regional climate outlook forums with seasonal and subseasonal climate prediction capacities	+1 (PRESASS)	Analysis of long-range forecasts available	No	Yes	Yes + tested
5.2: Sub-seasonal to seasonal forecast tailoring to national scales				Proposal for in-country use of subseasonal forecasts available	No	Yes	Yes + tested
5.3: Pilot services on severe drought		# regional climate outlook forums with access to enhanced rainfall products	+1 (PRESASS)	Access to more accurate rainfall estimates	No	Yes	Yes + tested

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		Portfolio indicator (proposed)		Project indicator			
Activity	**Output**	**Indicator description**	**Project contribution**	**Indicator description**	**Baseline Aug 2018**	**Target Dec 2020**	**Target Dec 2022**
6.1: Developing a long-term strategy for sustainable provision of regional climate early warning services	Institutional engagement strategy, service delivery strategy and concept of operations for AGRHYMET	# regional centers supported	+2 (RCC-RTC, RSMC)	Institutional engagement strategy, service delivery strategy and concept of operations for AGRHYMET available	No	No	Yes
6.2: Improvement of regional training capacity and services in support of national capacity to provide key public services	Regional training needs assessment and training plan	# regional training plans	+1	Regional training needs assessment and training plan available	No	Partially (ECOWAS Hydromet Initiative)	Yes
7.1: SIERRA LEONE : Community early warning and preparedness planning for Freetown	Community early warning and preparedness plan for Freetown	Number of community-based early warning systems	+1 (Freetown)	Community early warning and preparedness plan available	No	No	Yes
7.2: SIERRA LEONE : Detailed design and establishment of urban flash flood warning services				Design for urban flash flood warning services for Freetown available	No	No	Yes
CROSSCUTTING INDICATORS		# countries supported	19	Benin, Burkina Faso, Cabo Verde, Cameroon, Central African Republic, Chad, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo			
		# authorities involved	8	regional: AGRHYMET, ANACIM Sierra Leone: ONS, SLMet, NWRMA, FCC, WARDC, EPA			
		# partners involved	6	regional: KNMI, DWD, IRI, UoR, HRC in Sierra Leone: University of Njala			
		USD leveraged	28 million	regional: 8 million EUR ACP-EU Climate Services, 10 million USD Hydromet in Sierra Leone: about 10 million for EWS out of 63 million USD urban development			