



CREWS PROJECT PROGRESS REPORT (July – December 2020)




1. Project title	West Africa: Seamless operational forecast systems and technical assistance for capacity building	2. Project reference CREWS/RProj/02/West Africa CREWS/RProj/02/West Africa AF
3. Implementing Partners involved in the project	World Meteorological Organization (Lead) World Bank	4. Regional/National Partners involved in the project NMS and NHS from 19 countries, RSMC Dakar, RCC Niamey, RTC Niamey, GISC Casablanca, DWD, KNMI, IRI, UoR, Météo France
5. Project Duration/ Timeframe	Jan 2017 – Dec 2022	
6. Reporting focal point(s)	Jean-Baptiste Migraine – jbmigraine@wmo.int Makoto Suwa - msuwa@worldbank.org	
7. Project overview	<p>Project objective: to strengthen regional entities to engage with national hydrometeorological agencies in the region to improve risk information and early warning services at national level</p> <p>The project develops capacities within existing institutions in line with their mandates : (i) AGRHYMET (CILSS) for food security and regional climate services; (ii) RSMC Dakar (ANACIM) for severe weather forecasting and WIGOS coordination; (iii) Casablanca GISC for information and data exchange ; (iv) NMHSs for optimal utilization of new regional capacities including flash flood guidance.</p> <p>Beneficiaries are the 19 Members of PRESASS and PRESAGG: Benin, Burkina Faso, Cameroon, Central African Republic, Cap Verde, Chad, Côte d'Ivoire, the Gambia, Ghana, Guinea Bissau, Guinea, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo.</p> <p>The project complements national CREWS projects in Burkina Faso, Chad, Mali, Niger and Togo, and also</p>	

	<p>contributes to demonstrate the feasibility of developing capacities for urban flood forecasting 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 for cascading approaches for numerical weather prediction (under the leadership of Dakar as regional specialised meteorological center), flash flood guidance (building upon enhanced numerical weather prediction capabilities and AGRHYMET training capabilities), climate watch and climate analysis (building upon ACMAD and later AGRHYMET as regional climate centers), training of meteorological and hydrological staff (with EAMAC and AGRHYMET, both in Niamey), etc.</p> <p>The World Bank is currently preparing hydromet and early warning investments in West Africa under the West Africa Food System Resilience Program (P172769), through which the project outcomes and impacts could be scaled up in Burkina Faso, Chad, Mali, Niger, Sierra Leone, Togo and with the Agrhymet Regional Center; and under the Resilient Urban Sierra Leone Project (P168608).</p>
<p>8. Progress summary</p>	<ul style="list-style-type: none"> ● Partnership agreements: in addition to the pre-existing ones (HRC, KNMI, DWD, UK Reading University, IRI), 2 new partnership agreements were signed with RSMC Dakar and Météo France to train and support (on a weekly basis) the 19 ECOWAS and CILSS Member States for severe weather prediction; a last one is under consideration with Casablanca GISC to ensure more optimal use of the WMO Information System for weather and climate data exchange. ● TORs were developed to start the development of (i) guidance related to <u>integrated flood forecasting</u> in West Africa (taking into consideration coastal inundation, flash flooding, riverine flooding and urban flooding - with IRD and INRAE); (ii) expansion of the sand and dust storm warning advisory system to 7 countries (with AEMET and BSC); this will translate into signing of Agreements in Q1 2021; and (iii) capacity assessment of NMHS in Sierra Leone and user needs assessment ● Trainings: A data collection, management, exchange and quality monitoring training workshop was organized between 23 June and 2 July 2020; follow-up support to West African NMHSs will be provided in 2021 by Casablanca GISC; A TAMSAT training workshop was organized in July 2020 by UK Reading University; ● Tools: (i) NMS from Burkina Faso, Chad, Mali, Niger and Togo tested the database developed by DWD for cataloguing of extreme events, and AGRHYMET was trained on how to install onto one of its Linux servers. The country-specific datasets would be isolated with CRUD; (ii) CM SAF satellite- and GPCC-based monitoring products for West Africa are now available into a sub-regional climate watch system developed

by DWD; **(iii)** HRC completed the initial delineation of watersheds for the flash flood guidance system; **(iv)** a novel method of deriving spatially and temporally contiguous daily rainfall estimates, which are consistent with both rain gauge measurements and satellite-based rainfall estimates, was tested by UoR with TAMSAT.

- In **Sierra Leone**: strategic dialogue on-going to support the integrated design of hydromet investments envisioned under 2 projects;
- Support the preparation of the regional **Food System Resilience Program**, which has a substantive hydromet component to support the agriculture and food security sector in West Africa .

9. Project Performance

Interpretation of color coding		
	High	Good progress; on track in most or all aspects of delivery
	Medium	Moderate progress or on track in some aspects of delivery
	Low	Less than moderate or poor progress. Not on track in critical areas of its delivery. Requires remedial attention

	Rate of expenditure	Rate of delivery	Alignment of Objectives
Coding			



Narrative	<p>From WMO side: \$722,619 disbursed and 832,915 obligated, total \$1,555,535, out of which \$600,753 during this last reporting period.</p> <p>From WB side: \$61,439, all during this last reporting period</p>	The progress is satisfactory	Project remains strongly aligned to the initial objectives
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10. Risk Management Status

Risk Status	<p>Risks remain moderate, as identified at the proposal stage, and have evolved in relation with:</p> <ul style="list-style-type: none"> - the undergoing enlargement of AGRHYMET mandate to take over the Regional Climate Center function from ACMAD in the near future; - the accreditation of ANACIM (Dakar) as regional specialised meteorological center for severe weather forecasting in June 2019, which is facing difficulties in upgrading its high performance computer to serve the member countries with numerical weather predictions, thus compromising the expected results of the severe weather forecasting component; - Chad and Togo joining as CREWS beneficiary countries since July 2019, resulting in a need to expand the coverage of regional services to additional countries, including for data exchange, severe weather forecasting, climate prediction and flash flood forecasting; - Travel restriction due to the ongoing Pandemic situation would inevitably slow down some of the activities.
Measures to address	<p>The risks are being addressed with :</p> <ul style="list-style-type: none"> - additional consultations, such as (i) missions with AGRHYMET (Niamey, Jan and Nov 2019), and (ii) joint WB-WMO workshop with ANACIM, AGRHYMET and ACMAD (Dakar, June 2019); - transfer of knowledge to AGRHYMET (Niamey) and ANACIM (Dakar) to ensure sustainability of project outputs after project completion; - frontloading activities that can be implemented remotely. Due consideration is given not to compromise the quality of outputs in reprioritizing activities.



11. Contributions to CREWS Output(s)

11.1 National Output(s) (in Sierra Leone)

CREWS Output(s) 1: National Meteorological and Hydrological Services service delivery improved, including the development of long-term service delivery strategies and development plans

State Project Output(s) in this section	Overall Project Target	Target for reporting period	Progress by July 2020	Progress by December 2020
New/Enhance weather and early warning information products	System design of integrated system of systems for Multihazard warning system	Assessment of current state of SLMET, NWRMA and NDMA	Draft TOR and consultants appointed.	Draft assessment reports developed from remote field visits
Enhanced weather and climate information products and services	Customised early warning system product design.	User needs assessment of required products and services.	Draft TOR and consultants appointed.	Draft user needs analysis developed.

Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words)

The current pandemic has prevented travel to conduct on site missions and information gathering. Virtual missions have been conducted to collect much needed background information to contribute to the overall system design.



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CREWS Output(s) 2: Risk Information to guide early warning systems and climate and weather service developed and accessible

State Project Output(s) in this section	Overall Project Target	Target for reporting period	Progress by July 2020	Progress by December 2020
Output 7.2 - Detailed design and establishment of urban flash flood warning services.	Development of capacity of the NDMA, SLMET and NWRMA to forecast, monitor and manage severe events.	Establishment of a meteorological and climate database	User requirements gathered and TOR developed for infrastructure refurbishment/acquisition.	IT Infrastructure to host Climate Database procured. 16 out of 30 NWRMA stations installed.

Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words)

Procurement of climate database, consultant and meteorological stations have been delayed due to support staff impacted by the pandemic. The process is receiving attention from all relevant stakeholders to fast track the process.

11.2 Regional Outputs

CREWS Regional Output(s): Institutional and human capacities at Regional WMO and Intergovernmental organizations to provide regional climate and weather services to LDCs and SIDS increased



State Project Output(s) in this section	Overall Project Target	Target for reporting period	Progress by July 2020	Progress by December 2020
1. Proposal for a data and metadata exchange collaboration framework outlining stations to be included in the regional dataset, including recommendations for incorporating missing or new stations into the WMO WIGOS and WIS systems (OSCAR/Surface, WDQMS, GTS and WIS/GISCs) and forward looking plan for establishing a regional WIGOS center - A regional workshop on data collection, management, exchange was organized in July 2020.	100%	40%	25%	40%
2. West Africa Climate Assessment & Dataset (WACA&D) system open to use for NMHSs and regional institutions, with supporting training at regional level and tools materials in French and English - A local version of the tool is available, hosted in KNMI (see presentation).	100%	80%	70%	80%
4. West Africa hydro-met and Climate Extreme database (WACE), involving a standard typology of high-impact event types and the assignment of a Universal Unique Identifier (UUID), with supporting training and guidance materials in French and English - The database was created and access credentials were send to AGRHYMET and countries. Single events can be reported with an online interface. Large amounts of data can be added by using a csv file (see progress report).	100%	55%	50%	55%



<p>5. <i>Climate Watch Service (with automatic update)</i> - Visualized CM products are included in the demonstrator application. Monitoring products are available in the form of climate watch advisory drafts. The user can decide which products to include. Additionally, ERA5T reanalysis data can be included on day 5 for the previous month. TAMSAT and river discharges from GloFAS are also selectable (see progress report).</p>	100%	80%	70%	80%
<p>6. <i>West Africa Severe Weather Forecasting System online, in line with SWFDP guidebook, with RSMC Dakar Training Desk and supporting training and guidance materials in French and English</i> - National forecasters have access to products from ECCO, NOAA/NCEP, UKMO, Meteo-France, RSMC Dakar. Implementation arrangements were signed with RSMC Dakar and Météo-France for 2021-2022.</p>	100%	60%	50%	60%
<p>7. <i>West Africa Flash Flood Guidance System online, with supporting training and guidance materials in French and English</i> - During the reporting period, HRC begun the implementation of the West Africa FFGS (WAFFGS) with requests for data from the countries of Burkina Faso, Mali and Niger, delineation of flash flood prone basins in the domain of the three countries, the establishment of secure FTP sites for downloading the ICON NWP from DWD and the H03B satellite precipitation product from EUMETSAT, and the opening of the instructional portal with online courses (in English and French) to support the Step 2 online e-course training on the FFGS (see progress report).</p>	100%	50%	40%	50%



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<p>8. <i>Development of CREWS West Africa Community of Practice.</i> The matrix on synergies between CREWS and related projects was further updated to ensure optimal use of funding available for severe weather (CREWS, CDSF), climate (ACP-EU, CREWS), civil protection and food security.</p>	100%	20%	20%	20%
<p>9. <i>Recommendations and technical specifications for the development pilot services on early warnings for agricultural severe drought in West Africa.</i> In the framework of the Implementation Agreement signed with UK Reading University in Feb 2020, a training workshop on “Satellite rainfall estimation and validation for Africa” was organized with the 5 countries in July 2020 (see flyer and report) and a user forum in November 2020 (see flyer).</p>	100%	60%	25%	60%
<p>10. <i>Recommendations related to dissemination of seasonal and monthly prediction products and services in West Africa.</i> Python tools for subseasonal forecasting have been developed by IRI and tested for West Africa, based on the S2S and SubX model forecast databases and IRI tools. Guidance will be provided by IRI for the April-May RCOFs (PRESASS and PRESAGG). See report.</p>	100%	20%	20%	20%
<p>11. <i>Service delivery strategy, the concept of operations and business model for AGRHYMET.</i> A consultant provides advice on business model development, has conducted a few consultation and developed a plan</p>	100%	10%	0%	10%

12. Contributions to Value Propositions



<p>Gender Responsive</p>	<p>The project considers gender equality in itself a key development objective, with direct demonstrated impacts in terms of increasing productivity, improving the impact of development for future generations, and making institutions more representative. To this end, the project promotes approaches aimed at eliminating the differences between men and women in accessing economic opportunities and in productivity, as well as to help give women a stronger voice within society.</p> <p>In Sierra Leone, the user needs assessment will fully take into account the gender aspect. In addition, the WB investment projects informed by CREWS West Africa are developing a gender action plan to consider the gender aspects in all relevant activities</p>
<p>Multiplier</p>	<p>The project mobilizes specific expertise to guide investments such as AfDB SAWIDRA, EU Climate Services (8 million EUR) and WB Food System Resilience Program (P172769), which covers Burkina Faso, Chad, Mali, Niger, Sierra Leone and Togo in addition to the Agrhymet Regional Center in its first phase [Overall program budget for phase 1: 486 million USD, budget for hydromet activities TBD]. It also supports a component to strengthen emergency management including early warning systems under the Resilient Urban Sierra Leone Project (P168608).</p>
<p>People-centered</p>	<p>The project mobilizes expertise to support AGRHYMET, working directly with countries' multidisciplinary working groups to track food security and nutrition from the community to the regional levels.</p> <p>User engagement is an important aspect of the design of the CREWS West Africa project. While the current global pandemic has made it challenging to conduct on-the-ground consultation, the project incorporates users' perspective through, for example, the development of service delivery strategy.</p>
<p>Promote Coherence</p>	<p>The project integrates expertise from regional and global centers such as Dakar RSMC, Niamey RTCs, Niamey RCCs, Météo-France, DWD, KNMI, ECMWF, UK Reading, HRC, and coordinates frequently with multilateral and bilateral development partners in the sub-region. The major ones are participating in the Steering Committee meetings.</p> <p>Coordination with international partners active in the hydromet domain in West Africa is key to ensuring effective use of funds and sustainability. WMO and WB are actively coordinating with those partners through bi-lateral meetings and workshops to understand their on-going and planned activities and inform them about our plan to seek complementarity and avoid duplication.</p>



Solution-oriented	<p>The project makes available information from global and regional centers to national meteorological and hydrological services. Cascading forecasting is substantially improving the lead time and accuracy of forecasts and warnings.</p> <p>Public private engagement is an integral part of strategic dialogue with governments in the region to ensure innovative business models and solutions are duly considered in considering different options.</p>
Unique	<p>The seamless approach to early warning supported by the project is unique, possible in relation with the multiplier effect and coherence.</p> <p>The project leverages the economies of scale by promoting regional collaboration, and contributes to the development of cost-effective hydromet system regionally. Such an approach will also provide cross-learning opportunities for countries in the region and facilitate a peer-to-peer support system. On-going work with Agrhyment Regional Center on the development of a business model will directly inform more sustainable operation.</p>

13. Certification on Use of Resources

This is for authorized representatives from the Implementing Partners to certify that the resources allocated are used for their intended purpose. Please fill one table per Implementing Partner.

Has there been any cases of non-compliance with the financial rules, regulations and procedures of your institution? If yes, please fill below		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Institution	WMO		
Firstname, LASTNAME of authorized representative	Brian COVER		
Position Title	Chief, Finance Division		
Date and Signature:	25 Jan 2021 (see portfolio-wide declaration)		

To your knowledge, has there been any cases of non-compliance with the financial rules, regulations and procedures of your institution? If yes, please fill below			<input type="checkbox"/> Yes <input type="checkbox"/> No
Issue	Response Measures Taken	Date of Response	Active/Closed
		Click or tap to enter a date.	Choose an item.
		Click or tap to enter a date.	Choose an item.
		Click or tap to enter a date.	Choose an item.
Institution	The World Bank		
Firstname, LASTNAME of authorized representative			
Position Title			
Date and Signature:			

14. Visibility products

[OBJ]

[WMO project management spreadsheet](#)



[Project presentation](#)



[Video message from RSMC Dakar](#)

15. Supporting documents

- [Project proposal](#) approved by CREWS Steering Committee (Aug 2018)
- [Additional financing](#) approved by CREWS Steering Committee (Feb 2020)
- Mapping of initiatives relevant for Hydromet, urban development and coastal risk management in [Sierra Leone](#)
- Mapping of initiatives relevant for Hydromet and early warning in [West Africa](#)
- Report of the consultation on the [9 elements of the CREWS West Africa project](#) (Sep 2018)
- Setup of a [CREWS West Africa Community of Practice](#) (Sep 2018)
- Training on interpretation of numerical weather prediction products (Lomé Oct 2018, Ouagadougou [May 2019](#))
- Training on [crop modelling with SARRA model](#) (Ouagadougou, Nov 2018)
- Training on [agricultural land data assimilation](#) (LDAS, Niamey, May 2020)
- Training on agricultural statistical risk assessment with [crop calendars](#) (Ouagadougou, Feb 2020)
- [Regional workshop on data collection, management, exchange](#) (July 2020)
- [TAMSAT Training Workshop](#) (July 2020)
- [SWFDP WA](#) Implementation Plan (Sept 2017)
- [FFGS WA](#) - Report of the Technical Planning Meeting (June 2019)
- [CIFI WA](#) - Proposed workplan
- [MISVA](#) - Terms of reference



- [Terms of reference](#) of the CREWS West Africa Steering Committee
- [Report](#) of the first session of the CREWS West Africa Steering Committee (19 Dec 2018)
- [Draft report](#) of the second session of the CREWS West Africa Steering Committee (12 Nov 2019)
- [Report](#) of the joint KNMI-DWD-WMO mission to AGRHYMET (Nov 2019)
- Partnership agreement with [KNMI](#) - sub-regional climate dataset WACA&D
- Partnership agreement with [DWD](#) - cataloguing of extreme events and climate watch service ([report Oct 2020](#))
- Partnership agreement with [Météo France](#) - MISVA ([report Dec 2020](#))
- Partnership agreement with [UoR](#) - improving use of TAMSAT ([report Oct 2020](#))
- Partnership agreement with [IRI](#) - forecasting subseasonal timescales in PRESASS and PRESAGG ([report Oct 2020](#))
- Partnership agreement with [HRC](#) - flash flood guidance system in Burkina Faso, Mali, Niger ([report Dec 2020](#))
- Partnership agreement with [ANACIM \(RSMC Dakar\)](#) - strengthening SWFP