



CREWS PROJECT STATUS REPORT

1. Project title	Burkina Faso: Strengthening National Capacities for Early Warning System Service Delivery	2. Project reference	CREWS/CProj/03/Burkina
3. Lead Implementing Partner	WMO	4. Other Implementing Partners	-
5. Reporting period	December 2018 – June 2019		
6. Reporting focal point	Jean-Baptiste Migraine jbmigraine@wmo.int		
7. Project overview	<p>Burkina Faso is a country in West Africa with a large portion of the workforce depending on rain-fed agriculture (about 30-35% of employment), and an urbanisation rate currently at 29% and rapidly growing. This country is characterized by an extreme climate variability that can produce both persistent dry spells and extreme rainfall events, combined with a rainy season that lasts for 3-4 months with specific convective precipitation patterns leading to flooding. Studies have shown an increase in both, drought and flood events, in Burkina Faso, with increasingly serious consequences for the population, infrastructure, environment and the economic sector.</p> <p>The CREWS project in Burkina Faso, with a budget of US\$2,192,200, is being implemented by WMO in partnership with Météo-France, AGRHYMET, AEMET/BSC and the national meteorological service (ANAM), providing technical assistance in synergy with investments by WMO (USAID, GFCS), the World Bank (IDA, GCF, P164078 and P164345) and UNDP (GEF, SAPIC). The project's objective is to improve hydrometeorological services for early warning on flood-related risks and risk information for agriculture, food security and anticipation of severe weather impacts.</p> <p>The main focus of the project is to build the capacity of the National Meteorological and Hydrological Services and strengthen cooperation with agriculture, food security, civil protection, humanitarian stakeholders and the media, to test seamless warning systems that deliver relevant information to end-users. This is being achieved through developing capabilities on data management, observation network</p>		

	<p>monitoring and control, implementation of analysis, monitoring and forecast tools for weather and climate early warning, as well as strengthening the interface with information users in specific pilot sites. The project draws on advanced technical expertise from cooperating institutions to ensure access to relevant data, products, tools, training and equipment.</p>
<p>8. Progress summary</p>	<p>Before the reporting period (since July 2017):</p> <ul style="list-style-type: none"> - A Letter of Agreement was signed between WMO and Burkina Faso Meteorological Service (ANAM), for an amount of US\$482,000. The first payment was transferred in October 2017; - A GIS software was procured to enhance ANAM's capacity in statistics and basic tools for climate services; - A license was purchased for providing access to products from the European Centre for Medium-Range Weather Forecasts (ECMWF); - An assessment of the observing network was carried out, organized by WMO/WIGOS. The draft report is available; - A visit to the hydrological service was undertaken followed by the organization of a workshop on "Project Preparation for the Implementation of Integrated Flood Management in the Volta River Basin" in Ouagadougou, Burkina Faso, from 20 to 24 November 2017. This workshop was co-organized by WMO and the Global Water Partnership; - Assessments of user requirements with regards to agrometeorological services was developed for the pilot municipalities of Niangoloko, Tenado and Titao in Dec 2017. - A Letter of Agreement was signed between WMO and Météo-France, for an amount of US\$310,000 to support (i) use of seasonal and sub-seasonal forecasts in agrometeorological services; (ii) use of remote sensing (including Land Data Assimilation Systems - LDAS) in agrometeorological services and (iii) strategic planning within ANAM, signed on 24 May 2018; - A training on sand and dust storm was provided to one ANAM forecaster (Cairo, 10-12 February 2018); - A training on numerical weather prediction was provided to two ANAM forecasters (Langen, 12-16 March 2018); - Two series of Roving Seminars involving local radio communicators and agricultural extension agents with regards to agrometeorological services were held for the farmers at the pilot municipalities of Niangoloko, Tenado and Titao in April-May and then in June 2018. - Two technicians were supported to reinforce the seasonal prediction team (from usually 2 to 4) and to take part in 2018 Seasonal Forecast Forum for Agro-hydro-climatic characteristics in the Sudano-Sahelian zone (PRESASS 2018), Abidjan from 30 April to 05 May, 2018. This team is working with Meteo France on the sub-seasonal component. - An LoA was signed with the Barcelona Supercomputing Center (BSC) in July 2018, for provision of Warning advisories on Sand and Dust Storm in Burkina Faso; the 'Warning advisory System for Sand and Dust Storm in Burkina Faso' was launched in Oct 2018; - A WMO supervision mission was held on 19-21 July with AgM, CLPA, HWR, DMA and WIGOS. The mission was coordinated with World Bank teams; - Two series of Roving Seminars were held with the agro-meteorologists, radio operators, extension agents, local authorities and farmers at the pilot municipalities of Niangoloko, Tenado and Titao in August and October 2018, to take stock of the dynamics of the rainy season and analyse the value-addition of the agromet services provided; reports are available; - Burkina-Faso participated in the ECOWAS Hydromet Forum (Abidjan, 19-21 Sept 2018), in sessions related to the development of a CREWS Community of practice in West Africa and to the CREWS West Africa project; - An LoA with AGRHYMET was signed in Oct 2018 for provision of training on operational use of CIRAD SARRA models in support of agricultural meteorology; the training took place in Ouagadougou from 12 to 23 Nov 2018; - ToRs were finalized for an integrated assessment of the hydrological service's capacity in relation to flood forecasting; the assessment will start during the next reporting period. <p>During the reporting period:</p> <ul style="list-style-type: none"> - A mapping of climate services initiatives was realised in Dec 2019 - The first meeting of the project Steering Committee was organised on 19 Dec 2019

	<ul style="list-style-type: none"> - WMO mission on xxx 2019 with ANAM, DEIE and World Bank, to support the preparation of the ANAM strategic plan and - participation of Burkina Faso delegation (including ANAM) in the 2nd International Multi-Hazard Early Warning Conference, Geneva, 13-14 May 2019 and in the Global Platform 2019, 14-17 May 2019; - training of ANAM and Ministry of Agriculture staff on optimal use of seasonal (from 1 to 3 months) and sub-seasonal (from 10 day to 1 month) predictions for agrometeorology, Toulouse, 13-17 May 2019 - training of DMN staff on the use of the Météo-France land data assimilation system (LDAS) for agrometeorology in AGRHYMET, Niamey, 28-29 May 2019 - participation of Niger in the West Africa Flash Flood Guidance System inception workshop, Dakar, 25-27 June 2019 -
--	--

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			

10. Risk Management Status

Risk Status	What is the current risk status as compared to what was identified in the project proposal?
Measures to address	What has been developed to address the risk status?

11. Contributions to CREWS Outputs

11.1. National Outputs

CREWS Output 1: National Meteorological and Hydrological Services' delivery improved, including the development of long-term service delivery strategies and development plans				
Project Outputs	Overall Project Target	Target for reporting period	Progress by Dec 2018	Progress by June 2019
<i>1.1. Assessment of the observing network as an update of the SAP-IC midterm review report (2017) and recommendations towards integration of the national hydro-meteorological observing systems in OSCAR/surface. Mission 17-19 October 2017, including discussions and visit to central facilities and to some meteorological stations.</i>	100%	90%	90%	90%
<i>1.2. Assessment of the hydrological service's national capabilities as an update to Serge Pieyns' reports (2014; 2016; 2017; 2018) with specific focus on end-to-end flood forecasting and early warning and recommendations towards modernization using CREWS and GCF/IDA resources. The report has been drafted and will be delivered in</i>	100%	90%	50%	90%

September 2019.				
1.3. Assessment of agro-meteorological users' requirements with regards to climate warnings in 3 pilot areas (Niangoloko, Tenado, Titao) and detailed work plan for the CREWS agro-meteorological component. A first mission to evaluate requirements was held from 17-22 December 2017. A detailed list of requirements will be updated based on lessons learned during the 2018 cropping season, by the end of 2018.	100%	80%	80%	80%
1.4. Licence to access products and forecasts from the European Centre for Medium-Range Weather Forecasts (ECMWF). Licence procured on 31 October 2017 covering 100Go of daily downloads from November 2017 until October 2019.	100%	100%	100%	100%
1.5. Data concentration at ANAM and integration of the hydro-meteorological observing systems in OSCAR/surface. Equipment for data concentration from synoptic stations was procured by WMO and has been configured by ANAM. In addition, meteorological and hydrological stations' metadata has been systematically organized (completed by meteorology , still in progress for hydrology). A training on climate data management systems (CDMS) was provided to ANAM staff from 5-9 November 2018.	100%	40%	30%	40%
1.6. Development of an interface responding to the specific requirements of Burkina Faso as part of the West Africa Severe Weather Demonstration Project (SWFDP-West Africa). RSMC Dakar Website enhancement is in progress. NWP products including EPSgrams from most of the contributing global NWP centres (e.g. Environment Canada, NOAA/NCEP, UKMO etc.) are available for the benefit of NMHSs including ANAM Burkina Faso through RSMC Dakar web portal.	100%	80%	75%	80%
1.7. Calibration of a crop model (SARRA-H) for the agro-meteorological pilot zones and (SARRA-O) for national monitoring, and training of staff - A training workshop on CIRAD models SARRA-H and SARRA-O was organized by AGRHYMET from 12 to 23 November 2018 with participants from Burkina Faso, Niger, Mali and Senegal (see report / folder). An analysis on the use of SARRA-H and SARRA-O by ANAM will	100%	60%	50%	60%

be reported by the end of 2019.				
<i>1.8. Development of priority agromet indices based on Land Data Assimilation Systems (LDAS).</i> Météo-France is developing pilot indices and testing them in Burkina Faso in close coordination with ANAM. A workshop took place from 28-29 May 2019 on LDAS organized by Météo France in Ouagadougou (see report / folder).	100%	70%	25%	70%
<i>1.9. Support to operational use of remote sensing techniques for rainfall monitoring.</i> This activity will be implemented in close coordination with CREWS West Africa, Raincell project by IRD and PADRE project by The World Bank. A specific workshop to take stock and develop recommendations would be planned in WMO early 2020, in close synergy with the CREWS West Africa project.	100%	5%	5%	5%
<i>1.10. Development of a Flash Flood Forecasting System.</i> The initial planning meeting took place from 25-28 June 2019 in Dakar (see Concept Note , Agenda)	100%	10%	0%	10%
<i>1.11. Development of a data sharing tool for meteorological, agro-meteorological and hydrological outputs.</i> ANAM and DEIE agreed to start exchanging rainfall information in the format of rain maps. The terms of reference for the product design and implementation need to be developed.	100%	0%	0%	0%
<i>1.12. Sand and dust storm forecasting.</i> An LoA with the Barcelona Supercomputing Center was signed in July 2018 to support the development of a Warning Advisory System for Sand and Dust Storm in Burkina Faso. The BF-SDS-WAS was launched in Oct 2018 and provides daily information to ANAM forecasters.	100%	100%	90%	100%
<i>1.13. Strategic plan for ANAM, as an update to the KPMG Modernization Plan (2014) and National Framework for Climate Services (2016).</i> Météo-France hired WeatherForce to undertake this task, and the first consultation workshop was held in May 2019.	100%	90%	0%	90%

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

Project-specific Outputs	Overall Project Target	Target for reporting period	Progress by Dec 2018	Progress by June 2019
<i>2.1. Identification of flood prone areas in a GIS portal.</i> The next step is to enter into an agreement with HRC (San Diego) to map the watersheds and flood-prone areas.	100%	0%	0%	0%

CREWS Output 3: Information and communication technology, including common alerting protocol, strengthened

Project-specific Outputs	Overall Project Target	Target for reporting period	Progress by Dec 2018	Progress by June 2019
<i>3.1. Setup of a data concentration and data management system.</i> 12 PCs, 2 laptops, 1 server, 13 external disks and ten mobile broadband devices have been procured and received at ANAM. The Climsoft software is now customized and stable, and will be installed on 10 PCs for the 10 synoptical stations. A training took place from 5-9 November 2018 before delivery of the equipment to the stations and Internet subscription for 30 months was done.	100%	100%	80%	100%
<i>3.2. Procurement and installation of soil moisture sensors in pilot sites.</i> Specifications have been identified, for measurements at 5,10, 20, 50 and 100 cm. Procurement process is underway in WMO.	100%	50%	10%	15%

CREWS Output 4: Preparedness and response plans with operational procedures that outline early warning dissemination processes strengthened and accessible

Project-specific Outputs	Overall Project Target	Target for reporting period	Progress by Dec 2018	Progress by June 2019
<i>4.1. Proposal for standard operating procedures (SOP) for warning production, dissemination, response and return on experience in line with the national disaster risk reduction law (2014). Terms of reference are being drafted.</i>	100%	0%	0%	0%
<i>4.2. Proposal for data exchange agreement between entities involved in the SOP. The automatic process for exchange of warning advisories from ANAM and DEIE in near-real-time to CONASUR, SAP and DGPC is yet to be designed and implemented.</i>	100%	0%	0%	0%

CREWS Output 5: Knowledge products and awareness programmes on early warnings developed

Project-specific Outputs	Overall Project Target	Target for reporting period	Progress by Dec 2018	Progress by June 2019
<i>5.1. Roving seminars - Seminars involving local radio communicators and agricultural extension agents with regards to agrometeorological services were held at the pilot municipalities of Niangoloko, Tenado and Titao in April-May 2018; 1,101 farmers (501 women and 600 men) and 56 agricultural extension agent and communicators were trained.</i>	100%	100%	100%	100%
<i>5.2. Project mid-term review with knowledge on Burkina Faso early warning system relevance, effectiveness, efficiency, impact and sustainability - Terms of reference have been published.</i>	100%	10%	0%	10%
<i>5.3. Analysis of socio-economic benefits related to the delivery of enhanced products and services in pilot zones - Terms of reference have been published.</i>	100%	10%	0%	10%

CREWS Output 6: Gender-sensitive training, capacity building programmes provided

Project-specific Outputs	Overall Project Target	Target for reporting period	Progress by Dec 2018	Progress by June 2019
6.1. <i>Training on sand and dust storm forecasting</i> - provided to one ANAM forecaster in Cairo, 10-12 February 2018, see report .	100%	100%	100%	100%
6.2. <i>Training on limited area modeling (LAM) numerical weather prediction (NWP)</i> - Provided to two ANAM forecasters in Langen, 12-16 March 2018, see report .	100%	100%	100%	100%
6.3. <i>Development of numerical weather prediction capacities.</i> Forecasters from ANAM have access to products from ECMWF (ecCharts) under a specific licence with ECMWF, and from UKMO and NOAA/NCEP through SWFDP-West Africa. A licence agreement was signed between ANAM and DWD (Deutscher Wetterdienst) for the right to use the COSMO model software, and one ANAM staff member started the Master in High Performance Computing in Sept 2018 in Trieste (Italy). Two staff members from ANAM (a forecaster and a public weather service expert) participated in a regional training workshop in Lomé, Togo from 20-30 Nov 2018. An in-country training on the use of global NWP products/data and on developing value-added products took place in Ouagadougou from 2-4 May 2019 (see report / folder).	100%	100%	90%	100%
6.4. <i>Training of ANAM staff on the use of sub-seasonal and seasonal outlooks in agro-meteorological advisories.</i> The training workshop was organised by Météo-France in Toulouse, with participation of Burkina Faso, Mali and Niger. See report / folder .	100%	100%	0%	100%
6.5. <i>Training on dissemination and use of agromet products</i> - On 25-26 June and 27-30 August 2018, workshops were held at the pilot sites (Titao, Tenado and Niangoloko) to disseminate the seasonal forecast, and train representatives, radio operators and extension agents from the agriculture decentralized services . In the 3 pilot sites, about 180	100%	100%	100%	100%

representatives and 1,100 farmers were trained on retrieving information and communicating it back to their community.

11.2. Contributions to CREWS Value Propositions

Gender Sensitive	User requirements in pilot sites have been collected in a gender-disaggregated manner, and the analysis of socio-economic benefits of agro-meteorological and other warning services in these pilot sites will be conducted in 2019 with a particular focus on specific vulnerability patterns, including those of women.
Multiplier	CREWS develops specific solutions in pilot areas related to agrometeorology and flood modelling. These will be scaled-up by the WB P164078 Climate Resilience (32 million USD) and P164345 Water Res. (300 million USD) projects, together with 21 projects contributing to GFCS, CREWS or Sendai priorities.
People-centred	1,100 farmers in 3 pilot sites have been trained on the use of weather and climate forecasts, with local radio operators, to optimize field cropping calendars. The trainings have been specifically designed based on a diagnosis of how people access, process, and respond to information and warnings.
Promote Coherence	The latest 2014 DRM law does not specifically address the institutional framework related to warning issuance and response. NMHSs are conceptualising a data exchange mechanism for collaborative flood modelling and warning.
Innovation & Solution-oriented	CREWS supports the development of innovative sand and dust storm warning (with AEMET/BSC) and agrometeorological services based on weather, sub-seasonal and seasonal prediction (with Météo-France).
Unique	CREWS provides twinning arrangements between national institutions of Burkina Faso with their counterparts in France, Spain, Germany and the Netherlands, with huge potential to continue knowledge exchange and collaboration beyond the project lifetime. In addition, CREWS innovations tested at pilot sites have the potential to be scaled-up at the national level with WB P164078 Climate Resilience (32 million USD) and P164345 Water Res. (300 million USD) projects.

12. Visibility products

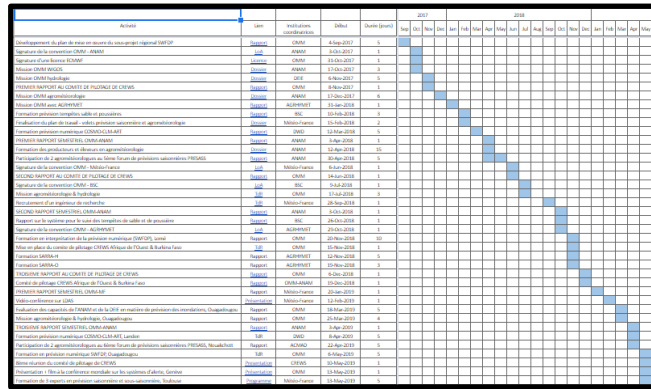


[VIDEO : CREWS Burkina Faso - mid-term review](#)
delivered at [MHEWC-II](#)

Series of projects, with synergies (no overlap) and technical guidance provided to the implementing entities (Government institutions for WB)
→ sustainable results

Project	Country	Status	Date of implementation
Burkina Faso - AFRC - Burkina Faso - Strengthening Climate Resilience in Burkina Faso - Phase 1	Burkina Faso	Completed	2014-2015
Burkina Faso - AFRC - Burkina Faso - Strengthening Climate Resilience in Burkina Faso - Phase 2	Burkina Faso	In progress	2016-2017
Burkina Faso - AFRC - Burkina Faso - Strengthening Climate Resilience in Burkina Faso - Phase 3	Burkina Faso	Completed	2018-2019

[PRESENTATION : Optimal collaboration among the World Bank and World Meteorological Organization in LDCs and SIDS](#),
delivered at [MHEWC-II](#) and featuring Burkina Faso as an example of efficient collaboration



[PROJECT MANAGEMENT SPREADSHEET](#) with timeline, contacts, budget, list of synergistic projects and links to deliverables

13. Key supporting documents (also available in the output matrices)

List and annex to the report any documents providing details on project activities such as reports of training sessions, summaries of high-level discussions etc.

- [Project proposal](#) approved by CREWS Steering Committee (Feb 2017)
- [Report of the training on Numerical Weather Prediction](#), Ouagadougou, May 2019
- [Report of the training on subseasonal forecasting](#), Toulouse, May 2019
- [Report of the training on LDAS](#), Niamey, May 2019
- [Mid-term video](#), May 2019
- [Presentation at MHEWC-II](#), May 2019
- FFGS inception workshop – [Concept Note](#), [Agenda](#), Dakar, June 2019
- [ToR](#) for project mid-term evaluation (planned Sept-Oct 2019)
- [ToR](#) for evaluation of socio-economic benefits of enhanced services in pilot zones (planned Sept-Oct 2019)