# CREWS PROJECT STATUS REPORT
## (July – December 2020)

| 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. | Regional/National Partners involved in the project | ANAM (meteo), DEIE (hydro), INERA (agriculture), Météo-France, AGRHYMET, RCC Niamey, RTC Niamey, GISC Casablanca, AEMET/BSC, FURV, UNIFI + consultants |
| 5. | Project Duration/ Timeframe | Jan 2017 - Dec 2022 | | | |
| 6. | Reporting focal point | Jean-Baptiste Migraine <jbmigraine@wmo.int> | | | |
| 7. | Project overview | 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.

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, FURV, UNIFI, INERA 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), as well as with the regional CREWS West Africa project (see comprehensive list of Projects in Burkina Faso). 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.

The main focus of the project is to build the capacity of the National Meteorological and Hydrological Services and to strengthen their | | | |

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| | 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 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. |
| **8. Progress summary** | - **Project evaluation** (see draft report); <br><br> - **Evaluation of socio-economic benefits** in pilot sites (see draft report); <br><br> - **Partnership agreements** were signed between WMO and <br><br>    - Burkina Faso Meteorological Service (ANAM) on 3 Oct 2017, amended on , for an amount of US$482,000; <br><br>    - Météo-France on 24 May 2018, 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; <br><br>    - AEMET / Barcelona Supercomputing Center (BSC) in July 2018, for an amount of US$10,000, for provision of Warning advisories on Sand and Dust Storm in Burkina Faso; <br><br>    - AGRHYMET in Oct 2018, for an amount of US$42,000 for provision of training on operational use of CIRAD SARRA models in support of agricultural meteorology; <br><br>    - UNIFI to improve irrigation scheduling, assess biomass and yield responses using crop water productivity models (AquaCrop) <br><br>    - INERA in March 2020, to test and calibrate the irrigation decision support tool in pilot fields AquaCrop model and demonstrate the potential use of soil moisture sensors for drought warning and irrigation decision support. <br><br>    - Specifications for soil moisture sensors configuration have been finalized, for measurements at 5,10,15, 25,30,40, 50,60,70,80,90 and 100 cm. The contract has been awarded to OTT Hydrometry and the equipment has been delivered in June 2020. Soil moisture sensors would be installed in May-June in support of AquaCrop model calibration and to provide information for soil moisture products at country level. <br><br> - **Numerical weather prediction and severe weather forecasting:** |

- A licence was purchased for providing access to graphical products from the European Centre for Medium-Range Weather Forecasts (ECMWF) for 2018-2019;
- A training on sand and dust storm was provided to one ANAM forecaster (Cairo, 10-12 February 2018);
- A training on numerical weather prediction and climate simulations was provided to two ANAM forecasters (Langen, 12-16 March 2018 and 8-12 April 2019, see report);
- The Burkina Faso "Warning Advisory System for Sand and Dust Storm" was launched in Oct 2018 and was presented at the UN Sand and Dust Storms Scoping Meeting in Geneva, 15-16 April 2019;
- A training on global NWP products interpretation and use in forecasting of severe and high impact weather was provided in Ouagadougou (2-4 May 2019, see report);
- A 1-year Master training on high performance computing (HPC) operation and maintenance was delivered to 1 ANAM staff at International Centre for Theoretical Physics (ICTP) in Trieste, Italy.

- **Observing network and climate data management**

  - In April 2019, 10 synoptic stations were equipped with CLIMSOFT climate data management system (CDMS), with hardware and software purchased earlier by the project, to allow for enhanced quality and timeliness of data concentration in ANAM headquarters. As of Dec 2020, 9 stations out of 10 are using CLIMSOFT operationally;
  - A final assessment of observing networks and data concentration processes was undertaken on 23-28 Feb 2020 (see report), providing guidance for investments to be performed by the end of 2023.

- **Seasonal and sub-seasonal forecasting:**

  - A training workshop was organised in Toulouse from 13 to 17 May 2019 (see report); One technician from ANAM stayed in Toulouse during 1-month for co-production of products using the IRI Climate Data Tool such as (i) high quality checks on the dataset: outliers; threshold, internal consistency, spatial coherence; (ii) interpolation of weekly rainfall data; (iii) correcting estimated rainfall data from CHIRPS with historical in-situ observation data; (iv) zoning of rainfall: automatic classification method using K-means; (iv) analysis of rainfall patterns;
  - The results obtained for the 2019 season are very positive and the improvement in the scientific and technical knowledge of ANAM staff is confirmed, as well as the improvement of the methodology associated with the operational practices implemented through MISVA (Monitoring of IntraSeasonal Variability over Africa) training and briefings. What is particularly

interesting is also the regional approach and the south-south collaboration between the weather services of the different countries.

- **Agrometeorology:**

  - Assessments of user requirements with regards to agrometeorological services was performed for the pilot municipalities of Niangoloko, Tenado and Titao in Dec 2017, and series of Roving Seminars were held with the agro-meteorologists, radio operators, extension agents (from the agriculture Ministry), local authorities and farmers following this, to support farmers' adaptation to the dynamics of the rainy season, anticipate crop yields, and improve the service over time; an evaluation on the benefits from improved agromet services at pilot sites was conducted over the 2019-2020 seasons (see 2019 and 2020 reports);

  - a training on SARRA-H and SARRA-O took place in Ouagadougou from 12 to 23 Nov 2018 (see report);

  - a training on and data assimilation system (LDAS) took place in AGRHYMET (Niamey, 28-29 May 2019), with staff from ANAM and from the Ministry of Agriculture (see report);

  - A training on crop calendars and R-Instat for crop monitoring and food security warning was organized on 10-14 Feb (see report);

  - The enhanced agro-meteorological services to the pilot sites have been operational in the 3 pilot sites since 2018, and the surveys carried out in 2019 and 2020 show that on average the 86% of pilot farmers receive regular and understandable weather and climate information from May to October and that about 80% of end-users use them for the conduct of agro-sylvo-pastoral operations.

- **Hydrology:**

  - the first FFGS planning meeting was organized in Dakar on 25-27 June 2019 (see report)

  - 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

- an integrated assessment of the flood forecasting and warning capacities in Burkina Faso was delivered on 7-8 Oct 2019 (see report); the validation workshop with national stakeholders (ANAM, DEIE, DGPCl, SAP, SONABEL) and project teams (Hydromet, Volta) analyzed the opportunities of a national joint flood forecasting unit.

- **WMO supervision missions were held on**

  - 19-21 July 2018, with World Bank, focusing on agrometeorology, hydrology, data collection and management;

  - 12-23 Nov 2018, together with SARRA-O and SARRA-H trainings;

  - 23-28 March 2019, with World Bank, for the preparation of the ANAM strategic plan, the assessment of hydrological service's capacities and update the agrometeorological work plan;

  - 7-10 Oct 2019, with World Bank, for the extension of the partnership with ANAM, mid-term review and assessment of flood forecasting capacities

- In addition, Burkina-Faso participated in a number of **crosscutting initiatives** to strengthen sub-regional cooperation:

  - 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;

  - 2nd International Multi-Hazard Early Warning Conference, Geneva, 13-14 May 2019 and in the Global Platform 2019, 14-17 May 2019;

  - Global FFGS workshop, Antalya, Turkey, 2-8 Nov 2019.

An **extension of the closing date** is under consideration to

- complete the following remaining activities

  - Flash Flood Guidance System, expected to be delivered (including trainings) and operational in 2021

  - Proposal for operating procedures for rapid warning will be developed as a partnership between the CREWS and (WB-funded, government-implemented) Hydromet project

- ensure provision of advisory services to ANAM and DEIE under the 33 million USD Hydromet investment. This has started in response from requests from the Director General of ANAM, and would be formalized in 2021 following a high-level meeting planned for Mar 2021

## 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** | The progress with expenditure is satisfactory, at 79% of the total budget, with $ 1,460,053 in actuals and $261,786 in obligations. | The progress is satisfactory, and the independent review identifies a mix of activities delivered very efficiently (agrometeorological services at pilot sites, capacity development in numerical weather prediction, subseasonal forecasting and agrometeorology) as well as some delivered with delays (procurement of soil moisture sensors, sharing of observations in the WMO Information System, provision of flood forecasting guidance).<br><br>A no-cost extension will be submitted to the CREWS Steering Committee for its consideration, to extend the project duration for 2 more years, in order to allow for provision of advisory services to the national meteorological and hydrological services in | The objectives of the program are consistent with (i) national policies and strategies, donor policies, and initiatives of other major donors; (ii) overall purpose and objectives defined during project formulation. The adopted approach, particularly for the capacity building of ANAM, has demonstrated to be well adapted to the context. |

| | | the context of the implementation of the 33 million USD Hydromet project. | |
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## 10. Risk Management Status

| Risk Status | The risk remains moderate, as identified at the proposal stage. While ANAM demonstrated appropriate capacity for implementation, and a stable institutional context conducive to strategic planning and capacity development, there is a risk remaining of suboptimal use of resources within DEIE, and lack of staff, despite the 2 large investment projects supporting the institution (Hydromet 33 million USD and water resources and sanitation 250 million USD). In addition, the security risks in the country have deteriorated over the past 18 months, and French civil servants are no longer able to travel in Ouagadougou. |
|---|---|
| Measures to address | To cope with the limited capacity of DEIE to manage activities, (i) an amendment to the Letter of Agreement with ANAM was signed, allowing ANAM to implement activities in support of DEIE and (ii) a coordination meeting was held with the Hydromet project, to ensure rapid uptake of recommendations from the assessment of DEIE. In relation to the deteriorating security and COVID-19 situations, a number of trainings, missions and workshops have been relocated from Ouagadougou to Toulouse and Niamey, or have been postponed. |

## 11. Contributions to CREWS National Outputs

| CREWS National 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 June 2020 | Progress by Dec 2020 |
| *1.1. Assessment of the observing network as an update of the SAP-IC midterm review report (2017), updating of the OSCAR/surface database and improvement of data sharing into the WMO Information System (WIS).* Meteorological and hydrological stations' metadata has been collected (completed by meteorology, still in progress for hydrology). 4 missions took place since 2018, the last one on 10-14 Feb 2020 (see report). Equipment | 100% | 100% | 100% | 100% |

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| was provided and training delivered to 10 observers operating the synoptic stations (see details under output 5). Since then, 9 stations out of 10 feed the WIS 8 times a day (compared to 1 previously). Additional guidance for developments to be performed by the end of 2023 under the 33 million USD Hydromet investment is available. | | | | |
| *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 developed between May and October 2019, delivered in November 2019 (see report). It provides specific guidance for developments to be performed by the end of 2023 under the 250 million USD water and sanitation program and the 33 million USD Hydromet investment. | 100% | 100% | 100% | 100% |
| *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.* The first mission to evaluate requirements was held from 17-22 December 2017 (see reports). A detailed list of requirements has then been updated on an ongoing basis, based upon lessons learned as climate services have been provided to users over the 2018, 2019 and 2020 cropping seasons. Local representatives from the Ministry of agriculture were trained on how to respond to emerging needs expressed by vulnerable farmers (including women) through series of trainings (in the field, in Ouagadougou and in AGRHYMET), while ANAM progressively improved the agrometeorological bulletins. | 100% | 100% | 100% | 100% |
| *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. Since 2019, access to ECMWF datasets is provided by RSMC-Dakar under the SWFP project. | 100% | 100% | 100% | 100% |
| *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).* The RSMC Dakar password-protected website is available in both French and English languages. NWP products including EPSgrams from several contributing global NWP centres (e.g. Environment Canada, ECMWF, NOAA/NCEP, UKMO etc.) are available to NMHSs of West Africa including ANAM. RSMC Dakar also issues daily Regional Severe Weather Forecast Guidance product to the NMHSs through its web portal. | 100% | 100% | 100% | 100% |
| *1.7. Calibration of a crop model (SARRA-H) for the agro-meteorological pilot zones, and setup of Aquacrop for irrigation decision support -* A training workshop on CIRAD models | 100% | 90% | 90% | 90% |

| | Overall Project Target | Target for reporting period | Progress by | Progress by Dec 2020 |
|---|---|---|---|---|
| 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). Since June, INERA and UNIFI have calibrated and tested the Aquacrop model in the agrometeorological station of Farako Ba, using automatic soil moisture sensors (see report) | | | | |
| *1.8. Development of priority agromet indices based on Land Data Assimilation Systems (LDAS).* Météo-France developed indices and tested 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). Following this training, additional indices of interest have been included in the tool: soil moisture, long dry sequences (+ 10 days to + 20 days), monitoring and forecasting of biomass and Leaf Area Index (LAI). The production of these indices will be continued with other CREWS projects starting in 2021. | 100% | 100% | 100% | 100% |
| *1.9. Development of a Flash Flood Forecasting System (FFGS).* The initial planning meeting took place from 25-28 June 2019 in Dakar (see report). 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 | 100% | 50% | 40% | 50% |
| *1.10. Sand and dust storm forecasting.* 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 since then. This system will be expanded to 7 countries in Sahel, starting in 2021. | 100% | 100% | 100% | 100% |
| *1.11. Strategic plan for ANAM, as an update to the KPMG Modernization Plan (2014) and National Framework for Climate Services (2016).* Météo-France hired WeatherForce to undertake this task, and the first consultation workshop was held in May 2019. A strategic plan was delivered in Nov 2019. | 100% | 100% | 100% | 100% |

| **CREWS Output 2: Risk Information to guide early warning systems and climate and weather service developed and accessible** | | | | |
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| Project-specific Outputs | **Overall Project Target** | **Target for reporting period** | **Progress by** | **Progress by Dec 2020** |

| | | | June 2020 | |
|---|---|---|---|---|
| *2.1. Identification of flood prone areas in a GIS portal.* Under the Agreement with HRC, watersheds and flood-prone areas will be mapped based on combination of national and global datasets. | 100% | 10% | 10% | 30% |
| *2.2. Enhanced drought risk assessment and drought monitoring.* The development of crop calendars and a training on the use of R-INSTAT for monitoring of drought indices took place on 20-24 Feb 2020 (see report). | 100% | 100% | 100% | 100% |

| CREWS Output 3: Information and communication technology, including common alerting protocol, strengthened | | | | |
|---|---|---|---|---|
| Project-specific Outputs | Overall Project Target | Target for reporting period | Progress by June 2020 | Progress by Dec 2020 |
| *3.1. Setup of a data concentration and data management system.* 12 PCs, 2 laptops, 1 server, 13 external disks and ten mobile broadband devices have been procured and received at ANAM. 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. The Climsoft software was installed on 10 PCs for the 10 synoptic stations in April 2019, and two rounds of training were conducted. As of Dec 2020, 9 synoptic stations out of 10 provide data through CLIMSOFT with a systematic approach. The last mission regarding data concentration was organized on 10-14 Feb 2020 (see report). | 100% | 100% | 90% | 100% |
| *3.2. Implementing a decision-support tool for irrigated crops in Burkina Faso.* A concept note was developed to improve irrigation scheduling, assess biomass and yield responses using crop water productivity models (AquaCrop) and soil moisture sensors, in Florence on 27 Feb 2020 (see report). Partnership agreements have been signed on 7 May 2020 with UNIFI and on 17 March 2020 with INERA for the setting-up of the tool. | 100% | 90% | 50% | 90% |
| *3.3. Procurement and installation of soil moisture sensors in pilot sites.* Specifications on sites and sensors configuration have been identified, for measurements at 5,10,15. 25,30,40, 50,60,70,80,90 and 100 cm. Procurement is in progress, sensors are being delivered in May 2020 and a partnership agreement with INERA was setup on 17 March 2020 in order to calibrate and demonstrate the potential use for drought warning and irrigation decision support. Sensors have been installed by INERA and ANAM over the summer, however an additional radio equipment remains to be procured to enable 100% use of the system in real-time. | 100% | 90% | 50% | 90% |

| CREWS Output 4: Preparedness and response plans with operational procedures that outline early warning dissemination processes strengthened and accessible | | | | |
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| Project-specific Outputs | Overall Project Target | Target for reporting period | Progress by June 2020 | Progress by Dec 2020 |
| *4.1. Proposal for standard operating procedures (SOP) for warning production, dissemination, response and return on experience in line with the (not adopted) national disaster risk reduction law (2014).* Terms of reference have been drafted over the summer 2020, initiated by the World Bank Hydromet project. WMO will provide advisory services to ANAM and DEIE in relation with the development of the SOPs starting in 2021. | 100% | 10% | 0% | 10% |
| *4.2. Proposal for data exchange agreement between entities.* The automatic process for exchange of data in near real time between ANAM and DEIE is yet to be designed and implemented starting in 2021, in conjunction with the roll-out of the FFGS and the SOPs. | 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 June 2020 | Progress by Dec 2020 |
| *5.1. Roving seminars* - Seminars involving local radio communicators and agricultural extension agents with regards to agrometeorological services are being held between 3 and 4 times per year at the pilot municipalities of Niangoloko, Tenado and Titao since April 2018; 1,101 farmers (501 women and 600 men) and 56 agricultural extension agent and communicators were trained and are provided with enhanced agro-meteorological guidance. | 100% | 100% | 100% | 100% |
| *5.2. Project evaluation with knowledge on Burkina Faso early warning system relevance, effectiveness, efficiency, impact and sustainability* - The draft report is available. | 100% | 95% | 80% | 95% |
| *5.3. Gender-informed analysis of socio-economic benefits related to the delivery of enhanced products and services in pilot zones* - An analysis has captured the benefits over the 2019 and 2020 rainy seasons for rain-fed crops, see draft report. A second phase in the analysis will be carried over the 2020 rainy season. | 100% | 100% | 60% | 100% |

| CREWS Output 6: Gender-sensitive training, capacity building programmes provided | | | | |
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| Project-specific Outputs | Overall Project Target | Target for reporting period | Progress by June 2020 | Progress by Dec 2020 |
| *6.1. Training on sand and dust storm forecasting* - provided to one ANAM forecaster in Cairo, 10-12 February 2018, see report. | 100% | 100% | 100% | 100% |
| *6.2. Training on limited area modeling (LAM) numerical weather prediction (NWP)* - Provided to two ANAM forecasters in Langen, 12-16 March 2018 and 8-12 April 2019, see reports: 2018 and 2019. | 100% | 100% | 100% | 100% |
| *6.3. Development of numerical weather prediction capacities.* 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 passed the Master in High Performance Computing between Sept 2018 and Oct 2019 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. Two forecasters participated in a training at DWD on 8-12 April 2019 (see report). An in-country training on global NWP products interpretation and use in forecasting of severe and high impact weather took place in Ouagadougou from 2-4 May 2019 for operational forecasters. Lecturers came from Morocco, France, Senegal (RSMC Dakar) and WMO contributed. Forecasters were also trained on the interpretation and use of Severe Weather Forecast Guidance product issued by RSMC Dakar on daily basis (see report / folder). | 100% | 100% | 80% | 100% |
| *6.4. Training of ANAM staff on the use of sub-seasonal and seasonal outlooks in agro-meteorological advisories.* The training workshop was organised by Météo-France in Toulouse, with participation of Burkina Faso, Mali and Niger. See report / folder. | 100% | 100% | 100% | 100% |
| *6.5. Training on dissemination and use of agromet products* - Additional workshops were held in 2019 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 representatives and | 100% | 100% | 100% | 100% |

| 1,100 farmers were trained on retrieving information and communicating it back to their community. | | | | |
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## 12. 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. |

## 13. Certification on Use of Resources

| Has there been any cases of non-compliance with the financial rules, regulations and procedures of your institution? If yes, please fill below | ☐ Yes          ☑ No |
|---|---|

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| Institution | WMO |
|---|---|
| **Firstname, LASTNAME of authorized representative** | Brian COVER |
| **Position Title** | Chief, Finance Division |
| **Date and Signature:** | 25 Jan 2021 (see portfolio-wide declaration) |

## 14. Visibility products



VIDEO: [CREWS Burkina Faso - mid-term review](#)

[PRESENTATION](#)



VIDEO: [LDAS training workshop](#) , 28-30 May 2019



VIDEO: [Seasonal, sub-seasonal and severe weather forecasting workshop](#), 13-17 May 2019

[From Research to Operation - Presentation of the Burkina Faso SDS WAS](#), March 2019


[OBJ]

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


## 15. 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)
- Partnership agreement with [Météo France](#) - MISVA ([report Dec 2020](#))
- Partnership agreement with [ANAM](#) ([report Oct 2020](#))
- Partnership agreement with [UNIFI](#) ([report Dec 2020](#))
- Partnership agreement with [FURV](#) ([report March 2020](#))
- Partnership agreement with [AGRHYMET](#) ([report Dec 2018](#))
- Partnership agreement with [INERA](#) ([report Dec 2020](#))
- [Training on Numerical Weather Prediction for warning of severe weather events](#), Ouagadougou, May 2019
- [Training on seasonal and subseasonal forecasting for warning of climate extremes](#), Toulouse, May 2019
- [Training on land data assimilation for crop monitoring and food security warning](#), Niamey, May 2019
- [Training on crop calendars and R-Instat for crop monitoring and food security warning](#), Feb 2020

- [Concept note for decision-support and warning of irrigated schemes](#), Feb 2020
- [Flash Flood Guidance System inception workshop](#), Dakar, June 2019
- [Assessment of flood forecasting capacities for flood warning](#), Nov 2019
- Draft [evaluation of socio-economic benefits resulting from enhanced agrometeorological bulletins and warnings](#), Dec 2020
- Draft [project evaluation report](#), Dec 2020