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# Climate Services for Increased Resilience in the Sahel

## CONCEPT NOTE



<b>1. Project Summary</b>	
▪ Objective(s)	To enhance the capacity of the Sahel region to develop and use climate services in climate sensitive sectors
▪ Expected outcome(s) ▪ Impact the project will contribute to achieve	<b>Outcome 1:</b> Increased resilience through the enhanced development, delivery and use of tailored climate information products at regional level <b>Outcome 2:</b> Enhanced decision making processes at the national level through integration of climate information into decision making in climate sensitive sectors <b>Outcome 3:</b> Enhanced cooperation in the region for the development and use of climate products and services <b>Impact:</b> Enable society to better manage the risks and opportunities arising from climate variability and change, especially for those that are most vulnerable to climate-related hazards.
▪ Country/Region	Sahel (2-3 countries to be selected as pilots, Burkina Faso, Niger and Senegal)
▪ Duration of the project	18 months
▪ Amount (and funding partner(s) if applicable)	1 M USD – USAID
	60 K USD – Norwegian Refugee Council (NRC)
	Staff costs of deployed experts – Norwegian Refugee Council (through a grant by Norwegian Ministry of Foreign Affairs)
▪ Project Manager	Veronica Grasso
▪ Project Executive	Filipe Lucio
▪ Concerned Department (s)	GFCS and other relevant WMO Depts. (CLW)
▪ Implementing entity(ies)	ACMAD, NRC, National Meteorological and Hydrological Services (NMHSs) in pilot countries

### Rationale for the project

### Background of the project

Many African countries are extremely vulnerable to droughts, floods and other extreme events caused by natural climate variability. They face even greater risks in the future as human-induced climate change increasingly alters the weather and climate patterns that societies have come to depend on. According to the Intergovernmental Panel on Climate Change (IPCC), the Sahel will experience higher average temperatures over the course of the 21<sup>st</sup> century and changes in rainfall patterns. These trends will affect the frequency and severity of floods, droughts, desertification, sand and dust storms, desert locust plagues and water shortages.

The Global Framework for Climate Services (GFCS) will help reducing human and economic losses to weather and climate extremes, mitigate the impacts of climate-related diseases, inform  
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farming decisions, improve food security, and strengthen the management of vital water resources in the Sahel. In 2015, a tripartite Memorandum of Understanding was signed between WMO, GFCS and the Norwegian Refugee Council (NRC) through which NRC will deploy experts at regional and national level to support this initiative.

The provision of more and better climate services will allow disaster risk managers to prepare more effectively for droughts and heavy precipitation; empower farmers to fine-tune their planting and marketing strategies based on seasonal climate forecasts; assist public health services to target vaccine and other prevention campaigns to limit climate-related disease outbreaks such as malaria and meningitis; and help improve the management of water resources.

### Needs / key issues to be addressed

The national capacities for developing and using climate information and services vary greatly across the Region. Starting in 2012, five GFCS pilot projects were launched in Burkina Faso, Chad, Mali, Niger and Senegal. National consultations for climate services<sup>1</sup> were held in each of these Sahelian countries, which highlighted common areas of need (Table 1).

At regional level, the African Centre of Meteorological Applications for Development (ACMAD) which was designated as Region I (Africa) Regional Climate Center (RCC) by WMO<sup>2</sup>, is mandated to provide weather and climate information for the promotion of sustainable development of Africa in the fields of agriculture, water resources, health, public safety and renewable energy.

In November 2015, the GFCS together with NRC performed an assessment of the capacities for effective climate services in the Sahel<sup>3</sup>, looking both at regional capacities within ACMAD and national level within NMHSs.

Table 1 summarizes the findings of the regional capacity assessment including results from the national consultations and highlights effective solutions to address the gaps and needs at regional and national level. The proposed activities are based on Table 1.

**Table 1 – Gaps and needs in national and regional capacities for effective climate services in the Sahel and suggested actions**

Gaps/Needs	National	Regional	Suggested capacity development actions
<b>Human and technical capacity</b>	<ul style="list-style-type: none"> <li>Increased human capacity of NMHS</li> </ul>	<ul style="list-style-type: none"> <li>ACMAD lacks resource persons</li> </ul>	<ul style="list-style-type: none"> <li>Deployment of experts to ACMAD and in selected countries in the Sahel (by NRC)</li> </ul>
	<ul style="list-style-type: none"> <li>Appropriate tools, models and equipment at NMHSs to ensure efficient climate services delivery to users</li> </ul>	<ul style="list-style-type: none"> <li>Infrastructural capacity gaps at ACMAD and NMHSs</li> </ul>	<ul style="list-style-type: none"> <li>At ACMAD: enhancement of computing facilities, software packages to efficiently produce the climate information needed, energy backup and broadband high speed internet</li> <li>At NMHSs: needs to be assessed based on the selection of countries</li> </ul>

<sup>1</sup> [http://gfcs-climate.org/national\\_workshops](http://gfcs-climate.org/national_workshops)

<sup>2</sup> <http://acmad.net/rcc/>

<sup>3</sup> Human capacity needs assessment of the African Centre of Meteorological Applications for Development (ACMAD) for effective climate services frameworks in the Sahel (2015).

	<ul style="list-style-type: none"> <li>Capacity development gaps for the collection, development and delivery of climate services and awareness raising of users</li> <li>Regular broadcasting of weather/climate information</li> </ul>	<ul style="list-style-type: none"> <li>Significant human technical capacities gaps in NMHSs in the Sahel are limiting their ability to provide climate services to users</li> </ul>	<ul style="list-style-type: none"> <li>National level capacity assessments and Development of baselines</li> <li>Training programs to enhance NMHSs technical expertise</li> <li>Training of Trainers (ToT) at ACMAD to build a pool of trained and capable trainers in the field of climate, climate change, and weather forecasting</li> <li>ACMAD Training manual</li> <li>North-South and South-South collaborations to be improved</li> </ul>
<b>Institutional capacities</b>	<ul style="list-style-type: none"> <li>Internal capacity to enable effective coordination and implementation of the action plans for the establishment of effective frameworks for climate services in each country</li> </ul>		<ul style="list-style-type: none"> <li>Establishment of national frameworks for climate services</li> </ul>
<b>Observations and data</b>	<ul style="list-style-type: none"> <li>Gaps in the observations network</li> <li>Quality control of data</li> <li>Modernization of equipment</li> <li>Data for sectorial applications</li> </ul>		<ul style="list-style-type: none"> <li>Rehabilitation and extension of the observations network (and ensure maintenance)</li> </ul>
<b>User interface and services delivery</b>	<ul style="list-style-type: none"> <li>Improved interface/systematic dialogue between users and providers to facilitate addressing the demand for tailored climate services in climate-sensitive sectors</li> <li>Improved access and delivery of services/information</li> <li>User tailored products</li> <li>Improved users' understanding of climate services</li> <li>Improved communication to tackle languages, format and communication channels</li> </ul>	<ul style="list-style-type: none"> <li>Significant gap between the supply of climate services by ACMAD and the needs of users in the Sahel</li> <li>Users need access to expert advice and support to help them select, interpret and apply ACMAD information and products</li> <li>Collaborative processes need to be set up</li> </ul>	<ul style="list-style-type: none"> <li>National Climate Outlook Forums to enhance the interaction with users (regional and national) and improve climate literacy</li> <li>Select pilot countries and improve linkages and collaboration between ACMAD and NMHSs</li> </ul>
<b>Research</b>	<ul style="list-style-type: none"> <li>Collaborative research to improve understanding and predictability of local climate and assessment of climate impacts on socio-economic sectors</li> <li>Research to develop decision support tools to facilitate application of climate services by decision-makers</li> </ul>	<ul style="list-style-type: none"> <li>Staff to lead the research and participate in research programs, writing grant proposals, engage with Universities and research institutions is needed</li> </ul>	<ul style="list-style-type: none"> <li>- Not part of this project proposal</li> </ul>

<b>Communication</b>	<ul style="list-style-type: none"> <li>• Improve how climate services are communicated to users (to enhance uptake and use)</li> </ul>	<ul style="list-style-type: none"> <li>• A coherent communication strategy is lacking at ACMAD</li> </ul>	<ul style="list-style-type: none"> <li>• ACMAD communications strategy to be developed</li> <li>• Web site needs to be improved to ensure that information is accessible and understandable</li> <li>• Capacity development of the media sector in pilot countries</li> </ul>
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**The overall aim of the project is to:**

Enable society to better manage the risks and opportunities arising from climate variability and change, especially for those that are most vulnerable to climate-related hazards. This is to be achieved by developing and incorporating science-based climate information and prediction into planning, policy and practice.

**Expected Outcomes/Outputs**

A comprehensive project to implement GFCS in the Sahel would entail a regional as well as a national component (selecting 2-3 countries as pilots, namely Burkina Faso, Senegal and Niger).

The regional component would support the Region’s operational Regional Climate Centre (RCC), namely the African Center of Meteorological Application for Development (ACMAD), and promote consistent and integrated efforts across agencies and countries in the Sahel in order to avoid duplication and to optimize resources. At the same time, the regional component would be complemented by national initiatives that seek to develop nationally-tailored, climate-smart solutions to meet national needs.

At national level, the project would be composed of activities which would support the development and effective use of climate services in decision making processes in key economic sectors to address the needs identified through the national consultations (Table 1). Following the national consultations, action plans were developed through a consultative process and endorsed by governments and partners. Niger had its action plan endorsed by the government on 22-23 December 2015 and Burkina and Senegal action plans were endorsed in 11-12 April and 19 May 2016, respectively.

The specific activities would complement and draw lessons from ongoing efforts in the region such as the five GFCS pilot projects in the Sahel, West Africa Climate Assessment and Data rescue initiative (WACA-DARE), Climate for Development in Africa Programme (ClimDev-Africa), the Système d’Observation du Cycle Hydrologique de l’Afrique de l’Ouest et Centrale (AOC-HYCOS), Global Water Partnership initiative in West Africa and other relevant GEF/LDCF projects in the West Africa region.

<b>Component 1: Regional level</b>
<p><b>Outcome 1:</b> Increased resilience through the enhanced development, delivery and use of tailored climate information products at regional level in climate-sensitive sectors</p>
<p><b>A. Capacity development</b> targeting ACMAD to enhance its role of RCC to better serve NMHSs in the region</p> <ul style="list-style-type: none"> <li>A.1 Deployment of experts at ACMAD (by NRC)</li> <li>A.2 Support to and of provision of technical tools for analysis and prediction of climate</li> <li>A.3 Training of ACMAD staff by NRC deployments to ensure the production of more skilled products by ACMAD</li> </ul>

<p><b>B. Enhancement of climate services uptake and use</b>  B.1 Development of training manual (for NMHSs staff)  B.2 Improvement of ACMAD website and creation of web-platform for data sharing and products dissemination (GIS based) including development of a more effective communication strategy</p>
<b>Component 2: National level</b>
<p><b>Outcome 2:</b> Enhanced decision making processes at the national level through integration of climate information into decision making in climate sensitive sectors</p>
<p><b>C. Capacity development</b> targeting NMHSs in selected countries to better serve users  C.1 Deployment of experts at NMHSs (by NRC)  C.2 Development of baselines based on capacity assessments at national level  C.3 Training to enhance NMHS capacity in downscaling; data management and rescue; forecasting; product development  C.4 Improvement of data management, rescue and information dissemination in pilot countries  C.5 Media training</p>
<p><b>D. Institutional capacity enhancement</b>  D.1 Mapping of key stakeholders and institutions (providers and users)  D.2 Establishment of partnerships at national level to support implementation  D.3 Development/Finalization of national plans of action in pilot countries – ongoing  D.4 Institutional capacity development, including through the establishment and operationalization of frameworks for climate services at national level as the institutional coordination mechanisms to ensure that the entire value chain for the production and application of climate services are addressed in a systematic manner with the involvement of all stakeholders</p>
<p><b>E. Rehabilitation of observation networks in pilot countries</b>  E.1. Needs assessment for observation networks enhancement to define the design, number of stations and location  E.2. Rehabilitation of observation networks in pilot countries (and pilot testing of 3D printing stations designed and tested by USAID and NOAA)</p>
<p><b>F. User interface and service delivery</b>  F.1 Establishment of users-providers engagement mechanisms through National Climate Outlook Forums (NCOFs), National Climate Forums (NCFs) in selected countries  F.2 Integration of climate services into decision making processes in climate-sensitive sectors, through Climate Services Users Forums at the NCOFs/NCFs  F.3 Pilot projects in selected countries to demonstrate the value of climate services in climate-sensitive sectors, identified through CSUFs</p>
<b>Component 3: Knowledge sharing and capacity development at regional level</b>
<p><b>Outcome 3:</b> Enhanced cooperation in the region for the development and use of climate products and services</p>
<p><b>G.</b> Collection and documentation of lessons learnt</p>
<p><b>H.</b> Testing of training material at NMHSs by NRC deployments and ACMAD staff</p>
<p><b>I.</b> Training of Trainers (ToT) of AMCAD staff to facilitate South-South cooperation and knowledge exchange with other countries and regions</p>

## Timeline

The project will be implemented in a phased approach:

- **PHASE 1: Planning (2 months):**

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- ✓ Establishment of the coordination team
- ✓ First meeting of the team for joint programming, budgeting and work planning
- ✓ Preparation of the full project documents
- **PHASE 2: Implementation of component 1 and 2 (12 months):**
  - ✓ Capacity development targeting ACMAD to enhance its role of RCC to better serve NMHSs in the region
    - A.1 Deployment of experts at ACMAD (by NRC)
    - A.2 Support to and of provision of technical tools for analysis and prediction of climate
    - A.3 Training of ACMAD staff by NRC deployments to ensure the production of more skilled products by ACMAD
  - ✓ Enhancement of climate services uptake and use
    - B.1 Development of training manual (for NMHSs staff)
    - B.2 Improvement of ACMAD website and creation of web-platform for data sharing and products dissemination (GIS based) including development of a more effective communication strategy
  - ✓ Capacity development targeting NMHSs in selected countries to better serve users
    - C.1 Deployment of experts at NMHSs (by NRC)
    - C.2 Development of baselines based on capacity assessments at national level
    - C.3 Training to enhance NMHS capacity in downscaling, data management, forecasting
    - C.4 Improvement of data management and information dissemination in pilot countries
    - C.5 Media training
  - ✓ Institutional capacity enhancement
    - D.1 Mapping of key stakeholders and institutions (providers and users)
    - D.2 Establishment of partnerships at national level to support implementation
    - D.3 Development/Finalization of national plans of action in pilot countries – ongoing
    - D.4 Institutional capacity development
  - ✓ Rehabilitation of observation networks in pilot countries
    - E.1 Needs assessment for observation networks enhancement to define the design, number of stations and location
    - E.2 Rehabilitation of observation networks in pilot countries<sup>4</sup> (and pilot testing with 3D printing stations designed and tested by USAID and NOAA)
  - ✓ User interface and service delivery
    - F.1 Establishment of users-providers engagement mechanisms through National Climate Outlook Forums (NCOFs), National Climate Forums (NCFs) in selected countries
    - F.2 Integration of climate services into decision making processes in climate-sensitive sectors, through Climate Services Users Forums (CSUFs) at the NCOFs/NCFs
    - F.3 Pilot projects in selected countries to demonstrate the value of climate services in climate-sensitive sectors, identified through CSUFs

(The timelines for each of these activities will be detailed in the project documents developed in phase 1)

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<sup>4</sup> integrated into the national networks.

- **PHASE 3: Implementation of component 3 (3-4 months):**
  - ✓ M&E (mid-term and final evaluation by NRC)
  - ✓ Collection of lessons learnt from the project
  - ✓ Testing of training
  - ✓ Training of trainers for ACMAD staff

The approach will be scaled up and exported to other countries in the region and other regions, subject to availability of funds.

## Current status

WMO has recently established a presence in the region in partnership with FAO and NRC to coordinate this initiative. National consultations for climate services were held in the five GFCS pilot countries namely Burkina Faso, Chad, Mali, Niger and Senegal in 2012-2014. The project will on one hand support capacity development at regional level to serve a broader pool of countries on the other hand support implementation of activities at national level in a selected number of countries as pilots (chosen from the five countries mentioned above).

NRC will support the project with the deployment of the regional coordinator for the Sahel (Dakar, Senegal) and experts at national level to support national projects as well as experts at ACMAD, with funding from NMFA. NRC has already deployed the experts in Dakar (2015), Niger and Burkina Faso (2016). NRC will also support the capacity development and M&E activities.

## Estimated budget and funding source

The following partners are contributing to the initiative:

- Implementation of Phase 1:
  - NRC: 30K USD (Planning meeting and Mid-term and final evaluation)
- Implementation of Phase 2:
  - USAID: 1 M USD
  - NRC (NMFA): to cover the salary of experts deployed at regional and national levels (proposal submitted June 2014 and approved by NMFA): 2 experts at ACMAD (to be deployed), 1 expert deployed and based at FAO in Dakar, 1 expert deployed and based in Burkina Faso.
- Implementation of Phase 3:
  - NRC: 30K USD (Mid-term and final evaluation)
- WMO (in kind): project management and technical support (30% staff time – P3/4)

**Table 2- Estimated budget**

Component	Activities	NRC (\$)	USAID (\$)
<b>PHASE 1: Planning</b>	<ul style="list-style-type: none"> <li>✓ Establishment of the coordination team</li> <li>✓ First meeting of the team for joint programming, budgeting and work planning</li> <li>✓ Preparation of the full project documents</li> </ul>	30K	
<b>PHASE 2: Implementation of component 1- Regional</b>	A.1 Deployment of experts at ACMAD	Salary of 2 experts at ACMAD	
	A.2 Support to and of provision of technical tools for analysis and prediction of climate		150K
	A.3 Training of ACMAD staff by NRC deployments	Part of ToR of deployment	

		s		
	B.1 Development of training manual (for NMHSs staff)		10K	
	B.2 Improvement of ACMAD website and creation of web-platform for data sharing and products dissemination (GIS based) including development of a more effective communication strategy		30K	
<b>Implementation of component 2 - National (assuming 3 pilot countries)</b>	C.1 Deployment of experts at NMHSs (by NRC)	Salary of experts in Dakar, Burkina Faso		
	C.2 Development of baselines based on capacity assessments at national level		30K (10K/country)	
	C.3 Training to enhance NMHS capacity in downscaling, data management, forecasting		60K (20K/country)	
	C.4 Improvement of data management and information dissemination in pilot countries		60K (20K/country)	
	C.5 Media training		30K	
	D.1 Mapping of key stakeholders and institutions (providers and users) D.2 Establishment of partnerships at national level to support implementation D.3 Development/Finalization of national plans of action in pilot countries	ongoing		
	D.4 Institutional capacity development		30K (10K/country)	
	E.1 Needs assessment for observation networks enhancement to define the design, number of stations and location		10K	
	E.2 Rehabilitation of observation networks in pilot countries (and pilot testing with 3D printing stations)		TBD	
	F.1 Establishment of users-providers engagement mechanisms through National Climate Outlook Forums (NCOFs), National Climate Forums (NCFs) in selected countries F.2 Integration of climate services into decision making processes in climate-sensitive sectors, through Climate Services Users Forums (CSUFs) at the NCOFs/NCFs		60K (20K/country)-  NOTE: co-funding with CLW will be explored	
	F.3 Pilot projects in selected countries to demonstrate the value of climate services in climate-sensitive sectors, identified through CSUFs		60K (20K/country)	
	<b>PHASE 3: Implementation</b>	M&E (mid-term and final evaluation by NRC) Collection of lessons learnt from the project	30K	

<b>on of component 3</b>	Development of guidelines and training tools		20K
	Training of trainers for staff of regional centers and national staff		60K
<b>TOTAL</b>	<b>Total NRC:</b> 60K \$ + salaries of 4 experts  <b>Total USAID:</b> 1M \$ (610K and the rest will be allocated to enhance the observation networks in the pilot countries using 3-D printed AWS stations)		

**Annex:**

Human capacity needs assessment of the African Centre of Meteorological Applications for Development (ACMAD) for effective climate services frameworks in the Sahel (2015), NRC, WMO, GFCS