

AFRICAN DEVELOPMENT BANK



MULTINATIONAL

SATELLITE AND WEATHER INFORMATION FOR DISASTER RESILIENCE IN AFRICA (SAWIDRA)

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CDSF/OSAN

November 2016

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LIST OF ACRONYMS

ACMAD	African Center of Meteorological Applications for Development
ACP-EU	African Caribbean and Pacific – European Union
AGEOS	
AGRHYMET	Centre Régionale de Formation et d’Application en Agro météorologie et Hydrologie Opérationnelle
AUC	African Union Commission
CEMAC	Economic and Monetary Community of Central Africa
DRR	Disaster Risk Reduction
ECCAS	Economic Community of Central African States
GPC	Global Producing Centers
ICPAC	Intergovernmental Authority on Development (IGAD) Climate Prediction and Applications Centre
IFRC	International Federation of the Red Cross and Red Crescent
ISACIP	Institutional Support for African Climate Institutions Project
NMHSs	National Meteorological and Hydrological Services
NWP	Numerical Weather Prediction
RARS	Regional Advanced Retransmission System
RCC	Regional Climate Centres
RSMC	Regional Specialized Meteorological Centers
SADC-CSC	Southern Africa Development Community- Climate Services Centre
SANSA	South African National Space Agency
UNISDR	United Nations International Strategy for Disaster Reduction
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
WMO	World Meteorological Organization
WRF	Weather Research and Forecasting Model

EXECUTIVE SUMMARY

1. The four priority areas of the World Meteorological Organization Global Framework for Climate Services are Health, Water Resources, Food and Agriculture and Disaster Risk Reduction. The African Strategy on Disaster Risk Reduction is currently in its implementation phase. The Integrated African Strategy on Meteorology (Weather and climate Services) recognizes that causes of disasters, displacement, and migration, are manifold, however, meteorological-related disasters such as floods, droughts and storms which climate change can influence both in frequency and intensity, are responsible for most displacements in Africa.

2. The African, Caribbean and Pacific - European Union Programme (ACP-EU) on Disaster Risk Reduction seeks to strengthen the resilience of the sub-Saharan African regions, countries and communities to the impacts of natural disasters, including the potential impacts of climate change, in order to reduce poverty and promote sustainable development. The Programme's purpose is to provide the analytical basis and accelerate the effective implementation of an African comprehensive disaster risk reduction and risk management (DRR and DRM) framework. Five expected result areas were identified.

3. This project responds to results area number three of the ACP-EU programme which focuses on improving the core capacities of the specialized national and regional climate centers (RCCs) to meet the needs of DRM agencies and socio-economic sectors for effective use of weather and climate services and community-focused and real-time early warning systems (EWS). This component is to be implemented through the African Development Bank by the ClimDev Africa Special Fund (CDSF). Under this result area, five sub-projects will be supported with one being a continental-wide project and the other four being regional projects for West, Central, Southern and East African regions.

4. This project is the continental-wide project and is on Severe Weather forecasting in support of Disaster Resilience in Africa. The project will be implemented by the African Centre of Meteorological Applications for Development (ACMAD). The intention is to ultimately have the National Meteorological and Hydrological Services run high-resolution Limited Area models at four-kilometer (4 km) spatial resolution over their respective countries with minimum computing facilities. The plan is to have ACMAD run the Weather Research and Forecast (WRF) model at 10 km horizontal resolution and generate initial/boundary conditions for the Regional Climate Centers and NMHSs to use in driving their relatively higher resolution model. Both in-situ and remotely sensed data would be assimilated into the continental model. A network of four Regional Advanced Retransmission Service (RARS) receiving stations would be installed in Africa. RARS is for receiving data from polar orbiting satellites. The satellite data received from the RARS system would be included in data to be assimilated into the continental model.

1. BACKGROUND

1.1. Origin and Context of the Project

1.1.1. The European Commission approved the African, Caribbean and Pacific- European Union (ACP-EU) Programme on Disaster Risk Reduction in November 2013. The programme, entitled “*Building Resilience to Natural Hazards in Sub-Saharan African Regions, Countries and Communities*” aims to provide the analytical basis and accelerate the effective implementation of an African comprehensive disaster risk reduction and risk management (DRR and DRM) framework.

1.1.2. The development aim of the Programme is to strengthen the resilience of the sub-Saharan African regions, countries and communities to the impacts of natural disasters, including the potential impacts of climate change, in order to reduce poverty and promote sustainable development. The five result areas of the programme are expected to be implemented through four institutions: the African Union Commission (AUC), the UN Office for Disaster Risk Reduction (UNISDR), the Global Facility for Disaster Reduction and Recovery (GFDRR) and the African Development Bank (AfDB). AfDB implements the programme through ClimDev-Africa Special Fund, created in the framework of the ClimDev Africa initiative that aims specifically at building in Africa a solid response to climate change.

1.1.3. The result area number three of this ACP-EU Programme aims to improve the core capacities of the specialized national and regional climate centres (RCCs) to meet the needs of DRM agencies and socio-economic sectors for effective use of weather and climate services and community-focused and real-time early warning systems (EWS). The specific aim of this result is to improve the forecast and product production capacity of regional climate centers and national meteorological services in order to allow them to provide the proper inputs to the DRM agencies for their issuing of early warnings.

1.1.4. During a workshop in June 2014 attended by the AfDB, the AUC, EU Commission, World Meteorological Organization (WMO) and EUMETSAT, African Stakeholders agreed to an approach to implement the result area three which would be composed of:

- A continental project to create and/or strengthen specialized capacities (infrastructure and know-how) in the area of mid-range weather forecasting that will benefit all African regions and countries, and to coordinate the activities with continental and regional stakeholders.
- Four regional projects (one in each sub-Saharan African region, eastern, western, central and southern Africa) to improve regional and national capacities in using improved weather prediction model and use the output of these models as input into early warning systems, in close cooperation with disaster risk management agencies.

1.1.5. This specific project proposal therefore relates to the continental project. It will have a continental coverage and provide the regional centers and national meteorological centers with data and guidance in order to meet the needs of the ACP-EU Programme on Disaster Risk Reduction. It will also meet the needs of relevant organizations that have a continental scope.

1.1.6. The continental component of the program will be implemented by ACMAD in close collaboration and cooperation with the sub-regional centers. ACMAD has a framework for engagement with the sub-regional centers of ICPAC, AGRHYMET, and SADC-CSC. Additionally, ACMAD’s activities enhance rather than duplicate the work of the Global Producing Centers (GPCs). It delivers to the African users of climate data and information the following specific advantages:

- ACMAD runs a regional model with data assimilation (of both polar orbiting satellite data and in situ data) over the continent as against a global model over the whole globe by the GPC. The regional model therefore adds value to the global model. This data assimilation is necessary for Numerical Weather Prediction (NWP) models at both the regional level (RCC) and national

levels (NHMS). ACMAD aims to assimilate both in situ and satellite data.

- The ACMAD approach will enable RCCs (and countries) run their models at explicit convection scales (same as convective permitting scales) without using much computing power, as would have been the case if the RCCs (and countries) are to obtain their boundary conditions from the GPCs. This is because they will not need nested modeling if they use the ACMAD product.
- Enable access to polar orbiting satellite data to be assimilated over Africa is new
- The regional model to be used by ACMAD will have parameters tuned for Africa and can eventually have weather systems over Africa incorporated.
- The regional model to be used in ACMAD uses data from the GPCs so the ACMAD model is adding value.

1.1.7. In this project ACMAD intends to capitalize on its existing capacity and experience in running the regional model on experimental basis on a Linux cluster. It also builds on its mandate to serve all the 54 countries on the continent. In addition to relying on its own staff, it also uses staff of National Meteorological and Hydrological Services (NMHSs) from the countries on rotational basis for specific tasks. The “system” which was envisaged for ACMAD was to maintain working relationship with RCCs and NMHSs especially on weather prediction. No RCC is currently doing weather prediction apart from ACMAD on the continent.

1.2. Sector Priorities

This project responds to the African Integrated Strategy on Meteorology (weather and climate services). Africa currently relies on Weather Prediction model provided by international actors and needs to develop capacity for modeling in which the weather systems on the continent have been incorporated. At the national and sub-national level, application modelers such as hydrology, agriculture, air quality and disaster risk management need high-resolution atmospheric data as input for their activities. This project will support the availability of such high resolution data. This project also responds to the African Strategy on Disaster Risk Reduction which ultimately is aimed at reducing loss of lives and damage to infrastructure. In the Bank, the project is consistent with the Bank’s Climate Change Action Plan (CCAP) which recognizes investments in climate information and data management services as essential for building resilience against the impacts of climate change in Africa.

1.3. Problem Definition

1.3.1. Hydro-meteorological natural hazards form a majority of the hazards that impact most socio-economic sectors in Africa. The hazards on the weather time scale are termed severe weather or extreme weather events. These High-Impact Weather events have the potential to cause damage, serious social disruption, or loss of life. According to the Intergovernmental Panel on Climate Change (IPCC), extreme events such as floods, heat waves, dust and sand storms, strong winds are likely to increase in frequency and intensity over Africa under a changing climate. Thus, there is need to have capacity to predict them and to issue effective early warnings. This need would require timely and accurate weather forecasts to be used as input for Early Warnings, improved coordination between continental/regional centers, National Meteorological and Hydrological Services (NMHSs) and DRM agencies to ensure information sharing and early warnings combined with early action.

The main challenges can be categorized into four main areas:

- currently, apart from ACMAD, none of the other four RCCs (AGRHYMET, ICPAC, SADC-CSC and Central Africa RCC) does operational weather forecasting,
- none of the climate institutions, including ACMAD runs its own operational NWP model,
- most NMHSs do not have the computing resources (even if they have the human resource) to run their own NWP models at the desired spatial resolution and
- the model products currently used by African forecasters are from models developed in the temperate regions and do not have most of the African weather systems.

1.3.2. The objective therefore is to have RCCs/NMHSs obtain their boundary and initial conditions from a 10km horizontal resolution continental model running at ACMAD to enable them run NWP models at convective permitting (~ 4km horizontal resolution) scales with reasonable computing resources over their regions and countries respectively. They will assimilate data appropriately.

1.4. Beneficiaries and Stakeholders

1.4.1. The direct beneficiaries of the overall project are:

- ACMAD – Continental Center
- The Regional Climate Centers (AGRHYMET, ICPAC, SADC-CSC and the new Climate Centre in Central Africa)
- The Regional Specialized Meteorological Centre (Kenyan Meteorological Service, South African Weather Service, Agence national pour la Météorologie et l'Aviation Civil in Senegal)
- The RARS hosting site (SANSA, AGEOS, ICPAC and ACMAD)
- The Regional Economic Communities
- Continental wide institutions with mandate related to Disaster Resilience (AUC, UNISDR, International Federation of Red-Cross and Red Crescent, etc.)

1.4.2. The ultimate beneficiaries of the project are the local population or general public especially the vulnerable communities. The immediate target group of the project are the national and regional Disaster Management agencies although sectors such as agriculture, water resources and health, among others could also benefit. Thus, with improved early warning coupled with early action by all the actors, there could be reduced economic losses as well as human life that would ensure a climate resilient continent.

1.4.3. The main recipient of this continental project is ACMAD with the regional specialized centers, the NMHSs, the Regional Economic Commissions (RECs) and the AUC being stakeholders. Collaboration among all stakeholders could be improved by setting up a formal structure

1.5. Justification for CDSF Support

1.5.1. The Severe Weather Forecast Demonstration Project that was started in 2007 by WMO over Africa demonstrated the need to improve weather forecasting tools (including Numerical Weather Prediction) and communication on the continent. The demonstration covered Eastern and Southern Africa.

1.5.2. The Numerical Weather Prediction (NWP) models have been shown to perform better if observational data is assimilated into the models. Due to the sparse nature of in-situ data in most parts of the world, satellite data is currently being assimilated into models as well. The advanced NWP centers obtain polar orbiting satellite data through the Regional Advanced Retransmission Systems (RARS). RARS is a network of polar orbiting satellite reception stations that get the necessary data in real-time and redistribute them to the NWP centers for assimilation into the forecasting models. The RARS system complements the existing geostationary satellite data already in use by the meteorological community for now casting (up to a few hours). Weather forecasters in Africa already have access to geostationary satellite data through projects such as Preparation for the Use of Meteosat Second Generation in Africa (PUMA), African Monitoring of the Environment for Sustainable Development (AMESD) and currently, Monitoring for the Environment and Security in Africa (MESA).

1.5.3. The CDSF funding will support the following specific areas of investments:

- a network of four RARS stations proposed to provide Africa with state-of-the-art polar orbiting satellite data that will be assimilated into NWP models. This will improve weather forecasting up to a few days;
- setting up of Numerical Modeling capabilities in ACMAD to provide output that will be used by the RCCs/NMHS;
- a framework for ACMAD to liaise with the AUC to ensure dialogue between DRM agencies and the RCCs/NMHSs at the appropriate level in the framework of the Africa regional Strategy for Disaster Risk Reduction implementation plan;
- ACMAD generate products that could be used by the AUC for decision-making (e.g. policy and strategy). Both parties working together would do the product formulation; and
- a framework to enable the RCCs work with the NMHS to generate value added products relevant for their regions and feedback to ACMAD to ensure ACMAD provides demand-driven products.

1.5.4. On the NWP models, ACMAD intends to start with AGRHYMET and the National Meteorological Service of Niger to demonstrate the concept. Currently, the National Meteorological Department has approached ACMAD to help it run an NWP model over Niger. The model will be located at ACMAD for now. ACMAD will have AGRHYMET in its plan and implement the plan when this ACP-EU project starts in order to demonstrate the concept. ACMAD will also help AGRHYMET become a WMO-designated RCC.

1.5.5. The RCCs on their part will create a framework to be used by the NMHSs to engage stakeholders (applications and universities) to work out suitable modalities at the national and sub national levels for the improvement of early warning systems and disaster resilience management strategies. The WMO Severe Weather Forecast Demonstration Programme procedures would be leveraged upon in regions where they already exist (Eastern and Southern Africa) and introduced in regions where they are non-existent (West and Central Africa). ACMAD will collaborate with the Regional Specialized Meteorological Centers in Dakar, Senegal (RSMCD) for West and Central Africa.

1.5.6. The RCCs together with ACMAD would build capacity in relevant skills required at the national and sub-national levels. Relevant expertise from other institutions such as Universities will be drawn upon as well. For example, data assimilation techniques, post-processing and analytical skills, interpretation of model output among others. Thus, the RCCs will ensure end-to-end systems are run at the sub-regional and national levels. The regional centers will therefore be able to connect to applications on the ground, and connect back up to ACMAD with regional analyses of weather (and climate in the case of coping strategies to climate variability and adaptation measures to climate change where appropriate) interwoven with applications to show socio-economic contributions for example. Given the above, the project is hence consistent with mainly result areas 1 and 2 of CDSF.

2. THE PROJECT

2.1 Project Goal and Objectives

The ultimate goal of the project as stated in result area number three of the ACP-EU Programme on Disaster Risk Reduction, is to “improve core capacities of the specialized national and Regional Climate Centers (RCCs), to meet the needs of DRM agencies and socio-economic sectors for effective use of weather and climate services and community-focused and real-time early warning systems (EWS)”. This goal will be achieved through the following objectives.

- To ensure operational access to polar orbiting meteorological satellite data through the establishment of a Regional Advanced Retransmission Service network in Africa,
- To establish operational NWP capabilities at ACMAD and to improve NWP capability at RCCs, including the assimilation of both in-situ and polar orbiting satellite data into models.

- To build at continental and regional level the capacity in the creation of user driven NWP-DRR products to produce operational NWP outputs at continental level and support NWP operations at Regional level.

2.2 Impacts

2.2.1 The impact of the project is “resilience to natural hazards in sub-Saharan African countries and communities is improved” and this will result in a reduction in the loss of lives and damage property, investments and to infrastructure. The associated impacts include saving money on disaster response and building stronger synergy among stakeholders.

2.2.2 The outcomes of the project are:

- ACMAD, Continental level Weather Prediction capacity is improved with NWP products,
- Access to meteorological and environmental Polar Orbiting Satellites in continental land of Africa,
- Improved weather information is made available by ACMAD to disaster related continental institutions (e.g. IFRC, UNOCHA, AUC), Regional Climate Centres and NHMSs to fulfil their mandate.

2.2.3 These outcomes will lead to improved human and infrastructural capacity in NWP-DRR interface, illustration of the benefit of proactive measures, among others.

2.3 Outputs

The expected project output by components that will result from implementing the project activities are specified in this section.

Component One: Establishment of RARS Africa Network

The key outputs to be realized in this component are:

- Output 1.1. RARS stations installed and operational.
- Output 1.2. Four RARS stations are connected in a network and data are disseminated internationally.

Component Two: Enhancement of NWP Capabilities at ACMAD

Four outputs are expected from this component

- Output 2.1. Continental 10 km resolution NWP WRF model operational at ACMAD
- Output 2.2. Relevant and existing in-situ data at continental and regional level made accessible.
- Output 2.3. Data Assimilation (of in-situ and satellite data) into NWP models is operational at continental centre (ACMAD)
- Output 2.4. ACMAD products received by users (Initial/Boundary conditions and Model output)

Component Three: Establishment and interaction of NWP community with DRR/DRM

This component is associated with three outputs as follows:

- Output 3.1. ACMAD DRR related NWP products made accessible to a community of NMHSs and African RCCs
- Output 3.2. NWP derived products are used by continental DRR community
- Output 3.3. Awareness in NWP-DRR interaction created in Africa

Component Four: Project Coordination

This component has to do with management and administration

- Output 4.1 Project Management and Coordination established

- Output 4.2 Implementation and sustainability plans established
- Output 4.3 Financial and Procurement Procedures established
- Output 4.4 Monitoring and Evaluation and Quality Management Systems established

2.4 Activities

2.4.1 The major activities can be categorized into the following four major components:

Component.	Output	Activities	
1 - Establishment of RARS Africa Network	Output 1.1. RARS stations installed and operational	1.1.1. Recruitment of an ACMAD IT/RARS Expert	
		1.1.2. Recruitment of an International RARS Expert (Technical Assistance)	
		1.1.3. Design study (system architecture, site survey, selection of satellite instruments, data flow estimation, telecommunication aspects and testing, detailed procurement plan)	
		1.1.4. Preparation of the hosting site infrastructure and establishing MoU with hosting sites (sharing of responsibilities, procurement approach, ownership, sustainability)	
		1.1.5. Training of staff for the management, operation, SW and maintenance of RARS infrastructure	
		1.1.6. Procurement and installation of the RARS infrastructure (including warranty and maintenance service) including preparation of procurement (4 RARS antenna, planning. Coordination and monitoring tool, etc.)	
		1.1.7. Operation of the RARS components (inc. management and technical coordination of the operations of the RARS network)	
		1.1.8. RARS station maintenance for 2 years after installation	
	Output 1.2 Four RARS stations are connected in a network and data are disseminated internationally	1.2.1. Establishment of the appropriate communication network/channel to ensure data transfer between the stations, the processing centres (ACMAD and RCCs) and GTS/WIS	
		1.2.2 ACMAD RARS station operation	
		1.2.2. On-site inspection and coordination meeting with hosting sites	
	2 – Enhancement of NWP Capabilities at ACMAD	Output 2.1. Continental 10 km res NWP WRF model operational at ACMAD	2.1.1. Recruitment of NWP forecaster
			2.1.2 Recruitment of NWP Forecast Assistant
2.1.2. Recruitment of NWP modeller			
2.1.3. Recruitment of System Engineer/IT specialist			
2.1.4. Recruitment of International NWP Expert (Technical Assistant)			
2.1.5. Procurement and installation of hardware and software infrastructure (HPC system and customized software)			
2.1.7. Maintenance and operation of the equipment (including provision of electricity, cooling)			
2.1.8. Procurement of NWP related telecommunication for data transfer between ACMAD and global centres			
Output 2.2. Relevant and existing in-situ data at continental and regional level made accessible		2.2.1. Procurement of NWP related telecommunication channel for data transfer between ACMAD and NMHSs	
Output 2.3. Data Assimilation (of in-situ and satellite data) into NWP models is operational at continental centre (ACMAD)		2.3.1 Customized SW procurement	
		2.3.2. Training specialised staff (Training of trainers) for the operation and maintenance of the infrastructure continental model	
Output 2.4. ACMAD products received and used by users (Initial/Boundary conditions and Model output)		2.4.1. ACMAD produces and delivers continental 10km NWP outputs as input (initial/boundary conditions) to the regional models and other weather products for use by continental users	
		2.4.2. Organize training of NWP (ACMAD and RCC) specialised staff in assimilation of in-situ and polar orbiting satellite data	

3 – <i>Establishment and interaction of NWP Community of experts with DRR/DRM</i>	Output 3.1. ACMAD DRR related NWP products made accessible to a community of NMHSs and African RCCs	3.1.1. Organize two NWP Forum
		3.1.2. Organize placement of 12 people for 6 months at ACMAD
	Output 3.2. NWP derived products are used by continental DRR community	3.2.1. Organize product harmonization meetings with stakeholders
		3.2.2. Organize value-added training for DRR specialists
	Output 3.3. Awareness in NWP-DRR interaction created in Africa	3.3.1. Invite DRR specialists to Climate Outlook Forum
		3.3.2. ACMAD coordinates (a working group) with the RCCs and other relevant institutions for establishing the best practice with respect to NWP – NWP and DRR interface
4 - Project Coordination	Output 4.1. Project Management and Coordination Established	4.1.1. Identify and recruit project staff
		4.1.2. Organize orientation on AfDB rules and Project Management Cycle
	Output 4.2. Implementation and sustainability plans established	4.2.1 Develop and implement implementation plan
		4.2.2 Develop and implement Service Development plan
		4.2.3 Develop and implement risk register
		4.2.4 Develop sustainability plan
	Output 4.3. Financial and Procurement Procedures established	4.3.1 Implement procurement and financial procedures for the project
	Output 4.4. Monitoring and Evaluation and Quality Management Systems established	4.4.1 Prepare quarterly, annual, Mid-Term progress and end of project report
		4.4.2 Prepare M&E reports
		4.4.3 Implement QMS tools
		4.4.4 Implement communication tools

2.4.2 The activities of component 1 will be undertaken with EUMETSAT as partners. Four sites in Libreville, Gabon; Pretoria, South Africa; Nairobi, Kenya and Niamey, Niger have been identified to host the RARS receiving system. ACMAD is to sign a Memorandum of Understanding (MoU) with the respective institutions after the said institutions have formally expressed interest to host the Satellite Receiving systems. The MoU will detail the various arrangements to be followed in the project implementation. The main outcome of this component is that ACMAD will be the capacity to and actually receives the Polar orbiting satellite data for data assimilation, and, arrangements for management of the satellite data established and sustainability plan for the systems after the project also established.

2.4.3 The activities of component 2 will leverage on some equipment and software acquired under the Institutional Support for African Climate Institutions Project (ISACIP). More equipment and software will be acquired from this current project (SAWIDRA) to complement the existing equipment. Arrangements will be made with Global Producing Centres (GPCs) to obtain needed data to be used as boundary conditions for the ACMAD continental model. In this regard, the European Centre for Medium Range Weather Forecast (ECMWF) with whom ACMAD already has an MoU, has been verbally informed of an impending additional request for data outside of the existing MoU.

2.4.4 Special communications channels (i.e. dedicated communication lines) will be established purposely for data transmission between ACMAD and the GPCs and ACMAD and the sub-regional centres (and possibly countries) for which ACMAD will generate boundary condition data for their models. The main outcome of this component is that the sub regional centres will have the capacity and actually receive model boundary condition data from ACMAD, appropriate data received at ACMAD for data assimilation and appropriate products generated at ACMAD communicated by appropriate channels.

2.4.5 The activities in component 3 will be implemented taking advantage of existing DRR structures. The DRR community already has functional structures at continental level under the auspices of the African Union Commission, regional levels under the auspices of regional economic communities and at national levels under national governments. An NWP/DRR interface will be established appropriately by linking up with the existing structures of the DRR community in the continent. The main outcome of this component is that the DRR community will be receiving the right type of information at the right time, utilizing the information and providing appropriate feedback to the NWP community.

2.4.6 The activities of Component 4 will mainly focus on projection coordination and management. A Coordination Unit will be set up at ACMAD before the project is approved by the Bank Board. The Project Manager, Finance and Administration Officer, Monitoring and Evaluation Expert, Communication Specialist, Procurement Officer will be the key staff. Technical Assistants for both NWP and RARS will be recruited for their respective components among others. The main outcome of component 4 will be the successful implementation of the project according to the project implementation plan.

2.5 Risks

The project has the following risks:

Risk	Mitigation
(a) Target users (DRR, NMHS etc.) not incorporating the information in decision making systems	(a) Engage user community in early stage of the project
(b) Inadequate infrastructural and human capacity	(b) Strengthen capacity through procurement of appropriate infrastructure and recruitment of required experts and link with International Partners as well as training of the staff.
(c) Possibility of information not being used	(c) Engage DRR community to ensure production of relevant products
(d) Lack of local capacity to operate and maintain the station	(d) Training of local staff in participating institutions.
(e) Poor access to boundary and initial conditions	(e) Signed agreements with Global Producing Centres
(f) Lack of communication channel	(f) Dedicated communication channel with clients established
(g) Inappropriate NWP products for DRR community	(g) Engage DRR community in the design of the products
(h) Lack of adequate participation in terms of both numbers and the value to be gained from the interaction	(h) Timely preparation and invitation to the forum, clear target group,
(i) Lack of good internet speed and connectivity	(i) Provision of dedicated communication line (500MB/hr)

2.6 Cost and Financing Plan/Budget Estimates

The project total cost is estimated at Euro 6 million, net of taxes and duties, including contingency of 5.3 %. The Bank will finance Euro 5.79 million and ACMAD will contribute Euro 210,000 in kind to cover office rent and utilities. Table 2.6 to 2.8 below summarize the project cost by component, by source of finance and by category of expenditure.

Table 2.6. Project cost estimates by components

Component	Estimate (Euro)	% of Total
1 - Establishment of RARS Africa Network	€2,593,000.00	43.3
2 - Enhancement of NWP Capabilities at ACMAD	€1,676,000.00	27.9
3 - Establishment and interaction of NWP Community of experts with DRR/DRM	€595,600.00	9.9
4 - Project coordination	€710,400.00	12.0
5 - Contingency	€290,000.00	5.0
Total	€ 6,000,000.00	100.0

Table 2.7 Project cost estimates by Source of Financing

Financing Source	Amount (€)	% of Total
CDSF	5,790,000.00	96.5
ACMAD (in kind contribution)	210,000.00	3.5
Total	6,000,000	100.0

Table 2.8 Project cost estimates by category of Expenditure

Category	Estimate	% of Total
Total technical expertise	€1,031,400.00	17.2
Total of goods	€2,260,000.00	37.7
Total of services	€1,888,400.00	31.5
Total of Operating costs	€530,200.00	8.8
Contingency	€290,000.00	4.8
Total	€6,000,000.00	100.0

The cost estimates are net of taxes and duties. The details of the project cost is in Annex VI.

3. IMPLEMENTATION

3.1. Recipient

3.1.1 The Conference of Ministers of the United Nations Economic Commission for Africa (UNECA) and the World Meteorological Organization (WMO) created the African Centre of Meteorological Applications for Development (ACMAD) in 1987 for the purpose of improving the understanding of atmospheric and climatic processes, providing a meteorological watch and early warning system, promoting the training of African Scientists, identifying and solving urgent regional climatic problems and contributing to strengthening capabilities of national meteorological services. It started operations in 1992 in Niamey, Niger. It has a mandate over the whole of Africa.

3.1.2 The vision of ACMAD is making Weather, Climate and Environment resources for Sustainable Development.

3.1.3 The mission of ACMAD is the preparation of weather and climate information and products, with a view to promoting sustainable development of Africa in agricultural production and food security, integrated water resources management, public health, new and renewable energy sources, public safety and natural disaster risk mitigation and environmental conservation.

3.1.4 ACMAD is also involved in the Monitoring of Environment and Security in Africa (MESA) Project with AGRHYMET, ICPAC, SADC-CSC, and University of Nairobi in Kenya and University of Cheikh Anta Diop in Dakar, Senegal. It will support the implementation of this continental programme using its existing network of experts and institutions in the continent.

3.1.5 ACMAD is also coordinating the African Development Bank funded Institutional Support for African Climate Institutions Project (ISACIP) that involves ACMAD, Centre Regional de Formation et d'Application en Agrometeorologie et Hydrologie Operationnelle (AGRHYMET), Intergovernmental Authority on Development (IGAD) Climate Prediction and Application Centre (ICPAC), Southern Africa Development Community- Climate Services Centre (SADC-CSC). ACMAD acquired computing resources for the Climate Department and is currently in the process of acquiring a High Performance Computer for the Weather Watch and Prediction Department all under the ISACIP Project. Thus, in terms of materials ACMAD has foundation from implementing the ISACIP Project but will definitely augment it with the current project.

3.1.6 ACMAD is currently constructing a new Headquarters building with seed money from the AfDB under the ISACIP project. The building includes an administrative block, Technical block, Information and Technology block, among others. More information on ACMAD is in Annex I.

3.2. Project Organization and Institutional Analysis

3.2.1 The African Center of Meteorological Applications for Development (ACMAD) will be the executing and implementing Agency of the proposed project. ACMAD has the technical and managerial ability to implement this project as demonstrated by the successful implementation of the ISACIP and the Monitoring of the Environment and Security in Africa (MESA) Projects. The involvement of two reputable Technical Assistants (one each for RARS and NWP) (TA) and Short-Term Experts (STE) will reinforce the capability of ACMAD.

3.2.2 The mandate of ACMAD makes it suitable to implement this project. A Project Coordinator who will be appointed based on his or her experience of Bank's financed projects will head the ACMAD Project Coordination Unit. To ensure effective coordination of planning of activities, a Project Steering Committee (PSC) will be constituted as an Overseer of Project Implementation. The Project SC will comprise representatives from the stakeholders; the four RCCs, DRR Community, AUC, and AfDB.

The PSC is responsible for making management decisions for the project. In particular, when the Project Manager requires guidance. The PSC plays a critical role in Project Monitoring and Evaluation by quality assuring these processes and products, and using evaluation for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition it approves the appointment and responsibility of the Project manager and any delegation of its project assurance responsibility. Based on the approved Annual Work Plan, the PSC can also consider and approve the quarterly plans (if applicable) and also approve any essential deviation from the original plan

3.2.3 A dedicated Project Coordination Unit will be set up before the project approval by the Bank. The PIU will work under the guidance and supervision of the Project Manager will implement the Project activities on a day-to-day basis. A Project Assistant, a Financial and Administrative Officer, a Procurement Officer, a Monitoring and Evaluation Expert, an Information Technology/RARS Expert, Systems Engineer/IT Specialist will assist the Project Manager. Technical assistants will also be recruited to provide backstopping to the implementation of various technical activity work streams. These include RARS Expert, NWP Expert, NWP Forecaster, NWP Forecast Assistant, NWP Modeler and Systems Engineer.

3.2.4 The role of the TAs and STEs include the design, installation, operation and maintenance of the RARS and NWP systems. The TA/STE would have to ensure that there is capacity in ACMAD to maintain the system even after the project. Thus, TA/STE supports the IT staff member who would have been trained on the system earlier. The Bank's offices on the continent shall assist the PCU.

3.2.5 Each of the regional institutions shall appoint a Focal Person who will be responsible for coordinating, monitoring and controlling of all activities in their institution. The Focal Person shall report directly to the Project Coordinator at ACMAD.

3.2.6 Implementation of the project would be in collaboration with the Disaster Risk Management platforms at the continental, regional and national scale, focal persons and coordination units in each region, research institutions engaged in providing climate information, selected NGO leaders, and vulnerable populations through their constituted networks.

3.3. Project Implementation Schedule (Outcome, Activity, Activity Indicator, Time Frame)

This project will be implemented over a period of three years, starting from latter part of 2016 to end of 2019. The project activities will be carried out based on the four project components set out in the logical framework (ANNEX II: **Project Logical Framework**. The project implementation plan can be found in Annex V.

3.4 Procurement Arrangements

The project executing agency is ACMAD. It has the status of an international institution, enjoys a managerial autonomy and has a Board of Directors. All procurement of goods, works and services to be performed under this project will be carried out in accordance with the new Bank's procurement policy approved on October 14th, 2015. This policy allows for a greater use of the borrower's procurement system. However, the procurement procedures of ACMAD could not be evaluated by the Bank and therefore, the procurement of goods and services contemplated under this project will be done in accordance with the Bank's procedures and methods, using the appropriate standard bidding documents of this organization. Most of the problems and risks related to the procurement component of the project were identified and corrective measures and recommendations proposed in the annexes of the assessment report of the project. The procurement procedures as well as the assessment of the capacity of the implementing agency are detailed in Annex IV of this evaluation report.

3.5 Disbursement Arrangement and Expenditure Schedule

The Recipient would open a special account in the name of the project with a commercial bank acceptable to the Bank to receive funds. Disbursement will be done in accordance with the Bank's disbursement rules and regulations. The opening of a special account will be a condition precedent to first disbursement. With regards to the special accounts, disbursements will be in the form of revolving funds, based on an annual work program approved beforehand by the Bank. The Bank at the request of the recipient will replenish these accounts, after justification of at least 50% of the previous payment. Each request for disbursement of the revolving funds will be submitted to the Bank for approval, and will cover a maximum period of six months of activities. Settlement of expenses relating to the services of consultants, contractors, NGOs, partner organizations and suppliers will be made by direct payment, in conformity with the relevant Bank regulations. The direct payment method will also be employed for disbursements involving specialized institutions and bodies recruited on the basis of negotiated agreements.

3.6 Financial Management Capacity, Reporting and Auditing

A Project Finance and Administration Unit separate from ACMAD's Finance and Administration Department will manage the project accounts. The Unit will provide appropriate cost and financial accounting for the project and will organize budget monitoring through an integrated accounting system. In this regard, the Project will utilize a Financial and Accounting Management Manual developed during an earlier project, ISACIP funded by the Bank. The computerized Accounting and Financial Management System that would be used for the project will thus be based on the Manual. The Project's accounts will be subject to the usual public administration and Bank controls. Annual audits of financial accounts and biannual audits of procurements will be conducted to facilitate the preparation of the Project's balance sheet and ensure the proper implementation of procurement. Audit reports will be sent to the Bank no later than six months after the end of the audited fiscal year.

3.7 Project Supervision Plan

The project will be supervised twice a year by the Bank and technical experts that may be invited by the Bank to join supervision missions.

3.8 Project Monitoring

3.8.1 Monitoring and evaluation (M&E) of the project activities will be carried out as a regular management function by ACMAD and supported by the World Meteorological Organization (WMO) to ensure the products and services delivered by the project conform to acceptable international standards. ACMAD will be in charge of internal M&E while WMO oversees the external M&E.

3.8.2 The project's monitoring and evaluation (M&E) mechanism will be established in line with the project's organization and objectives.

3.8.3 To ensure an effective and optimal project development requires a functional monitoring and evaluation (M&E) system right from the start to the end of the project. The proposed project performance will be based on the level of achievement of the development goals in the project matrix. The M&E mechanism will serve to: (i) compile and manage information on the level of implementation of the different project outputs through a relational database, (ii) define a baseline situation for project impact monitoring requirements, and (iii) carry out mid-term and post-completion project impact assessments using the same methodology as was used in establishing the baseline situation.

3.8.4 The recipient shall provide quarterly progress reports to the Bank. Additionally, monitoring of the project will be done through the Bank's semi-annual supervision missions in accordance with the Bank's Operations Manual. A mid-term review will be undertaken during the second year of

implementation (in 2017) to identify any major constraints facing the project and provide the required corrective measures. The availability of timely and regular monitoring and evaluation systems and results will enhance the efficient management of the project. Support will be provided for a number of activities including: (i) assessment of the overall situation regarding the project; (ii) development of baselines and monitoring indicators; (iii) establishment of national monitoring and evaluation systems. The responsible Field Offices will also closely monitor the project.

Table 3.8.1 Table of Monitoring activities

Activity	Responsible Entity	Deadline
Approval of the Project Appraisal document	AfDB	15 th April 2016
Negotiation	ACMAD/AfDB	15 th May 2016
Grant Approval	AfDB	15 th July 2016
Project Launching	ACMAD/AfDB	15 th September 2016
Signing of contract	AfDB	
Mid Term Review	ACMAD/AfDB	15 th March 2018
Completion of activities	ACMAD	30 th September 2019
Borrower Completion	AfDB	30 th July 2019
Project Completion Report	ACMAD	15 th October 2019

4. PROJECT BENEFITS

The long-term benefit of the project is the reduction in the loss of lives and damage to property, investments and infrastructure. The incorporation of improved weather information into decision-making in the Disaster Risk Reduction sector if properly done will result in resilience of the community to natural hazards. The Disaster Risk Management systems will be strengthened as well.

The availability of the RARS data in Africa gives Africa more autonomy to access satellite data, capacity of Africa to produce their own forecast, use of the satellite data for use in other sectors

4.1. Effectiveness and efficiency, including value for money

4.1.1 Weather forecasting together with any strategic decisions made, enhance the resilience of the economy, society and environment to disasters.

Data assimilation of both in-situ and satellite data among other things will lead to an improvement in the weather forecast. A good forecast will allow appropriate decisions and actions to be taken to either reduce the impact of a disaster to either reduce or prevent loss and damage. The cost of prevention is always less than the cost of recovery if early and appropriate actions are taken following the early warning.

4.1.2 The project has structures to ensure the right products are generated (by engaging the DRM personnel right from the start of the project) and disseminated to the right people at the right time. Early action by the actors at the site of the disaster implies the service would have been both efficient (the right services have been delivered) and effective (the service achieved the desired results).

4.2. Sustainability

The sustainability of the project requires both financial and human resources. Targeted training and capacity building initiatives will be embarked upon to address the human resource issue. ACMAD regular staff will be responsible for maintaining and running the equipment. ACMAD will also apply its regular budgetary allocation to support the operation and maintenance of the equipment once the project is completed. This will be in addition to new projects that will build on the existing infrastructure acquired during the current project, identifying income-generating end-user products and services, among others.

5. LEGAL INSTRUMENT

5.1 The project will be financed by CDSF Grant through a Protocol of Agreement between the Bank and ACMAD.

5.2 Conditions associated with the Bank intervention:

5.2.1 Conditions precedent to entry into force: The Grant Protocol of Agreement will enter into force subject to its signature by the Bank and ACMAD

5.2.2 Conditions precedent to first disbursement. The obligation of the Bank to make the first disbursement of the Grant will be subject to the entry into force as provided above and the fulfilment by the Recipient, in form and substance satisfactory to the Bank, of the following condition: Provide evidence of opening a Special Account in a bank acceptable to the Bank for the deposit of the Grant proceeds.

6. CONCLUSION AND RECOMMENDATION

6.1. Conclusion

This specific project will have a continental coverage and provide the regional centers and national meteorological centers with data and guidance in order to meet the needs of result#3 of the ACP-EU Programme on Disaster Risk Reduction. It will also meet the needs of relevant organizations that have a continental scope. The long-term benefit of the project is the reduction in the loss of lives and damage to infrastructure. The incorporation of improved weather information into decision-making in the Disaster Risk Reduction sector if properly done will result in resilience of the community to natural hazards. The Disaster Risk Management systems will be strengthened as well.

6.2. Recommendation

Management recommends that the Board of Directors approve a grant not exceeding Euro 5.79 million from the resources of the CSDF Fund to ACMAD for the purposes and subject to the conditions stipulated in this report.

ANNEX I. Additional information about ACMAD

The Centre accomplishes its mission, through enhancing capacities of National Meteorological Services (NMSs), Universities and research institutes of the fifty-four (54) African states in the following domains: 1) weather forecasting and climate prediction; 2) monitoring of climate conditions and early warning (e.g. extreme events); 3) technology transfer (telecommunications, computing and rural communication); 4) applied research.

ACMAD's objectives are to:

- Enhance African countries /NMHS capability to understand, anticipate and manage the impacts of weather and climate fluctuations to support the achievement of sustainable development and poverty reduction,
- Provide advanced notice on potential weather and climate related hazards and information for the implementation of policies for vulnerability reduction and adaptation to climate variability and change,
- Improve forecasts and provide user oriented information & products,
- Consolidate weather/climate monitoring efforts in Africa to better understand the African weather systems (monsoon),
- Facilitate exchange of information, experience and expertise; and strength sustainable institutional mechanisms

ACMAD is currently the only meteorological institution (i.e. Regional Climate Centre) that hosts personnel (staff, scientists) from the National Meteorological and Hydrological Services, Universities, among others for capacity building and service provision in Weather Prediction. ACMAD runs a system that can call upon personnel from the NMHSs to carry out specific tasks at ACMAD for a given period. Thus, with regards to human resources ACMAD can deploy staff from the NMHSs in addition to its own existing staff and those to be recruited on the project.

ANNEX II: Project Logical Framework

Project name:		Satellite and Weather Information for Disaster Resilience in Africa - SAWIDRA				
Purpose of the project :		To strengthen continental capacities in making operationally available and used both polar orbiting meteorological satellite data and specialized NWP information by the continental and specialised Regional Climate Centres (RCCs) to meet their DRR/DRM mandate.				
RESULTS CHAIN		PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS/MITIGATION MEASURES
		Indicator (including CSI)	Baseline	Target		
IMPACT	Resilience to natural hazards in sub-Saharan countries and communities is improved	Percentage of loss of human life and livelihood, population displacement and destruction of infrastructure	Get African weather loss and damage report From National Disaster Management Institutions, Institutions, UN OCHA, UNISDR, IFRC etc)	Reduce by 20% the loss of human life and livelihood due to climate extreme induced hazard	Reports National Disaster Management Institutions, UN OCHA, UNISDR, IFRC, etc)	<p><u>Risk</u></p> <ul style="list-style-type: none"> Target users (DRR, NMHS etc) not incorporating the information in decision making systems <p><u>Mitigation Measure</u></p> <ul style="list-style-type: none"> Engage user community in early stage of the project
	Outcome 1 ACMAD continental level Weather Prediction capacity is improved with NWP products	Frequency of continental NWP Products generated to target users	Non existent	Generate daily NWP products in addition to existing products	Availability of products to target users (Regional Centres, NMHSs), on website, reports, etc	<p><u>Risks</u></p> <ul style="list-style-type: none"> Inadequate infrastructural and human capacity Possibility of information not being used Lack of local capacity to operate and maintain the station <p><u>Mitigation Measures</u></p> <ul style="list-style-type: none"> Strengthen capacity through procurement of appropriate infrastructure and recruitment of required experts and link with
OUTCOMES						

	<p>Outcome 2</p> <p>Access to meteorological and environmental Polar Orbiting Satellites in continental land of Africa is established</p> <p>Outcome 3</p> <p>Improved weather information is made available by ACMAD to disaster related continental institutions (e.g. IFRC, UNOCHA, AUC), Regional Centres and NHMSs to fulfil their mandate</p>	<p>Number of Ground-receiving stations installed and operational</p> <ul style="list-style-type: none"> Added value (number of NWP products used for DRR) information Number of institutions receiving information 	<p>No Ground-receiving station in continental land Africa</p> <ul style="list-style-type: none"> Zero (No local NWP information is included in current ACMAD weather information) Current number (30) of ACMAD clients 	<p>Network of Four stations (04) in continental land of Africa</p> <ul style="list-style-type: none"> 5 locally generated NWP enriched information is available Number of ACMAD clients increased 40 	<p>Site inspection of stations and data from stations are available</p> <ul style="list-style-type: none"> Project Report from ACMAD List of current 	<p>International Partners</p> <ul style="list-style-type: none"> Engage DRR community to ensure production of relevant products Training of local staff
OUTPUTS	<p>Component 1. Establishment of RARS Africa network</p> <p>Output 1.1. RARS stations are installed and operational</p>	<ul style="list-style-type: none"> Number of stations installed 	<ul style="list-style-type: none"> Zero 	<p>4</p>	<ul style="list-style-type: none"> On-site inspection 	<p>Risks</p> <ul style="list-style-type: none"> Lack of speedy connectivity Lack of access to boundary and initial conditions Lack of communication channels Inappropriate NWP products for DRR community Lack of adequate participation in terms of both numbers and the value to be gained from the interaction

<p>Output 1.2. Four RARS stations are connected in a network and data are disseminated internationally</p> <p>Component 2. Enhancement of NWP capabilities at ACMAD</p> <p>Output 2.1. Continental 10 km resolution NWP WRF model is operational at ACMAD</p>	<ul style="list-style-type: none"> Number of stations networked <p>Frequency of availability of ACMAD model output</p>	<p>0</p> <p>Non-existent (zero)</p>	<p>4</p> <p>2 per day (00, 12 UTC)</p>	<p>Progress report</p> <ul style="list-style-type: none"> Model log files Reports Models Outputs 	<p>Mitigation Measures</p> <ul style="list-style-type: none"> Provision of dedicated communication line (500MB/hr) Signed agreements with Global Producing Centres Dedicated communication channel with countries Engage DRR community in the design of the products <p>Timely preparation and invitation to the forum, clear target group, detailed Terms of Reference</p>
<p>Output 2.2. Access to relevant and existing in-situ data at continental and regional level is improved</p> <p>Output 2.3. Data Assimilation (of in-situ and satellite data) into NWP models is operational at continental centre (ACMAD).</p>	<ul style="list-style-type: none"> Number of additional station data to be obtained apart from GTS data Number of parameters assimilated 	<p>Non-existent</p> <p>Non-existent</p>	<p>50</p> <ul style="list-style-type: none"> ACMAD to assimilate 20 parameters from synoptic station and Polar orbiting Satellite. 	<ul style="list-style-type: none"> Formal agreement with countries and RCCs ACMAD Data archive Model Log file 	

<p>Output 2.4. ACMAD products are received by users (Initial/Boundary conditions and Model output)</p>	<ul style="list-style-type: none"> Number of target users receiving data 	<p>Non-existent</p>	<p>4 RCCs and 10 NMHSs</p>	<ul style="list-style-type: none"> Data transfer log Feedback from users 	
<p>Component 3. Establishment and interaction of NWP community with DRR</p> <p>Output 3.1. ACMAD DRR related NWP products are used by a community of NMHSs and African RCCs</p>	<p>Number of NMHSs/RCCs DRR relevant products in the community</p> <p>Number of people trained in the area of NWP-DRR interface</p>	<p>Non-existent (Zero)</p>	<p>4 products</p> <p>10 participants from ACMAD and 4 RCCs</p>	<p>Report of community events</p> <p>Training reports and evaluation</p>	
<p>Output 3.2. NWP derived products are used by continental DRR community</p>	<p>Number of derived products used (Early warning, service web portal)</p> <p>Number of DRR entities using of the products</p>	<p>Non-existent (Zero)</p>	<p>4 NWP for DRR products are identified</p> <p>2 continental DRR entities are using the products (e.g. AUC and IFRC)</p>	<p>Products generation reports</p> <p>Report from DRR entities</p>	
<p>Output 3.3. Awareness in NWP-DRR interaction is created in Africa</p>	<p>Number of participants at the forum</p>	<p>Non-existent (Zero)</p>	<p>60 participants for first forum and 100 participants for the second forum</p>	<p>Forum reports</p>	

ACTIVITIES	<u>COMPONENTS</u>	<u>INPUTS (EUROS)</u>
		<ul style="list-style-type: none"> • Component 1: Establishment of RARS Africa Network • Component 2: Enhancement of NWP Capabilities at ACMAD • Component 3: Establishment and interaction of NWP Community of experts with DRR/DRM • Component 4: Project Coordination • Component 5: Contingency
	TOTAL	<ul style="list-style-type: none"> • 6,000,000.00

ANNEXIII:Maps:Country/Location&ProjectArea

Figure 2: Map showing country where ACMAD is located (i.e. Niger) and the spatial coverage of the project (i.e. the whole Africa).



ANNEX IV: PROCUREMENT ARRANGEMENTS FOR THE PROJECT

4.1 Assessment of the Procurement Procedures of ACMAD

The Executing Agency of the Project will be the African Center of Meteorological Applications for Development (ACMAD). ACMAD has a statute of an international institution and enjoys an autonomy of management with a Board of Directors. However, the application of the procurement procedures of ACMAD was not endorsed by the Bank. Consequently, the procurement of goods and services within the framework of the project will be carried out in accordance with the Bank's procurement rules and procedures using the Standard Bidding Documents (SBD) of the latter.

4.2 Procurement Risks and Capacity Assessment

4.2.1 At the Sectoral Level

The evaluation of the meteorology sector was carried out and shows that several initiatives took place in the near past with other development partners. Besides the Bank, many other development partners have in recent years invested in the sector across the Continent, including the European Union, FAO among others. The importance attached to the sector by national governments and development partners has generated considerable interest and investment by the private sector to direct resources towards meteorological initiatives. It is important to note that the goods and services to be procured under the project cannot for the large part be acquired within the framework of the national plan and in the local market in Niger. However, there are a number competent regional or international suppliers to guarantee competitive prices for the acquisition of the goods and services. Also, taking into account the specificity of the sector, acquisitions of the goods and services will be acquired according to the Bank's procurement rules so as to ensure a high quality and state of the art goods and services.

4.2.2 At the Level of the Executing Agency

The project will be carried out by ACMAD, which is an international institution. It will have the responsibility of carry out all the procurement arrangement of the project. The weaknesses in ACMAD's procurement systems of were analyzed as follows:

- Inadequate investment and operational budget, which limits the capacities of intervention of the organization;
- The absence of a dedicated procurement officer/unit in the institution;
- Lack of technical expertise for the development of the technical specifications and Terms of Reference.
- Weak knowledge of general procurement rules and procedures.

With regard to experience, it is important to note that ACMAD has adequate technical expertise and experience for the efficient implementation of projects of this nature. It has a good track record of implementing several donor/development partner funded projects, including Institutional Support to African Climate Institutions Project (ISACIP), financed by the Bank and Monitoring of Environment and Security in Africa (MESA), financed by the European Union (EU). Generally, ACMAD's resources, capacities, expert portfolio and experience were analyzed and determined to be fairly sufficient to undertake the implementation of the project, including procurement processes. A dedicated team of experts will be designated by ACMAD to implement the project efficiently. This team will be strengthened by the inclusion of a procurement expert. The problems and risks involved in the management of the project as well as the corrective measures which were agreed are outlined below.

In order to improve the performances of Execution Agency and to ensure the quality of internal control, a handbook of administrative procedures, financial and accounting procedures of ACMAD will be

revised to take into account the implementation modalities of the SAWIDRA project. The ACMAD Management will have to devise a filing system that will enable the physical and electronic archiving of procurement records in order to facilitate the evaluation of procurement records and audit procedures.

Potential Risks	Mitigation Measures
Lack of Procurement Specialist	Recruitment of an experienced procurement specialist to lead the procurement processes for the project.
Inadequacy of technical experts to develop technical specifications and appropriate Terms of Reference.	Recruitment of specialist consultant for the development of the technical specifications and terms of references
Weak knowledge of the procurement rules and procedures	Training of the Project Management Team at ACMAD during the launching of the project.

4.3 Comprehensive Assessment of the Project Risks:

Type of Risk	Very High	High	Moderate	Low
Total risk of the project as regards making of the markets Risque global du projet en matière de passation des marchés			X	
Country Risk	N/A	N/A	N/A	N/A
Sectoral Risk			X	
Risk at the level of the Execution Agency			X	
Other Risk (<i>if applicable</i>)	N/A	N/A	N/A	N/A

4.4 Details of the Procurement Rules and Procedures for the Project

4.4.1 Procurement System of the Borrower

All procurement will be undertaken in accordance with the procurement rules and procedures of the Bank including the use of Standard Bidding Documents (SBD).

4.4.2 Bank Procurement Rules and Procedures

Goods:

- (I) Procurement and installation of antenna (Inc. SW for L1 product) with training, for an amount of (1 640 000 euro),
- ii) Procurement and installation of HPC system (Inc storage), other went back reception and processing systems and Customized SW procurement for an amount to (620 000 euro) will be acquired through International Competitive Bidding/Tendering.

Services:

The following Services will be rendered: (I) Design Study (120 000 euro (II) Consultancy for RARS; RARS station operation; RARS station maintenance; installation; Telecommunication; and Training one RARS related SW and operation (e.g. NWP SAF) (668 000 euro) (III) Consultancy for NWP, HPC maintenance NWP related Telecommunication and Training for trainers (456 euro); (iv) Training: NWP Forum (flight ticket, DSA, meeting room, translation, local transport, etc); DRR specialist @ Outlook Forum (3 person and 6 Outlook Drilled); Product Harmonization meeting (3 meeting with 6 external participants); Assimilation and NWP training dated (one-tea-job training for 6 months @ 1300 per month + 1000 travels); Added value Training for DRR specialist (561 400 euro) will be acquired on the basis of short list of firms and by the method of selection based on quality and the cost.

The financial accounting and audit services (45 000 euro) will be acquired on the basis of short list of firms and by the selection method based on least costs.

Communication services and the installation of the Web site (30 000 euro) will be carried out by an individual consultant recruited in accordance with the selection procedure of individual consultants of the Bank.

4.4.3 Summary of Procurement Arrangements of the Project

Category/Activity	In Euro		
	Procurement Procedures of the Bank		Total
	International Competitive Bidding (ICB)	Short List (SL)	
Goods			
Procurement and installation of antenna (inc. SW for L1 product) with training	1 640		1 640
Procurement and installation of HPC system (inc storage), other data reception and processing systems and Customised SW procurement	620		620
Services			
Design Study		120	120
Consultancy for RARS; RARS station operation ; RARS station maintenance; installation; Telecommunication; and Training on RARS related SW and operation (e.g. NWP SAF)		668	668
Consultancy for NWP, HPC maintenance NWP related Telecommunication and Training for trainers		456	456
Training : NWP Forum (flight ticket, DSA, meeting room, translation, local transport, etc); DRR specialist @ Outlook Forum (3 person and 6 Outlook Fora); Product Harmonization meeting (3 meeting with 6 external participants); Data assimilation and NWP training (on-the-job training for 6 months @ 1300 per month + 1000 travel); Value Added Training for DRR specialist		561,4	561,4
Communication and website-service		30	30
Financial audit		45	45
Total	2, 260	1, 880.4	4, 140.4

4.5 Advertising

General Procurement Notice (GPN): A General Procurement Notice will be prepared and published on Development Business, United Nations (UNDB) (Website: www.devbusiness.com; e-mail: dbsubscribe@un.org) and the Bank Website – www.afdb.org after the approval and signing of Grant Agreement.

4.6 Review of the Procurement Processes: Since most procurement under consideration within the framework of the project will be undertaken in accordance to the procurement procedures of the Bank, the documents hereafter are presented for review and the approval of the Bank before their publication:

- i) General Procurement Notice
- ii) Specific Procurement Notice
- iii) Expression of Interest
- iv) Files of invitation to tender or Requests for proposals to the consultants,
- v) Request for quotation,
- vi) Evaluation report of the offers of the companies/suppliers comprising the recommendations relating to the attribution of the markets (goods) or Evaluation report of the technical proposals of the consultants,
- vii) Procurement protocols of goods if they are modified and different from the draft contracts appearing in the files of invitation to tender.
- viii) Evaluation reports of the financial proposals of the consultants comprising the recommendations of attribution of the contracts accompanied by the official report by negotiations and project of initialed contract.

4.7 Project Procurement Plan

4.7.1 The Borrower, will prepare a Project Procurement Plan indicating various procurement to be undertaken on the basis of the procurement methods as stipulated in the Project Appraisal Report.

4.7.2 The Procurement Plan will have to be updated annually and posted on the site of the Bank. These revisions of the Procurement Plan must be sent to the Bank for no objection. The Plan will have to be implemented in accordance with the approval of the Bank.

4.8 Eligibility

The rules of eligibility applicable to the financing of the Bank will be those contained in the new policy. On this subject the borrowers will make sure in a imperative manner that a tenderer does not appear in the list of the suppliers under sanctions by the Bank or the one of the four other Multilateral Banks implied in the agreement of cross sanctions of April 9th, 2010 before attribution of a contract. The list of the tenderers under cross sanctions is consultable at the address following: http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-related-Procurement/Internet_Cross-Debarred.pdf

ANNEX V: PROCUREMENT PLAN

Consultancy Services :

Description	Method of selection	Fixed price or last Time	Estimated Amount in Euro	Pre-Examination or a posteriori	Publication Date of the GPN	Tentative Time for Contract Commencement	Remarks
Design Study	Short List	Fixed Price	120 000	Pre-Examination	January 2017	June 2017	
Consultancy for RARS; RARS station operation ; RARS station maintenance; installation; Telecommunication; and Training on RARS related SW and operation (e.g. NWP SAF)	Short List	Fixed Price	668 000	Pre-Examination	January 2017	June 2017	
Consultancy for NWP, HPC maintenance NWP related Telecommunication and Training for trainers	Short List	Fixed Price	456 000	Pre-Examination	January 2017	June 2017	
Training : NWP Forum (flight ticket, DSA, meeting room, translation, local transport, etc); DRR specialist @ Outlook Forum (3 person and 6 Outlook Fora); Product Harmonization meeting (3 meeting with 6 external participants); Data assimilation and NWP training (on-the-job	Short List	Fixed Price	561 4000	Pre-Examination	January 2017	June 2017	

training for 6 months @ 1300 per month + 1000 travel); Value Added Training for DRR specialist							
Communication and website-service	CI	Fixed Price	30 000	Pre-Examination	January 2017	March 2017	
Financial audit	SMC	Fixed Price	45 000	Pre-Examination	June 2017	February 2018	
Total Cost			1, 880.4				

Goods:

Description	Method of Selection	Lot N°	Lot Description	Estimated Amount/Cost in Euro	Pre-Examination or a posteriori	Date of Call of Bids	Estimated Date for Contract Commencement	Remarks
Procurement and installation of antenna (inc. SW for L1 product) with training	ICB	01	Non-Descripto	1 640 000	Pre-Examination	February 2017	July 2017	
Procurement and installation of HPC system (inc storage), other data reception and processing systems and Customized SW procurement	ICB	01	Non-Descripto	620 000	Pre-Examination	February 2017	July 2017	
Total Cost				2, 260				

ANNEX VI: Terms of Reference

ADMINISTRATIVE/COORDINATION STAFF:

- 1. Project Manager**
- 2. Communicator and Website Service**
- 3. Finance and Administration Officer**
- 4. Monitoring and Evaluation**
- 5. Project Assistant**
- 6. Procurement Specialist**

A. BACKGROUND

The African, Caribbean and Pacific - European Union Programme on Disaster Risk Reduction seeks to strengthen the resilience of the sub-Saharan African regions, countries and communities to the impacts of natural disasters, including the potential impacts of climate change, in order to reduce poverty and promote sustainable development. The Programme's purpose is to provide the analytical basis and accelerate the effective implementation of an African comprehensive disaster risk reduction and risk management (DRR and DRM) framework. Five expected result areas were identified.

This project responds to results area number three which focuses on improving the core capacities of the specialized national and regional climate centers (RCCs) to meet the needs of DRM agencies and socio-economic sectors for effective use of weather and climate services and community-focused and real-time early warning systems (EWS). This component is to be implemented through the African Development Bank as part of the ClimDev Africa Special Fund (CDSF). Under this result area, five sub-projects will be supported with one being a continental-wide project and the other four being regional projects for West, Central, Southern and East African regions.

This project is the continental-wide project and is on Satellite and Weather Information for Disaster Resilience in Africa (SAWIDRA). The project is to be implemented by the African Centre of Meteorological Applications for Development (ACMAD)

Under the Continental component of the SAWIDRA Project, ACMAD is now recruiting various experts under the overall supervision of the Director General.

B. VACANCIES

1- Position: Project Manager

Duties and Responsibilities

Under the direct supervision of the Director General, the incumbent will be responsible for the efficient and effective coordination and implementation of the Continental component of the Satellite and Weather Information for Disaster Resilience in Africa (SAWIDRA) project. She/he will liaise with the African Development Bank (AfDB) Clim-Dev Special Fund (CDSF) team in Abidjan and will present SAWIDRA at various forums on international, continental and national level and will organize and/or chair various meetings within the ACMAD SAWIDRA project. She/he will also ensure the proper execution of the operational activities of the project, both in respect of the Continental component as well as the appropriate linkages with the other SAWIDRA Regional Projects. The Project Manager will oversee the quality and timeliness of delivery of outputs within the given financial allocations and provides clear work plans consistent with the annual objectives and milestones to dedicated staff and institutional partners on international, regional and national levels.

He/she will perform the following duties:

- Ultimately responsible for on-time, on-budget and within scope execution of the SAWIDRA project;
- Plan, organize, lead and control the project during its full lifecycle;
- Define and clarify the project scope, develop the project plan, develop the project schedule and develop policies and procedures to support the achievement of the SAWIDRA project objectives;
- Determine the organizational structure of the project team, identify roles and positions, identify services to be provided by third parties;
- Provide effective leadership, strategic direction and attainment of performance metrics for the project management delivery, resource management and quality management;
- Provide executive visibility to project status, issues, risks, costs Key Performance Indicators (KPI) progress;
- Provide sound scientific and technical guidance to the Project Team throughout the project lifecycle;
- Ensure and supervise the effective, efficient and relevant production and dissemination of required project outputs;
- Ensure that required project reports and other deliverables are prepared and submitted in a timely and comprehensive manner to the AfDB;
- Oversee the synthesis of different weather services to meet Disaster Resilience and other user needs and their dissemination to different user communities at regional and continental levels;
- Liaise with relevant national or international institutions for establishment of partnerships with ACMAD for definition, generation, delivery of meteorological products and capacity development for production interpretation and use of meteorological information;
- Liaise with national and regional meteorological institutions for the effective and efficient dissemination of services at national and regional level, with a specific focus on the exploitation of the services for Disaster Risk Management (DRM) aspects;
- Liaise with the African Working Group on Disaster Risk Reduction (AWGDRR) and continental scale Disaster Risk Management related bodies (e.g. UNISDR, IFRC, UNOCHA, etc);
- Liaise with other international partners in order to coordinate external contribution to the SAWIDRA project (e.g. EUMETSAT, WMO, NWP SAF, etc)
- Liaise with the AfDB on financial and contractual issues;
- Organise all SAWIDRA related workshops conducted by ACMAD, and the Steering Committee meetings of the project. This includes the Kick-Off and the end of project workshops;
- Execute any other duties as may be assigned in the framework of ACMAD activities.

Qualifications

Requirements

- The candidate should be a competent, motivated person, who combines high-level scientific experience with excellent management and leadership skills and the ability of integrating and synthesising different types of information and to communicate this to different panels of users;
- She/he should have an excellent ability of project cycle management and development as well as high competence in communicating with policy and decision makers including Disaster Risk Managers at different levels;
- High professional records in either weather forecasting or climate prediction, climate impact assessments or climate risk management;
- Good records of peer-reviewed publications or previous involvement into peer-reviewing processes and involvement into research of intergovernmental research panels;
- Demonstrated experience with result-based management and evaluation methodologies including the experience in applying SMART indicators and reconstructing or validating baseline scenarios;
- Ability and experience to lead multi-disciplinary and national teams, and deliver quality reports within the given time;
- Ability to design work plans and methodologies and expected results in regard to the available time

and other resources within a given project framework;

- Competence in networking and negotiation;
- Demonstrated record of interdisciplinary collaboration, partnership and team building and the desire to work in a collaborative environment.

Education

- MSc, preferably PhD, in climatology or meteorology, or related sciences with a focus on meteorology, with particular experience in Weather and Climate Risks and Impacts.

Experience

- At least 10 years of senior level management and 5 years of Project Management experience.
- Proven experience in weather forecasting, Numerical Weather Prediction, or meteorology related experience.
- Experience working on African Development Bank funded projects.
- Experience working in a multi-disciplinary team
- Experience in a National Meteorological and Hydrological Service or related International institution

Languages

- Excellent knowledge of English or French and a good working knowledge of the other language are required.

Location

- Niamey, Niger
- Missions in Africa

Contract duration

- *3 years*

Probation period

- *3 months*

Salary

Salaries will depend on skills and former experience of the candidate. Per diems will be allocated for international travel.

How to Apply

Interested candidates who meet the above criteria should submit

- An application letter
- An updated CV
- Contacts of three referees.

Women are explicitly encouraged to apply

The application can be addressed to:

- ACMAD, 55 Avenue des Ministères, PL 6, BP 13184, 1^{er} Arrondissement, Niamey-Plateau, Niger
- dgacmad@acmad.org, and bllampzey@gmail.com

Or

- Fax number: + 227 20723627

2- Position: Communicator & web site service

Duties and responsibilities

The Project Communication Office is supposed to support the Project in all communication activities being conducted. This involves the development of an internal communication strategy for the Continental component of Satellite and Weather Information for Disaster Resilience in Africa (SAWIDRA) Project, including the design of appropriate approaches to inform relevant media about ongoing activities and results of the project. The duties include the development of dedicated SAWIDRA (and possibly a dedicated website), and above all, the development of user-friendly communication materials to inform planners and decision makers. The Project Communication Officer will also lead coordination with the SAWIDRA regional projects to harmonize communication aspects, with the objective to highlight complementarities between the various project activities. The support for the organization of relevant meetings, workshops and seminars is also part of the responsibilities of the Communication Officer.

The incumbent will perform the following duties:

- Develop a Communication policy, Strategy and activities between ACMAD and its partner institutions, users and beneficiaries of the ACMAD SAWIDRA project
- Design activities and materials including a Web pages (and possibly web-site) which improve the visibility of the SAWIDRA project and ACMAD as an institution
- Collect, synthesize, package and disseminate meteorological information and transform it into user-friendly products, which can easily be understood by Disaster Risk Managers and other stakeholders as may be required
- Develop and facilitate networking of partners and report on best practices of networking;
- Lead coordination on PR aspect with the other SAWIDRA regional projects;
- Document the relevant experiences of the project, draw lessons for their capitalization and dissemination
- Collect user feedbacks and report to the project manager
- Organize demonstrations or institutional events (exhibitions, press conferences and other media events etc.)
- Establish, maintain and coordinate media networks
- Establish and regularly update the project web and wiki pages
- Support the project management in other communication and infrastructural activities

Qualification

Education

- The applicant should have a University Degree in Social, Pedagogic or Communication Science or Journalism with a strong specialization in environmental issues. BSc is minimum requirement, MSc would be an advantage

Experience

- Proven experience in successfully communicating meteorological or environmental information, evidence of good media relations and networking. Prior working experience in a relevant Disaster Management Organization is a strong asset.

Other Requirements

- Experience in the design and/or implementation of institutional communication strategies which incorporates partners from various national and professional backgrounds in particular on weather and climate risks, impacts of extreme weather and climate events, environmental issues
- Experience in the formulation and visual design of print materials and visual and audiovisual communication, including Web pages
- Experience and capacity to supply meteorological information and prediction products for the use

of disaster risk management and meteorological information and for integration into adaptation and risk management strategies of other sectors such as agriculture and food security, water and energy, natural resources management

- Demonstrated ability to work as part of a team and communicate in a multicultural environment
- Strong organizational skills
- Excellent ability to communicate orally and in writing in French and English;
- Very good computer skills of publication;
- Ability to manage complex situations and facilitate multi-stakeholder participatory processes.
- Capability to identify, promote and multiply good practices of networking
- Strong organizational skills
- Very good computer skills for preparation of media reports, releases, newsletters and other publications

Languages

- Fluency in English or French and working language in the other language is required. Knowledge of Portuguese is an asset.

Location

- *Niamey, Niger*
- *Mission in Africa*

Contract duration

- *3 years*

Probation period

- *3 months*

Salary

Salaries will depend on skills and former experience of the candidate. Per diems will be allocated for international travel.

How to Apply

Interested candidates who meet the above criteria should submit

- An application letter
- An updated CV
- Contacts of three referees.

Women are explicitly encouraged to apply

The application can be addressed to:

- ACMAD, 55 Avenue des Ministères, PL 6, BP 13184, 1^{er} Arrondissement, Niamey-Plateau, Niger
- dgacmad@acmad.org, bllamptey@gmail.com

Or

- Fax number: + 227 20723627

3- Position: Finance and Administration Officer

Duties and Responsibilities

The Finance and Administration Officer works under the immediate supervision of the project manager and the overall supervision of the Director General of ACMAD and is responsible for a variety of financial and administrative duties necessary to run and execute the ACMAD Continental component of the Satellite and Weather Information for Disaster Resilience in Africa (SAWIDRA) project.

She/he will also assist the Project Manager and the Coordination Committee Chairman in the daily management of the various activities and ensure the maintenance of finance records and diaries of work, organization and preparation, monitoring, archiving of project documentation, and provide support to various bodies and institutions involved (such as the steering committee, missions within SAWIDRA project, supervision and audit of beneficiary institutions and other partners and agencies).

She/he will perform the following duties:

- Prepare circular and recurrent mails to the signature of the DG-ACMAD and/or SAWIDRA Project Manager; ensure their mailing to recipient(s) by different means (fax, email, express mail, mail, hand delivery) always keeping a trace of the acknowledgement of receipt
- Ensure the good filing of all the project mails, documentation and reports
- Ensure the logistical preparation of international meetings (Forums, workshops, missions, etc) and appointments
- Follow-up tasks from the start to the end and organize and maintain paper and electronic archives related to these specific tasks given by his/her supervisor
- Close communication with all the ACMAD divisions, partners, associates, stakeholders and other related institutes
- Support and assist the project management in other emerging activities

Financial Activities

- Accounting, organize the account filing
- Budget follow-up, budget preparation, analysis and control in accordance with AfDB procedures
- Encoding all account data linked to the budgets
- Prepare payments, follow-up of the money transfers
- Verify the balance to carry forward / beginning balance from one month to the next
- Verify the expenditures in relation to the approved / available budget
- Verify the expenditures of our partners, support our partners with their financial reporting duties
- Follow-up the budgets and cash management of the project
- Preparation of the expenditures spreadsheets & report to the donor, Steering Committee, consortium members
- Prepare procurements and supply contract for goods and services
- Keep summary tables of the various expenditures according General Account / Budget Code
- All the other tasks useful for the project requested by his supervisor, the Project Manager or other ones emerging within the ACMAD hierarchy
- Manage the office petty-cash for the day to day expenditures related to office operational running costs

Qualifications

Education

The applicant should have a University Degree in Accounting, Economics, Finance, Administration or related field.

Experience

- The candidate should have at least five (5) years experiences in accounting, finance and administration. At least one year in international projects or institutions is mandatory.

Other Requirements

He/she should be conversant with AfDB rules or be willing to attend training on AfDB rules in administrative and financial management. Further requirements are:

- Excellent organizational skills are mandatory and the capability to manage files and correspondence in appropriate ways
- Experience in logistics and organizational management of conferences, workshops and seminars
- Excellent cross-cultural communication skills, patience and ability to communicate with different types of users and stakeholders
- Proficiency in accounting and filing, budget preparation, analysis and budget control and preparation of payments and money transfers and their follow-up
- Demonstrated ability to work as part of a team and communicate in a multicultural environment
- Strong organizational skills and attention to detail
- Very good computer skills

Languages

- Fluency in English or French is required and working knowledge of the other language would be an advantage.

Location

- *Niamey, Niger*

Contract duration

- *3 years*

Probation period

- *3 months*

Salary

Salaries will depend on skills and former experience of the candidate. Per diems will be allocated for international travel.

How to Apply

Interested candidates who meet the above criteria should submit

- An application letter
- An updated CV
- Contacts of three referees.

Women are explicitly encouraged to apply

The application can be addressed to:

- ACMAD, 55 Avenue des Ministères, PL 6, BP 13184, 1^{er} Arrondissement, Niamey-Plateau, Niger
- dgacmad@acmad.org, bllamptey@gmail.com

Or

- Fax number: + 227 20723627

4- Position : Monitoring and Evaluation Officer

Duties and Responsibilities

The Monitoring and Evaluation Officer works under the immediate supervision of the ACMAD Continental component of the Satellite and Weather Information for Disaster Resilience in Africa (SAWIDRA) project manager and the overall supervision of the Director General of ACMAD and is responsible for M & E activities.

She/he will also assist the Project Manager in the establishment of an effective Monitoring and Evaluation (M&E) system and coordinate the M&E activities.

Responsibilities

- Update and execute the monitoring and evaluation plan for a good implementation of the projects and activities in ACMAD
- To assist and bring the necessary technical support to the project team and in need to the other project beneficiaries in the field of planning as well as monitoring and evaluation
- To ensure the coordination in its field of activity and respect the rules and procedures of the donor in the field of activities monitoring and evaluation
- To update the instruments and basic tools of monitoring and evaluation adapted to the needs of the project
- To produce and submit in time the reports on the project execution situation

She/he will perform the following duties:

- Assist in selecting the indicators for the monitoring and evaluation of implementation progress, outputs and outcomes of the project;
- Develop guidelines and implement existing tools and reporting forms for monitoring of project implementation;
- Prepare and conduct all monitoring and evaluation operations on the execution of the project as well as on the project results
- Maintain a digital archiving system of all data and information related to M&E activities. This includes project process, realization and results
- Track and analyse progress towards agreed outputs
- Ensure approbation of methods, techniques and tools of monitoring and evaluation by project staff
- Prepare monitoring and evaluation data/information diffusion support (reports, articles, memorandum, etc) and follow up their dissemination to all users
- Enhance multi-sector coordination of planned activities in the framework of annual work plan
- Contribute to the mobilization and the coordination of multi-sector intervention of different PTF mainly during the different meetings
- Assist in surveys, studies, and assessments
- Carry out any other activity given by the coordinator that help to the implementation of the project and in the field of his competence

Qualifications

- University graduate degree or equivalent in Monitoring and Evaluation or related field

Experience

- At least 7 years of experience in monitoring and evaluation related work;

Languages

- Fluency in English or French is required and working knowledge of the other language would be an advantage.

Location

- *Niamey, Niger*

Contract duration

- *30 months*

Probation period

- *3 months*

Salary

- Salaries will depend on skills and former experience of the candidate. Per diems will be allocated for international travel.

How to Apply

Interested candidates who meet the above criteria should submit

- An application letter
- An updated CV
- Contacts of three referees.
- Women are explicitly encouraged to apply

The application can be addressed to:

- ACMAD, 55 Avenue des Ministères, PL 6, BP 13184, 1^{er} Arrondissement, Niamey-Plateau, Niger
- dgacmad@acmad.org, bllampzey@gmail.com

Or

- Fax number: + 227 20723627

5- Position: Project Assistant

Duties and Responsibilities

The Project Assistant works under the immediate supervision of the ACMAD Continental component of the Satellite and Weather Information for Disaster Resilience in Africa (SAWIDRA) Project Manager and also assists the Finance and Administration officer.

She/he will perform the following duties:

- Assist in administrative and financial duties related to all aspects of project implementation
- Assist in all necessary logistics for the activities, such as workshops, trainings e.g. book accommodation for participants, photocopy of materials, arrange transport, supply stationery
- Draft letters, translate project documents as well as assistance and logistical support the coordination staff, as required

- Archive all the project mails, documentation and reports
- Provide support in preparing speeches, presentations, reports and other documents
- Assist in the preparation of contracts, payment requests, and official mission
- Any other duties as reasonable requested by supervisors and in line with the project activities

Qualifications

Education

- University degree or equivalent professional training relevant to Project/Programme management, or related field.

Experience and other requirements

- Minimum of 3 years of experience carrying out secretarial or administrative functions, including project implementation experience.
- Proven strong interpersonal and communication skills, ability to maintain public relations, and very good capacity for multi-tasking.
- Ability to work effectively as a team member and with minimal supervision
- Service-oriented, efficient, reliable, polite, diplomatic, committed and pay great attention to detail.

Languages

- Fluency in French or English is required and working knowledge of the other language would be an advantage.

Location

- *Niamey, Niger*

Contract duration

- *3 years*

Probation period

- *3 months*

Salary

- Salaries will depend on skills and former experience of the candidate. Per diems will be allocated for international travel.

How to Apply

Interested candidates who meet the above criteria should submit

- An application letter
- An updated CV
- Contacts of three referees.
- Women are explicitly encouraged to apply

The application can be addressed to:

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- dgacmad@acmad.org, bllamptey@gmail.com

Or

- Fax number: + 227 20723627

6. Position: Procurement Specialist

Duties and Responsibilities

The Procurement Specialist works under the immediate supervision of the ACMAD Continental component of the Satellite and Weather Information for Disaster Resilience in Africa (SAWIDRA) Project Manager and also assists the Finance and Administration officer.

She/he will perform the following duties:

- Sourcing goods and services, preparing tender documents (**ITB, ITQ, and RFP**)
- Evaluation of tenders and proposals (goods, works, services and Consultancies).
- Assist in the developments and drawing of terms of references (**TORs**) for Service Contracts and Consultancies.
- Monitoring and appraising suppliers to ensure compliance to specifications and deliver schedules.
- Draw contracts and take Custody of all SAWIDRA service and goods contracts at ACMAD
- Prepare biweekly and monthly reports Procurement management reports.
- Draw, monitor and review Procurement plans and work plans
- Advice the ACMAD Tender Committee on issues related to procurement procedures for goods, works and services throughout the Project cycle.
- Assist Project Manager and departments in examining bid evaluation reports as well as technical and financial proposals and make recommendations.
- Design the most appropriate modalities for the procurement of goods and services in accordance with the AfDB Procurement rules and procedures, or in accordance of ACMAD procurement rules and procedures where applicable.
- Any other duties as reasonable requested by supervisors and in line with the project activities

Qualifications

Education

- A Degree in Business Administration, or equivalent, plus a professional qualification in procurement.

Experience and other requirements

- At least 5 years' working experience at a senior procurement position in an inter-Governmental Organisation, Development Agencies or other international organizations
- Proven working experience and knowledge of multilateral donors like AfDB and World Bank Procedures is essential.
- Proven excellent computer skills especially in MS Excel, Power Point and MS Project.

DELIVERABLES AND EXPECTED OUTCOMES

- Contract for all goods and services procured in a procedural manner
- Supplies, goods and services to support the operations of the Project.
- Updated AfDB Project Procurement plan

Languages

- Fluency in French or English is required and working knowledge of the other language

would be an advantage.

Location

- *Niamey, Niger*

Contract duration

- *3 years*

Probation period

- *3 months*

Salary

- Salaries will depend on skills and former experience of the candidate. Per diems will be allocated for international travel.

How to Apply

Interested candidates who meet the above criteria should submit

- An application letter
- An updated CV
- Contacts of three referees.
- Women are explicitly encouraged to apply

The application can be addressed to:

- ACMAD, 55 Avenue des Ministères, PL 6, BP 13184, 1^{er} Arrondissement, Niamey-Plateau, Niger
- dgacmad@acmad.org, bllampzey@gmail.com

Or

- Fax number: + 227 20723627

IT Staff:

7. GROUND RECEPTION STATION AND TELECOMMUNICATION EXPERT (RARS EXPERT)

.....
8. SYSTEM ENGINEER AND DATABASE ADMINISTRATOR

7. Position: Ground reception station and telecommunication expert (RARS expert)

Duties and responsibilities

The IT/RARS Specialist, under the immediate supervision of the ACMAD Continental component of the Satellite and Weather Information for Disaster Resilience in Africa (SAWIDRA) Project Manager and the overall supervision of the Director General of ACMAD and is responsible for a variety of IT and Telecommunications duties necessary to run and execute the project. He will work closely with the SAWIDRA RARS International Specialist (ACMAD).

The incumbent working closely with the RARS Specialist will:

- Contribute to the Design Study of the RARS Africa system - composed of four satellite ground reception station (X/L Band) and related telecommunication system to gather received data to ACMAD and international community.
- Provide technical contribution and support preparation of the procurement and installation of the four X/L Band stations of the RARS station to be installed in the hosting sites (inc. preparation of Terms of Reference for procurement, evaluation of offer, technical negotiation and technical follow-up of the execution of the contract);
- Contribute to the preparation of the procurement of telecommunication elements for the RARS Africa, between each hosting sites and within ACMAD;
- Support the drafting and maintenance of all technical documentation related to system configuration, operational and maintenance processes for service continuation and evolution
- Plan and organize the interaction between ACMAD with hosting sites at technical level during the various phases of the SAWIDRA project (site survey, preparation of infrastructure, installation of station, testing and validation, operation);
- Participate to all technical discussion with international partners, such as EUMETSAT, NWP SAF, and data processing Software package providers;
- Provide technical contribution to site survey and site preparation and support hosting sites as appropriate
- Contribute to the activities related to the installation and operation of the RARS antenna in Niamey (including site survey, site preparation, installation, testing and validation, operation);
- Contribute to the installation and operation of the telecommunication node in Niamey/ACMAD to receive all RARS data, store and pre-process them and provide them to NWP system;
- Be the technical responsible and focal person for the RARS antenna in Niamey;
- Contribute to deployment telecommunication system for re-diffusion of ACMAD results to African RCC and relate partners (e.g. EUMETSAT)
- Additionally the duties will include assistance to the activities of the Regional Services Team Leader and acting as deputy Team Leader when requested

Qualification

Education

- University Degree (or equivalent) in Engineering field related to the duties (e.g. Computer Science, Electrical, Mechanical, IT or data processing engineer)
- Excellent knowledge of IT system and various Operating System (Windows Server, Unix, Linux, etc.) with a strong specialization in Meteorological Data processing infrastructure Management, including specialized integrated system with sound experience in dissemination systems.
- At least six years of senior management in a national, regional or International Meteorological Institution. Preferably Head of Department of an IT unit within the institution.

Experience

- Minimum of 5 years relevant experience in system engineering. Satellite ground reception systems development for earth observation systems and near-real time applications as an advantage;
- Demonstrated experience in Telecommunication system including satellite and internet framework;
- Demonstrated experience in system engineering lifecycle aspects (e.g. design, production, integration, verification and validation);
- Relevant experience in software engineering aspects in relation to operating systems and shell scripting, preferably Linux, and high level programming languages, preferably Java, would be an advantage.
- Knowledge of Product Processing of remote sensing data would be an advantage;
- Strengths in analysis, synthesis and presentation, coupled with good interpersonal skills and a proven ability to apply these to the interactions within a team and between teams.
- Good communication skills and capacities to work in an international environment

Other Requirements

- Excellent ability to communicate orally and in writing in French and English;

Languages

- Fluency in English or French is required. Fluency in both working language is a strong asset.

Location

- *Niamey, Niger*
- *Missions in Africa*

Contract duration

- 3 years

Probation period

- 3 months

Salary

The salary depends on skills and former experience of the candidate. Per diems will be allocated for international travel.

How to Apply

Interested candidates who meet the above criteria should submit

- ✓ An application letter;

- ✓ An updated CV, and
- ✓ Contacts of three referees.
- ✓ The application can be addressed to:
- ✓ - ACMAD, 55 Avenue des Ministères, PL 6, BP 13184, 1^{er} Arrondissement, Niamey-Plateau, Niger
- ✓ - dgacmad@acmad.org, bllampsey@gmail.com
- ✓ Or
- ✓ - Fax number: + 227 20723627

8. Systems Engineer and Database Administrator

Under the supervision of the Project Manager, the Systems Engineer and database administrator will be responsible for assisting SAWIDRA thematic experts for the installation, maintenance and operation of climate services generation and dissemination systems. She/he will assume the functions of installation, update and maintenance of all systems and applications software for the project.

He or she will perform the following duties:

- Install, maintain and operate the EUMETCast Receiving station and make data available to SAWIDRA experts, if necessary in collaboration with technical experts from other institutions and technical staff from EUMETSAT
- Install, maintain, upgrade and operate data servers, communication network and storage devices
- Support to the Installation of servers for data exchange at ACMAD and at Mirror Sites in collaboration with staff from partner organizations
- Administer and operate data Server including regular back-up and data access management
- Install necessary hardware, system and application software including GIS
- Set up infrastructure for a Geoportal and a Helpdesk
- Administer and maintain computer and other equipments
- Write and facilitate the use of scripts, codes, packages or other applications for automatic access to datasets, processing, product generation and service delivery via EUMETCAST, web portal and other channels
- Liaise with other MESA team members to install and maintain hardware and software in countries and regions
- Liaise with the GIS and other applications expert to develop, administer and maintain web and wiki pages for MESA
- Assist for administration and evaluation of Climate Data Base Applications (e.g. CLIMSOFT)
- Administer and maintain station, model and remote sensing data servers and related applications software
- Provide operating procedures and/or user manuals for systems and application software in MESA
- Carry out other relevant duties as required.

Qualification

Education

- A University Degree in Computer Science or related field, Minimum requirement BSc but MSc would be an advantage.

Experience

- A minimum of 5 years professional experience in administration, maintenance of windows and/or Linux based computer networks and stations.
- A minimum of 2 years of professional experience on database administration and maintenance
- Experience with ACCESS, PostgreSQL, MySQL and other complex data management systems and servers

Other requirements

- Prior experience in installation and maintenance of PUMA or AMESD stations is highly desirable
- Good knowledge of WMO standard and protocols for data exchanges, experience with EUMETCAST and internet communication technologies would be an advantage.

Languages

- Fluency in English or French is required. Fluency in both working language is a strong asset.

Location

- *Niamey, Niger*
- *Missions in Africa*

Contract duration

- 3 years

Probation period

- 3 months

Salary

The salary depends on skills and former experience of the candidate. Per diems will be allocated for international travel.

How to Apply

Interested candidates who meet the above criteria should submit

- ✓ An application letter;
- ✓ An updated CV, and
- ✓ Contacts of three referees.
- ✓ The application can be addressed to:
 - ✓ - ACMAD, 55 Avenue des Ministères, PL 6, BP 13184, 1^{er} Arrondissement, Niamey-Plateau, Niger
 - ✓ - dgacmad@acmad.org, bllamptey@gmail.com
 - ✓ Or
 - ✓ - Fax number: + 227 20723627

Numerical Weather Prediction Positions:

9. Numerical Weather Modeling EXPert

10. Forecasting Specialist

11. Assistant Forecaster

9. Position: Numerical Weather Modelling Expert.

Duties and Responsibilities

Under the immediate supervision of the ACMAD Continental component of the Satellite and Weather Information for Disaster Resilience in Africa (SAWIDRA) Project Manager, the Chief of Forecasting unit and the overall supervision of the Director General of ACMAD, he/she is responsible for the component on “Development of Numerical Weather Prediction Capabilities at ACMAD” and the Monitoring of Scientists in the process of elaboration of Numerical Weather Prediction products. In line with the above, the incumbent will:

- Ensure the use of High Performance computing systems at ACMAD
- Ensure the use of a High-resolution numerical weather prediction model on Africa domain.
- Ensure the validation, the deployment of numerical weather Prediction products elaborated at ACMAD for the use by regional centres.
- Ensure technology transfer in the area of Numerical Weather Prediction, mainly assimilation of in-situ and satellite data;
- Contribute to research activities in the field of Numerical Weather Prediction in Africa.
- Prepare technical document for the use of ACMAD’s Numerical Weather Prediction Products dedicated to regional centres
- Assist the chief of Weather prediction department in the monitoring of trainees under Numerical Weather Prediction, training in meteorological applications and capacity strengthening programme
- Contribute to the evaluation of Numerical Weather Prediction products.
- Contribute to preparation and organisation of training workshops in the area of Numerical Weather Prediction;
- Perform any duty that maybe assigned to him or her in line with the activities and operations of ACMAD

Qualifications

- A Minimum working experience of 05 years in the use of Numerical Weather Prediction Models is required;
- A proven competency in the use of HPC in an operational setting in a national, regional or international center
- A technical competency in Linux operating system, parallel programming, FORTRAN PROGRAMMING, post processing and visualization tools (NCL, GrADS, R, or equivalent).

Education

The Candidate must have a Masters Degree (M.SC) in Meteorology from recognized university or Meteorological School or Institute or equivalent of WMO class I. A PhD will be an advantage.

Experience

- A minimum of 10 years professional experience out of which 5 years in the field of Numerical Weather Prediction.
- Any proven experience in Modeling within a Global prediction center will be a key advantage

Other Requirements

- Good working capability, within international context, easy contact, dynamism and methodic and strict attitude, integrity, responsible and high level of public and common goods management.
- Aptitude to foresee a continental vision of ACMAD in meteorological forecasting and watch.
- Aptitude to cope with rapidly evolving used technologies.
- Good skills in French or English and good knowledge of the other working language. Working language of the center being English and French.

Languages

- Fluency in English or French is required and working knowledge of the other language would be an advantage.

Location

- *Niamey, Niger*
- *Missions in Africa*

Contract duration

- **30 months**

Probation period

- **3 months**

Salary

Salaries will depend on skills and former experience of the candidate. Per diems will be allocated for international travel.

How to Apply

Interested candidates who meet the above criteria should submit

- An application letter
- An updated CV
- Contacts of three referees.

Women are explicitly encouraged to apply

The application can be addressed to:

- ACMAD, 55 Avenue des Ministères, PL 6, BP 13184, 1^{er} Arrondissement, Niamey-Plateau, Niger
- dgacmad@acmad.org, bllamptey@gmail.com

Or

- Fax number: + 227 20723627

10. Position: Forecasting Specialist.

Duties and Responsibilities

Under the immediate supervision of the Chief of NWP unit; the ACMAD Continental component of the Satellite and Weather Information for Disaster Resilience in Africa (SAWIDRA) Project Manager and the overall supervision of the Director General of ACMAD he/she will be responsible of the monitoring of scientists. In line with the above, the incumbent will:

- Ensure the use of Numerical Weather Prediction Products dedicated to regional centres
- Produce meteorological vigilance products at continental level dedicated to regional centres for short and medium range disaster risk management.
- Prepare technical and synthesis document dedicated to regional centres that have in charge to polish forecast at national and regional level.
- Ensure the production and presentation of meteorological briefings.
- Contribute to Weather study and the evaluation of Numerical weather prediction models to improve forecasting method at ACMAD.
- Develop user-oriented verification for Disaster Risk Management, that is, quantitative assessment of forecast quality in terms that are meaningful to particular kinds of forecast users at continental, regional and national level including the question of DRM stakeholder networking functioning to be sure of the optimal use of the updated NWP information.
- Assist the chief of Weather prediction department in the monitoring of trainees under Numerical weather Prediction, meteorological applications training and straightening capacity programme
- Design methods for the evaluation and verification of meteorological forecasting services and products generated by ACMAD for the use by regional centers and regional or international institutions with continental or regional mandates;
- Elaboration of technical documents, archive meteorological data and pertinent numerical products and meteorological cases that could be used as case studies;
- Preparation and organization of workshops and seminars on meteorological forecasting activities at ACMAD
- Perform any duty that maybe assigned to him or her in line with the activities and operations of ACMAD

Qualifications

- A Minimum working experience of 05 years in an operational national, regional or international center;
- Scientific and technical competence in the field of meteorological forecast applications.

Education

The Candidate must have a Masters Degree (M.SC) in Meteorology from recognized university or Meteorological School or Institute equivalent to WMO class I.

Experience

- A Minimum working experience of 05 years in an operational national, regional of international center;
- Scientific and technical competence in the field of meteorological forecast applications

Other Requirements

The forecasting expert must have:

- Good skills in general Meteorology
- Good skill in Tropical Meteorology

- Good skills and aptitude to elaborate bulletins and give meteorological directives.
- Good Geography skills
- Good computing skills.
- Good working capability, within international context, easy contact, dynamism and methodic and strict attitude, integrity, responsible and high level of public and common goods management.
- Aptitude to foreseen a continental vision of ACMAD in meteorological forecasting and watch.
- Aptitude to cope with rapidly evolving used technologies.
- Good skills in French or English and good knowledge of the other working language. Working language of the center being English and French.

Languages

- Fluency in English or French is required and working knowledge of the other language would be an advantage.

Location

- *Niamey, Niger*
- *Mission in Africa*

Contract duration

- **24 months**

Probation period

- **3 months**

Salary

Salaries will depend on skills and former experience of the candidate. Per diems will be allocated for international travel.

How to Apply

Interested candidates who meet the above criteria should submit

- An application letter
- An updated CV
- Contacts of three referees.

Women are explicitly encouraged to apply

The application can be addressed to:

- ACMAD, 55 Avenue des Ministères, PL 6, BP 13184, 1^{er} Arrondissement, Niamey-Plateau, Niger
- dgacmad@acmad.org, blampsey@gmail.com

Or

- Fax number: + 227 20723627

11. Position: Assistant Forecaster

Duties and Responsibilities

Under the immediate supervision of the ACMAD Continental component of the Satellite and Weather Information for Disaster Resilience in Africa (SAWIDRA) Project Manager, the Chief of Forecasting unit and the overall supervision of the Director General of ACMAD, he/she will work with the Forecasting Specialist. In line with that, he will have to:

- Assist in the use of Numerical Weather Prediction products generated by ACMAD dedicated to be used by regional centers.
- Assist in the production of meteorological vigilance products at continental level dedicated to regional Disaster Risk Management, from past and current conditions taking into account data and observations from various meteorological systems and networks as well as numerical weather prediction results;
- Contribute to the preparation of technical and syntheses documents dedicated to regional centers;
- Contribute to weather studies and model forecast evaluation to improve forecasting methods at ACMAD;
- Assist in the evaluation and verification of meteorological forecasting services and products generated by ACMAD for use by regional centers and/or international institutions with continental or regional mandates;
- Assist in the elaboration of technical documents, archive meteorological data and pertinent numerical products and meteorological cases that could be used as case studies;
- Assist in the preparation and organisation of workshops and seminars on meteorological forecasting activities at ACMAD, mainly oriented into Disaster Risk Management (DRM) use
- Perform any other duties that could be given to him by hierarchy in line with activities of ACMAD.

Qualification

- Minimum Three (03) years in of experience in operational meteorology within national, regional or international centre;
- Technical and scientific competence in forecast applications areas is required

Education

The candidate must have a Bachelor's degree in Meteorology from a recognized university or institution or equivalent to WM0 Class II meteorologist level.

Experience

Other Requirements

The Assistant Forecaster must have:

- Good skills in elaboration of bulletins
- Good geographical skills
- Good computing skills
- Good working capability, within international context, easy contact, dynamism and methodic and strict attitude, integrity, responsible and high level of public and common goods management.
- Aptitude to foreseen a continental vision of ACMAD in meteorological forecasting and watch.
- Aptitude to cope with rapidly evolving used technologies.
- Good skills in French or English and good knowledge of the other working language. Working language of the center being English and French.

Languages

- Fluency in English or French and working language in the other language is required. Knowledge of Portuguese is an asset.

Location

- ***Niamey, Niger***

Contract duration

- 2 years

Probation period

- 3 months

Salary

Salaries will depend on skills and former experience of the candidate. Per diems will be allocated for international travel.

How to Apply

Interested candidates who meet the above criteria should submit

- An application letter
- An updated CV
- Contacts of three referees.

Women are explicitly encouraged to apply

The application can be addressed to:

- ACMAD, 55 Avenue des Ministères, PL 6, BP 13184, 1^{er} Arrondissement, Niamey-Plateau, Niger
- dgacmad@acmad.org, and bllamptey@gmail.com

Or

- Fax number: + 227 20723627

C. BACKGROUND

The African, Caribbean and Pacific - European Union Programme on Disaster Risk Reduction seeks to strengthen the resilience of the sub-Saharan African regions, countries and communities to the impacts of natural disasters, including the potential impacts of climate change, in order to reduce poverty and promote sustainable development. The Programme's purpose is to provide the analytical basis and accelerate the effective implementation of an African comprehensive disaster risk reduction and risk management (DRR and DRM) framework. Five expected result areas were identified.

This project responds to results area number three which focuses on improving the core capacities of the specialized national and regional climate centers (RCCs) to meet the needs of DRM agencies and socio-economic sectors for effective use of weather and climate services and community-focused and real-time early warning systems (EWS). This component is to be implemented through the African Development Bank as part of the ClimDev Africa Special Fund (CDSF). Under this result area, five sub-projects will be supported with one being a continental-wide project and the other four being regional projects for West, Central, Southern and East African regions.

This project is the continental-wide project and is on Satellite and Weather Information for Disaster

Resilience in Africa (SAWIDRA). The project is to be implemented by the African Centre of Meteorological Applications for Development (ACMAD)

Under the Continental component of the SAWIDRA Project, ACMAD is now recruiting various experts under the overall supervision of the Director General.

B. VACANCIES

IT Staff:

Position satellite ground reception station international specialist (RARS specialist)

Duties and responsibilities

Under the immediate supervision of the ACMAD Continental component of the Satellite and Weather Information for Disaster Resilience in Africa (SAWIDRA) Project Manager and the overall supervision of the Director General of ACMAD, the Specialist will work closely with the ACMAD RARS Expert and is responsible for the installation, operation and maintenance of the four RARS Africa satellite receiving stations and the associated telecommunication network.

The incumbent working closely with the RARS Expert will:

- Have technical responsibility for the Design Study of the RARS Africa system - composed of four satellite ground reception station (X/L Band) and related telecommunication system to gather received data to ACMAD and international community.
- Have technical responsibility for the procurement and installation of the four X/L Band stations of the RARS station to be installed in the hosting sites (inc. preparation of Terms of Reference for procurement, evaluation of offer, technical negotiation and technical follow-up of the execution of the contract);
- Have technical responsibility for the procurement of telecommunication elements for the RARS Africa, between each hosting sites and within ACMAD;
- Have technical responsibility for drafting and maintaining documentation describing system configuration, operational and maintenance processes for service continuation and evolution;
- Act as technical contact person for the industrial contractors as required;
- Ensure pro-actively proper interaction between ACMAD and the RARS hosting sites at technical level during the various phases of the SAWIDRA project (site survey, preparation of infrastructure, installation of station, testing and validation, operation);
- Be the focal person for all technical discussion with international partners, such as EUMETSAT, NWP SAF, and data processing Software package providers;
- Follow-up site survey and site preparation and support hosting sites as appropriate
- Technical responsible person for the installation and operation of the RARS antenna in Niamey (including site survey, site preparation, installation, testing and validation, operation);
- Technical responsible person for the installation and operation of the telecommunication node in Niamey/ACMAD to received all RARS data, store and pre-process them and provide them to NWP system;

- Ensure deployment of telecommunication system for re-diffusion of ACMAD results to African RCC and relate partners (e.g. EUMETSAT);
- Transfer know-how to the ACMAD RARS Expert

Qualification

Education

- University Degree (or equivalent) in Engineering field related to the duties (e.g. Computer Science, Electrical, Mechanical, IT or data processing engineer)
- Excellent knowledge of IT system and various Operating System (Windows Server, UNIX, Linux, etc.).

Experience

- Minimum of 10 years relevant experience in system engineering and project management of Satellite ground reception systems development, preferably in the field of earth observation systems and near-real time applications;
- Demonstrated experience in Telecommunication system including satellite and internet framework;
- Demonstrated experience in the coordination of teams, preferably in a project environment;
- Demonstrated experience in system engineering lifecycle aspects (e.g. design, production, integration, verification and validation);
- Relevant experience in software engineering aspects in relation to operating systems and shell scripting, preferably Linux, and high level programming languages, preferably Java, would be an advantage.
- Knowledge of Product Processing of remote sensing data would be an advantage;
- Strengths in analysis, synthesis and presentation, coupled with good interpersonal skills and a proven ability to apply these to the interactions within a team and between teams.
- Good communication skills and capacities to work in an international environment
- Working experience in Africa or developing countries will be an important asset;

Languages

- Fluency in English or French is required. Fluency in both working language is a strong asset.

Location

- *Niamey, Niger*
- *Missions in Africa*

Contract duration

- 3 years

Probation period

- 3 months

Salary

The salary depends on skills and former experience of the candidate. Per diems will be allocated for international travel.

How to Apply

Interested candidates who meet the above criteria should submit

- ✓ An application letter;
- ✓ An updated CV, and
- ✓ Contacts of three referees.
- ✓ The application can be addressed to:
- ✓ - ACMAD, 55 Avenue des Ministères, PL 6, BP 13184, 1^{er} Arrondissement, Niamey-Plateau, Niger
- ✓ - dgacmad@acmad.org, bllampsey@gmail.com
- ✓ Or
- ✓ - Fax number: + 227 20723627

Numerical Weather Prediction Position:

Position: International Technical Assistance Numerical Weather Prediction.

Duties and Responsibilities

Under the immediate supervision of the ACMAD Continental component of the Satellite and Weather Information for Disaster Resilience in Africa (SAWIDRA) Project Manager and the overall supervision of the Director General of ACMAD and is responsible for a variety of Numerical Weather Prediction duties necessary to run and execute the project, the incumbent will be in charge of the technical assistance in the implementation of the component “Development of the Numerical Weather Prediction Capabilities at ACMAD” in line with the above, the incumbent will:

- Contribute to the deployment of the high performance computing system at ACMAD;
- Ensure the scientific and technical monitoring of the implementation of a high-resolution numerical weather prediction model over the African domain.
- Ensure the validation, the deployment and use of the Numerical Weather Prediction products developed at ACMAD by Regional Climate Centres.
- Ensure operationalization of satellite data delivered by RARS Africa.
- Ensure technical support to regional centres in numerical weather prediction.
- Ensure technology transfer between Global Producing Centres and ACMAD in the area of Numerical Weather Prediction;
- Contribute to research activities in Numerical Weather Prediction in Africa.
- Contribute to the preparation of technical documents on the use of ACMAD’s products dedicated to regional centres.
- Develop an evaluation method of the use of the numerical products by the regional centres;
- Organise training workshops in the area of Numerical Weather Prediction;
- Perform any duty that maybe assigned to him or her in line with the activities and operations of ACMAD.

Qualifications

- A working experience in Africa will be an asset;
- An excellent quality in working relationship facilitating teamwork;
- Should have a general view of ACMAD's activities and in particular, the Weather Watch and Prediction Department.
- Should have an excellent knowledge of English or French, and good knowledge of the second is required. The working languages of the centre are English and French.

Education

The Candidate must have a Masters Degree (M.SC) in Meteorology from recognized university or Meteorological School or Institute, preferably with specialization in Numerical Weather Prediction. A PhD will be an advantage.

Experience

- A minimum of 10 years professional experience out of which 5 years in the field of Numerical Weather Prediction.
- Any proven experience in Modelling within a Global prediction center will be a key advantage.
- Experience required in use of HPC and Linux/Unix operating systems.
- Strong experience in C and FORTRAN, parallel programming and use of software such as (NCL, R, GrADS or equivalent)

The International technical assistant must have:

- Good Skills in general Meteorology;
- Good Skills in Tropical Meteorology
- Good Skills in the elaboration of technical documents;
- Good Skills in the use of computing tools.

Other Requirements

He/she should be conversant with AfDB rules or be willing to attend training on AfDB rules in financial management. Further requirements are:

- Excellent organizational skills are mandatory and the capability to manage files and correspondence in appropriate ways
- Experience in logistics and organizational management of conferences, workshops and seminars
- Excellent cross-cultural communication skills, patience and ability to communicate with different types of users and stakeholders
- Proficiency in accounting and filing, budget preparation, analysis and budget control and preparation of payments and money transfers and their follow-up
- Demonstrated ability to work as part of a team and communicate in a multicultural environment
- Strong organizational skills and attention to detail
- Very good computer skills

Languages

- Fluency in English or French is required and working knowledge of the other language would be an advantage.

Location

- *Niamey, Niger*
- *Mission in Africa*

Contract duration

- 3 years

Probation period

- months

Salary

Salaries will depend on skills and former experience of the candidate. Per diems will be allocated for international travel.

How to Apply

Interested candidates who meet the above criteria should submit

- An application letter
- An updated CV
- Contacts of three referees.

Women are explicitly encouraged to apply

The application can be addressed to:

- ACMAD, 55 Avenue des Ministères, PL 6, BP 13184, 1^{er} Arrondissement, Niamey-Plateau, Niger
- dgacmad@acmad.org, bllampsey@gmail.com

Or

- Fax number: + 227 20723627

ANNEX VII: Project Implementation Plan

No.	Output	Activities	Year 1				Year 2				Year 3				Year 4				
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
1	Output 1.1. RARS stations installed and operating	1.1.1. Recruitment of an ACMAD IT/RARS Expert	R																
		1.1.2. Recruitment of an International RARS Expert (Technical Assistance)	R																
		1.1.3. Design study (system architecture, site survey, selection of satellite instruments, data flow estimation, telecommunication aspects and testing, detailed procurement plan)	P	I	I														
		1.1.4. Preparation of the hosting site infrastructure and establishing MoU with hosting sites (sharing of responsibilities, procurement approach, ownership, sustainability)																	
		1.1.5. Training of staff for the management, operation, SW and maintenance of RARS infrastructure																	
		1.1.6. Procurement and installation of the RARS infrastructure (including warranty and maintenance service) including preparation of procurement (4 RARS antenna, planning. Coordination and monitoring tool, etc)					P	P	P	I	I	I	I						
		1.1.7. Operation of the RARS components (inc. management and technical coordination of the operations of the RARS network)																	
		1.1.8. RARS station maintenance for 2 years after installation					P	P	P			I	I	I	I				
2	Output 1.2 Four RARS stations are connected in a network and data are disseminated internationally	1.2.1. Establishment of the appropriate communication network/channel to ensure data transfer between the stations, the processing centres (ACMAD and RCCs) and GTS/WIS																	
		1.2.2 ACMAD RARS station operation																	

		1.2.2. On-site inspection and coordination meeting with hosting sites																				
3	Output 2.1. Continental 10 km res NWP WRF model operational at ACMAD	2.1.1. Recruitment of NWP forecaster					R															
		2.1.2. Recruitment of NWP modeller				R																
		2.1.3. Recruitment of System Engineer/IT specialist	R																			
		2.1.4. Recruitment of International NWP Expert (Technical Assistant)	R																			
		2.1.5. Procurement and installation of hardware and software infrastructure (HPC system and customized software)	P	P	I	I																
		2.1.7. Maintenance and operation of the equipment (including provision of electricity, cooling)																				
		2.1.8. Procurement of NWP related telecommunication for data transfer between ACMAD and global centres																				
4	Output 2.2. Relevant and existing in-situ data at continental and regional level made accessible	2.2.1. Procurement of NWP related telecommunication for data transfer between ACMAD and NMHSs																				
5	Output 2.3. Data Assimilation (of in-situ and satellite data) into NWP models is operational at continental centre (ACMAD)	2.3.1 Customized SW procurement	P	P	I	I																
		2.3.2. Training specialised staff (Training of trainers) for the operation and maintenance of the infrastructure continental model																				
6	Output 2.4. ACMAD products received by users (Initial/Boundary conditions and Model output)	2.4.1. ACMAD produces and delivers continental 10km NWP outputs as input (initial/boundary conditions) to the regional models and other weather products for use by continental users																				
		2.4.2. Organize training of NWP (ACMAD and RCC) specialised staff in assimilation of in-situ and polar orbiting satellite data																				

7	Output 3.1. ACMAD DRR related NWP products used by a community of NMHSs and African RCCs	3.1.1. Organize two NWP Forum																					
		3.1.2. Organize placement of 12 people for 6 months at ACMAD																					
8	Output 3.2. NWP derived products are used by continental DRR community	3.2.1. Organize product harmonization meetings with stakeholders																					
		3.2.2. Organize value-added training for DRR specialists																					
9	Output 3.3. Awareness in NWP-DRR interaction created in Africa	3.3.1. Invite DRR specialists to Climate Outlook Forum																					
		3.3.2. ACMAD coordinates with the RCCs and other relevant institutions for establishing the best practice with respect to NWP – NWP and DRR interface																					
10	Output 4.1. Project management and coordination	4.1.1. Recruitment of a Project Manager for ACMAD project management – establish detailed implementation plan, sustainability plan, risk register, service development plan																					
		4.1.2. Recruitment of Responsible for Financial & Admin																					
		4.1.3. Recruitment of Responsible for Monitoring & Evaluation																					
		4.1.4. Recruitment of Project assistant																					
		4.1.5. Communication and Website-service																					
		4.1.6. Management mission (travel & DSA)																					
		4.1.7. Financial audit																					

P – Procurement; I – Implementation; R – Recruitment

ANNEX VIII: Details of Project Costs

Component	Cost category	Item	nature	quantity	unit	total		
Component 1 - Establishment of RARS network	Personnel	IT/RARS expert	Per month	36	3500	€126,000.00		
	Goods	Procurement and installation of antenna (inc. SW for L1 product) with training	Per antenna	4	400000	€1,600,000.00		
		Site preparation	Per site	4	10000	€40,000.00		
	Services	RARS expert (TA)	Per month	36	9000	€324,000.00		
		Design Study		1	120000	€120,000.00		
		RARS station operation (5k/year) for 2 years	Per year&station	6	5000	€30,000.00		
		RARS station maintenance for 2 years after installation	Per year&station	8	15000	€120,000.00		
		Telecommunication (2 years - 10keuros per station and per year)	Per year	2	40000	€80,000.00		
		Training on RARS related SW and operation (e.g. NWP SAF)	Training package	1	47000	€47,000.00		
	Operation costs	ACMAD RARS station operation	Per year	2	5000	€10,000.00		
		Travel (flight ticket)	# travel	30	1000	€30,000.00		
	Travel (DSA)	# day	150	180	€27,000.00			
							Total	
							€2,554,000.00	44%
Component 2 - NWP capabilities at ACMAD	Personnel	NWP Forecaster	Per Month	24	3500	€84,000.00		
		NWP Forecast Assistant	Per Month	24	2500	€60,000.00		
		NWP Modeller	Per Month	30	3900	€117,000.00		
		Systems Engineer/IT specialist	Per Month	36	3500	€126,000.00		
	Goods	HPC system (inc storage), other data reception and processing systems	Full system	1	600000	€600,000.00		
		Customised SW procurement	Per SW	2	10000	€20,000.00		
	Services	NWP expert (TA)	Per Month	36	9000	€324,000.00		
		HPC maintenance	Per year	3	20000	€60,000.00		
		NWP related Telecommunication	Per month	24	2500	€60,000.00		
		Training for trainers	Training package	1	12000	€12,000.00		
	Operating costs	Travel (flight ticket)	# travel	30	1000	€30,000.00		
	Travel (DSA)	# day	150	180	€27,000.00			
	Electricity	Per month	30	3000	€90,000.00			
	Climatisation	Per month	30	1000	€30,000.00			

								Total	
								€1,640,000.00	28%
Component 3 - NWP communities	Personnel	N/A							
	Goods	N/A							
	Services								
	Training	NWP Forum (flight ticket, DSA, meeting room, translation, local transport, etc)	per Forum	2	173500	€347,000.00			
		DRR specialist @ Outlook Forum (3 person and 6 Outlook Fora)	per Forum	18	1900	€34,200.00			
		Product Harmonisation meeting (3 meeting with 6 external participants)	per meeting	18	1900	€34,200.00			
		Data assimilation and NWP training (on-the-job training for 6 months @ 1300 per month + 1000 travel)	per trainee	12	9000	€108,000.00			
		Value Added Training for DRR specialist	per trainee	20	1900	€38,000.00			
	Operating costs	Travel (flight ticket)	# travel	18	1000	€18,000.00			
		Travel (DSA)	# day	90	180	€16,200.00			
								Total	
								€595,600.00	10%
Component 4 - project coordination	Personnel	Project manager	Per Month	36	4100	€147,600.00			
		Project Assistant	Per Month	36	2200	€79,200.00			
		M&E Expert	Per Month	36	2700	€97,200.00			
		Finance and Admin	Per Month	36	2700	€97,200.00			
		Procurement Specialist	Per Month	36	2700	€97,200.00			
		Communications Officer	Per Month	30	2500	€75,000.00			
	Goods								
	Services	Communication and website-service	Per year	3	10000	€30,000.00			
		Financial audit	per audit	3	15000	€45,000.00			
	Operating costs	Travel (flight ticket)	# travel	24	1000	€24,000.00			
		Travel (DSA)	# day	100	180	€18,000.00			
		Local transport (fuel)						Total	
								€710,400.00	12%
	Contingency for all components (~5%)					€290,000.00			
							€290,000.00	5%	
							TOTAL	€5,790,000.00	
							Target	€5,790,000.00	
							Difference	€0.00	

	ACMAD (in kind contribution)						€210,000.00		
	TOTAL						€6,000,000.00		
			Recap per component						
			Component 1 - RARS	€2,554,000.00	44%				
			Component 2 - NWP system	€1,640,000.00	28%				
			Component 3 - NWP/DRR community	€595,600.00	10%				
			Component 4 - Project coordination	€710,400.00	12%				
			Contingency (for all components)	€290,000.00	5%				
			Sum check	€5,790,000.00	100%				