ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Pre-Concept for a Regional Project

Countries/Region: **Chad, Cameroon, Central African Republic, Niger, Nigeria**
Project Title: **Integrated water resources management and early warning system for climate change resilience in the Lake Chad Basin**
Implementing Entity: **World Meteorological Organisation (WMO)**
Executing Entities: **Lake Chad Basin Commission (LCBC), Global Water Partnership Central Africa (GWP-Caf)**
AF Project ID: **AFR/MIE/Water/2020/PPC/1**
IE Project ID: **<IE to fill out>** Requested Financing from Adaptation Fund (US Dollars): **10,620,000**
Reviewer and contact person: **Mahamat Assouyouti** Co-reviewer(s): **Matthew Reddy**
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Technical Summary	The project "Integrated water resources management and early warning system for climate change resilience in the Lake Chad Basin" aims to provide concrete technical solutions to climate resilience and water resource management in the Lake Chad basin. This will be done through the components below: Project/Programme Background and Context: Component 1: Governance and project management. USD 790,000 Component 2: Improvement of hydrological and meteorological observing systems networks. USD 2,500,000 Component 3: Development of the regional hydrometeorological information system (database and data sharing mechanism). USD 1,000,000 Component 4: Identification and development of hydrometeorological products and services. USD 1,000,000 Component 5: Training of project stakeholders and knowledge development. USD 1,500,000 Component 6: Awareness raising with decision makers, lawmakers and water users on the importance of information and hydrometeorological services (Communication and diffusion of water-related information). USD 1,000,000 Component 7: Contingency plans (communities' response capacity). USD 2,000,000 Requested financing overview: Project/Programme Execution Cost: USD 855,000 Total Project/Programme Cost: USD 9,000,000

	Implementing Fee: USD 765,000 Financing Requested: USD 10,620,000 It is noted that the proposal does not include a request for a project formulation grant. The initial technical review raises some questions on implementation and delivery of services and others which are discussed in the number of Clarification Requests (CRs) and Corrective Action Request (CAR) in the review.
Date:	August 28, 2020

Review Criteria	Questions	Comments	Comments by WMO
Country Eligibility	1. Are all of the participating countries party to the Kyoto Protocol?	**Yes.**	
	2. Are all of the participating countries developing countries particularly vulnerable to the adverse effects of climate change?	**Yes.**	
Project Eligibility	1. Have the designated government authorities for the Adaptation Fund from each of the participating countries endorsed the project/programme ?	**Yes.** The endorsement letters dated January 15-17, 2020 from Chad, Cameroon, Central African Republic, Niger and Nigeria are valid.	
	2. Has the pre-concept provided necessary information on the problem the proposed project/programme is aiming to solve, including both the	**Partly yes.** The project aims to provide concrete technical solutions to climate resilience and water resource management in the Lake Chad basin. The	**CR1**: The concept note and the full proposal will describe in more detail the existing achievements in building resilience in water management in Lake Chad Basin, in order to build synergies and identify gaps and needs on hydroclimatic information. The acknowledgment of numerous existing projects is one of the triggers of this proposal, which aims at providing all stakeholders, including on-going projects, with sustainable, effective and up-to-date information and knowledge on the hydrological cycle of the whole Lake Chad basin. This kind of information, available at regional,

	regional and the country perspective?	information provided has clearly defines the problem at the basin level although specific country-level challenges are not addressed. The project specific objectives, among others, include building an effective water information system through establishing a consolidated network of national Hydromet observing systems, strengthening the technical and institutional capacities of dedicated national technical services and developing an EWS to forecast disasters, such as floods and droughts data, strengthen regional cooperation through improved knowledge management of the Lake Chad and its tributaries, etc. However, the following clarifications are requested: Many projects and programmes funded by partners including GEF, AfDB, UNDP, WB, GIZ and others have addressed similar objectives over the last 10 years, including the AfDB/GEF funded project *"Lake Chad Basin Regional Program for the Conservation and sustainable use of natural resources and*	national and sub-national scales, will help i) designing and optimizing adaptation projects, ii) checking effectivity of such measures over time and iii) support decision making in case of crisis (flood and drought). Being an updated synthesis of two projects previously developed by WMO (Lake Chad-HYCOS) and GWP-Central Africa (Early Warning System project) the project will integrate existing analyses as well as the current momentum and developments that occurred in the basin, beneficiating from the new approach of WMO in building monitoring systems. All project proposal partners (Countries, LCBC, GWP-Caf, WMO) are in liaison with other projects owners to address their needs. **CR2**: The joint WB-WMO 2018 assessment of the status of Hydromet services (World Bank report), highlighted the dysfunction of Hydromet information systems in developing countries. Field information collected in Lake Chad basin countries during the preparation of the two projects mentioned in CR1 confirmed this unfortunate situation. All past and recent initiatives recognize indeed the value and importance of hydrometric monitoring for the Lake Chad basin, but no mechanism has been established to efficiently sustain knowledge for sound water resource management. This proposal aims at addressing basin wide and national needs in an aggregated way. According the new approach of WMO for monitoring systems, it is foreseen to start a modern user requirement process to address specific needs. Accordingly, kindly note that it is premature at this stage to describe the country level context in an accurate enough way, taking into account existing analysis. This requirement process will expand existing analysis from other UN agencies and NGOs with information from partners and from the field. Such existing analysis are for instance: http://www.fao.org/3/W4347E/w4347e0j.htm; https://www.msf.org/lake-chad-crisis-depth; http://www.fao.org/land-water/news-archive/news-detail/en/c/267309/ ; https://library.wmo.int/doc_num.php?explnum_id=4703 ; https://wcaro.unfpa.org/sites/default/files/pub-pdf/UNFPA-WCARO-BLT-EN-LAKE%20CHAD-DYNAMICS-WEB.pdf ; https://www4.unfccc.int/sites/NDCStaging/Pages/All.aspx. **CR3**: The critical situation of Lake Chad has prompted government authorities of the member states of the LCBC to consider transferring water from the neighboring Congo Basin into the Lake Chad Basin and a feasibility study was published in 2012, noting experts' opinions differed substantially. In fact, occasional rises in the lake level were observed recently during this period of climatic deterioration, due to exceptional floods recorded on the Chari River. Such facts demonstrate that the

		energy efficiency"; GEF funded project *"Improving Lake Chad management through building climate change resilience and reducing ecosystem stress through implementation of the SAP"*; GIZ and BGR projects; etc. **CR1**: Can you describe what is being achieved so far in building resilience in water management in Lake Chad Basin and the gap to be filled by this project? The proposal does not describe adequately the country level context and challenges (for all countries). All projects listed above by other partners have national components (completed or under implementation) which complement or overlap with the proposed activities by this project. **CR2:** Please describe the country level context, challenges and gaps addressed by this project. **CR3**: Potentially maladaptive alternative measures have also been identified as solutions including river basin diversions. Please justify these measures and compliance with national policies and AF Environmental and	situation is way more complex than it may appear. A close and rigorous hydrological survey is therefore essential to better understand processes involved. On the bright side, the water transfer project itself provides for a subsequent monitoring network in order to check the validity of the predictions and evaluation of foreseen impacts on the Lake Chad basin, which reinforces the need for the proposed project. The main objective of the project is to provide decision makers with critical information for adaptation infrastructures and organizational measures. This will allow to select the most appropriate and flexible solutions in a sustainable way for the generations to come. As such, the proposal should be seen as a background activity and not as an isolated solution. This is fully compliant with national policies and AF Environmental and Social Policy.

		Social Policy.	
	3. Have the project/programme objectives, components and financing been clearly explained?	**Not fully at this time.** The components documented in the table are clear although more detail is sought on technical aspects and particularly on component 7 – awareness raising. **CR4**: The proposed components overlap with existing projects and programmes funded by Lake Chad Basin commission (refer also to CR1 above). Please provide a table justifying complementarity and non-duplication. **CR5**: Please specify how many weather stations will be required to meet the project's objective, namely "To build an effective water information system through establishing a consolidated network of national Hydromet observing systems". **CR6**: What is the proposed area of coverage? Please add a map in annex. **CR7**: Who will own the information generated? Will data and information be freely available to those who request it, including NHS and other partners? Will other countries outside the project area be able to access the data for their	**CR4**: Most of the projects that are identified at this stage are addressing either a sectoral monitoring (e.g., groundwater), or pilot sites. The first phase of the proposal will, based on a new user requirement mechanism, establish a modern, sustainable monitoring network design using information theory, that will take into account existing and planned stations, leveraging existing monitoring efforts in an effective way. A detailed mapping is planned for the concept note, allowing to provide the requested table, counting on your understanding. **CR5**: The proposal aims at establishing a monitoring network of the full hydrological cycle based on a user requirement process that will occur in next steps of the process of the project development. Kindly note that this network will not be limited to weather stations. In addition to the WMO recommendations for building effective water information systems focusing on efficiency and sustainability, the number of stations to be proposed in the project will take into account the financial and technical capacity of the countries to operate and maintain them properly on the long term. Considering this, the number of stations will be flexible over time, based on the latest development in monitoring network design, and will take into account existing stations. Moreover, it is foreseen to combine standard stations with low-cost technology, citizen observations and satellite information. Thus, it is not possible to provide an exact number at this stage. **CR6**: The whole basin (See the attached map) will be considered, priority areas, including if required very small catchments, will be defined according user requirement. **CR7**: Countries will own data. Sharing data is a fundamental principle of WMO Members and it is foreseen that the LCBC will facilitate data management and sharing at regional level. Participating countries are expected to sign a specific agreement for sharing data built on the Lake Chad Water Charter recently ratified by the LCBC Member States, that obliges each State to organize hydrological monitoring in its national portion of the basin and requests the exchange of data between countries and with the LCBC. Kindly note that GBON doesn't yet include hydrological variables, but developments will be done in the framework of WMO's WIGOS and WIS guidelines. Fees are not foreseen at any stage; possible customized services would be outside the project and possible relations with private sector would be most welcome and framed according WMO practices for public-private partnership, taking into account national rules.

		own weather and climate predictions/forecasting; i.e using GBON network? Is it envisaged that fees be paid for the information at any stage – and under what conditions? Can customized or more in-depth analysis be undertaken for project planning and investment purposes? **CR8**: How will information be communicated to communities and those people most at risk from food insecurity? This seems vaguely covered but will be vital to the success of the project. **CR9**: Under the objective "to promote and facilitate the dissemination and use of services and relevant products related to water resource management, environmental protection and protection of human life and property against water-related risks" what products are envisaged? How are these to be disseminated? **CR10**: The challenges stated in the background and context include food insecurity and sustainable agriculture.	**CR 8:** a special focus will be addressed to local communities in the spirit of citizen science, with their own data and tools following the CARE principles (Collective benefit, Authority to control, Responsibility and Ethics). This project will set the scene and allow such mechanisms but will not establish a comprehensive solution. The concept note will explore the possibility of supporting local, national and international NGOs active in food security with WMO tools and solutions. Recent advances in the field of new information and communication technologies (NICT), offer many opportunities to provide timely information to a wide range of users. Due to the current significant development of GSM in the participating countries, the possibility of disseminating information through this technology (including in local languages) will also be explored with a view to reaching out to the targeted population. Traditional authorities (which are highly respected in the region) will also be engaged to facilitate information circulation and use. **CR9**: Hydrological products and services are foreseen at 3 scales: basin, national and subnational/local. At regional and national scales, it is foreseen to implement the WMO HydroSOS: hydrological status and outlook system, providing aggregated data on the current hydrological situation and outlook for coming weeks and months based on global and regional hydrological models. The goal will be to inform stakeholders on hydrological developments in order to detect anomalies possibly leading to floods and droughts, in order to improve the preparedness. HydroSOS will be operated ultimately by countries, supported by a regional center. Such center could be a WMO Regional Climate Center and hydrological products will be derived from Regional Climate Outlooks (RCOFs). Dissemination will be through platforms at regional and national level, and using ad hoc communication tools at local levels (e.g., GSM, radios, direct transmissions, etc.). In addition, specific products will be provided at request of users, via suitable means of communication according to the user's requirements. In order to involve them, in the short term, to participate in the funding of data collection in a sustainable way, a survey of potential users of this category of products is crucial and will be organized to specify the nature, form and timeliness of hydrological products. **CR10**: The information system will address the full hydrological cycle, weather stations being only a part of it. In addition to usual surface water variables, soil moisture and groundwater will be measured as well. As stated before, a combination of data source, including satellite and citizen observations, will make sure the network will be efficient and sustainable. Where new stations are required, they will be multi-purpose as far as local conditions allow.

		Can data such as humidity and soil moisture also be incorporated into the data sets from the weather stations so that agronomic services can be improved? How multi-purpose are the weather stations and information sets? **CR11**: Is it possible that other sources of data (such as: proprietary weather stations, historical data housed in national level Met offices, those that currently exist within the region and outside of the region) be integrated into the system to improve its accuracy?	**CR11**: It is the essence of the project to combine all source of data, taking into account potentially quite different quality in terms of accuracy, liability and measurement rhythm. Historical data from the existing monitoring network will be made available to the project. Besides the fact that this will be a demonstration of good will of the participating countries to adhere to the objectives of the project, the historical data are essential to improve the accuracy of existing products and for the development of specific information products related to climate adaptation.
	4. Has the project/programme been justified in terms of how: - it supports concrete adaptation actions? - it builds added value through the regional approach? - it promotes new and innovative solutions to climate change adaptation? - it is cost-effective? - it is consistent	**Not fully at this time.** The data and information provided through the early warning system, climate data and co-management of surface and ground water is going to make an invaluable contribution to all management actions in the short to long term throughout the Lake Chad Basin. The Basin level approach strongly supports regional collaboration, although not new in this basin. Innovative solutions to climate change adaptation will	**CR12**: The project aims at providing hydrological information for decision makers, allowing them to design effective infrastructure and to adequately manage water resources, including in flood and drought situation. A cost-benefit assessment is difficult at this stage, as efficiency will be a criterion for the design of the information system, but it is usually acknowledged that cost-benefits are in the order of magnitude of 1/5 to 1/10 at least. **CR13**: The project proposal is fully aligned with EWS related initiatives such as CREWS and the Flash Flood Guidance System (FFGS), in the spirit of WMO Multi-Hazard Early Warning System. Moreover, WMO is in regular contact with regional institutions as AMCOMET, ECOWAS and ECCAS, the African Development Bank and the World Bank GFDRR to make sure new developments are synergetic with other activities. As such, the project will contribute to the DRR platform established in Central Africa through the AMCOMET initiative. **CR14**: Monitoring stations (not only weather stations) will be by nature multipurpose, according the latest developments of monitoring network design. A user requirement process will allow to identify current and future needs and the optimization will make sure the network addresses all of them in a flexible way, including for the next generations. In

	with applicable strategies and plans? - it incorporates learning and knowledge management? - it will be developed through a consultative process with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy of the Adaptation Fund? - it will take into account sustainability?	be supported through the information and there is much scope for innovative development of knowledge products and services targeting vulnerable communities. However, the following clarifications are requested: **CR12**: Cost effectiveness is difficult to determine without knowing the degree of resolution, coverage and modelling capacity being proposed. More information is needed to make this assessment. **CR13**: Please provide information on the Pan-African push for advanced EWS and early action measures and cconsistency with sub-national, national, regional and international strategies. **CR14**: In line with African Union ambition, REAP recommendations and the recently launched Alliance for Hydromet Development by WMO and partners including the AF, the proposal should emphasize the multi-use nature of the weather stations for maximum adaptation benefit.	addition, it is foreseen as well to address water quality aspects as appropriate, WMO being a member of the World Water Quality Alliance led by UNEP. The Hydromet Alliance is the umbrella of such activities. **CR15**: WIGOS, WIS and if appropriate GBON (which is premature considering the latter is at this stage only for selected weather and climate stations) will set the framework for data management and data sharing. The WMO Hydrological Observing System WHOS is the hydrological component of WIS. Thus, compliance is fully achieved, and is even the core of the technical developments. **CR16**: In developing this pre-concept, the Lake Chad Basin Commission Executive secretariat, its Technical Committee of Experts of member states, as well as National Hydrological and Meteorological Services and the beneficiary countries Adaptation Fund Designated Authorities (who endorsed the proposal) were all consulted, and their views were integrated into the proposal. The German Cooperation and other partners have been consulted as well. The consultative process for the development of full project proposal will involve other key stakeholders from the countries, especially from beneficiary communities. This consultative process will be iterative and multi-stage, involving regional, national and sub-national authorities, as well as communities. This process will combine well established procedures used for instance for FFGS and a series of dialogues and feedback processes. It is foreseen to work closely with local communities and NGOs, and to be supported by social science experts. Gender consideration is a core value of WMO and a specific attention will be dedicated to it, for requirement and for the design of information products and channel. A stakeholder workshop to present and approve the detailed concept note is also planned. **CR17**: Sustainability is at the core of the new WMO strategy for hydrological monitoring network. It emerges from a combination of i) a bottom-up approach for user requirement creating ownership, ii) a minimization of operation and maintenance costs thanks modern and robust devices, iii) establishment of products and services showing the benefits of the information system, iv) a flexible network answering new needs and v) the involvement of local institutions for maintenance, repair and new developments. The National Hydrological and Meteorological Services of the Member States will be the main actors in the development of the project activities in the field. The staff of those services as well as the staff of the relevant services of the LCBC Secretariat will benefit from the training sessions planned within the framework of the project. Lessons learned will be used to continue the development of the activities of these services even after the project. It is also known that the demonstration of

		CR15: Please confirm the proposed EWS and stations will be designed to be compliant with the Global Basic Observing Network (GBON), for maximization of adaptation benefits and support the exchange of global observation data. **CR16**: The planned consultative process seems adequate but could be further detailed (process and timeframe). Please explain how all stakeholders will be involved including beneficiaries, local actors and specific gender consideration at each country and regional level, in compliance with AF ESP and gender policy. Please also specify which institutions have been already consulted for the design of the pre-concept note. **CR17**: Please explain how the sustainability of investments and activities will be achieved. The proposed strategy (limited to awareness activities) could be strengthened.	the benefit from data and information products will help attract funding for their monitoring activities (and especially data collection, which is one of the weakest components of the hydrological value chain). The intention of the project is to find ways and means of attracting the interest of the main users of water information (for example, by providing them with good quality products within the required deadlines), with a view to getting them to participate in its financing in the very short term. From this point of view, the development of the project will take their needs and interests into account from the beginning and develop the necessary strategies to meet them adequately and regularly.
	5. Does the pre-concept briefly explain which organizations would be involved	**Partly yes.** The regional arrangements for the programme are	**CR18**: Most of the partner projects are already identified, and the combined efforts of WMO, GWP and LCBC will allow a smooth collaboration. Using the general umbrella of the HydroMet Alliance, round

	in the proposed regional project/programme at the regional and national/sub-national level, and how coordination would be arranged? Does it explain how national institutions, and when possible, national implementing entities (NIEs) would be involved as partners in the project?	adequately described, although governance of the programme and the composition of the Project Management Unit and the Steering Committee will need further elaboration. **CR18**: Please explain how the proposed project will interact and build cooperation and coordination with other ongoing projects and programmes with the LCBC and other regional initiatives including GIZ, BGR AfDB PRESIBALT, BRIDGE, AfDB PRESIBALT, UNDP-GEF projects, etc (refer to CR1 above). **CR19**: Please describe how project steering committee will insure participation of beneficiaries at country and regional levels. Please clarify what is meant by "Focal Points for Adaptation Fund in each participating country". **CR20**: Lake Chad Commission Basin already hosts many projects and coordination units. Please explain the capacity of LCBC to ensure an additional coordination mechanism	tables will be organized with all partners and key players will be invited to steering committees. Existing MOU (e.g., with UNDP, UNEP, …) will help setting this collaborative framework. Regular consultations will be organized with national stakeholders and with focal points of on-going project, without forgetting others financial institutions. A joint meeting with other regional and national initiatives focal points is planned to clarify the collaborative framework at regional and national level, and develop synergies and complementarities. More information will be provided in the next steps of the project proposal. **CR19**: Usually in such projects, every participating country nominate a focal point and a member of the steering committee. Their role is not only to take part to decisions, but also to convey beneficiaries' expectations and views at the regional level, as well as to transfer the developments and the new knowledge at national level. They will be at the steering committee as owners of the project and its achievements. The "Focal Points for Adaptation Fund in each participating country" is the national Designated Authorities of the Adaptation Fund, those who endorsed the project pre-concept from each country. **CR20**: It is foreseen to hire a project management unit with 3 to 4 people who will be located at LCBC premises, under the lead of the secretariat. **CR21**: All project partners have not yet been identified. Current targets are effectively ECMWF and other existing partners of HydroSOS, and we will likely target several NGOs as well, other partnerships being open depending on required coordination and developments. Identification of external technical partners is foreseen and will be done in joint consultation of project partners. WMO with its technical units on climate, water and weather will provide necessary technical assistance and expertise during the implementation. Other necessary external partners will be selected based on specific criteria among which, i) Technical Expertise in the proposed project activities; ii) experience in implementing projects in the Lake Chad Basin region and countries, etc... More details will be presented in the concept note and project proposal document

		and its effectiveness. **CR21**: Project partners - the established and respected service providers like WMO and others such as ECMWF, IBM, TAHMO, Walker Institute at Reading University could also play a role. Have expert partners been identified?	
Resource Availability	1. Is the requested project / programme funding within the funding windows of the pilot programme for regional projects/programmes? Has the Implementing Entity requested a Project Formulation Grant?	Yes. We note that no PFG has been requested at this stage.	
	2. Are the administrative costs (Implementing Entity Management Fee and Project/ Programme Execution Costs) at or below 20 percent of the total project/programme budget?	Yes, administrative costs amount to 18% of the total grant, excluding the project fees.	

Eligibility of IE	1. Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?	Yes, WMO is a multilateral Implementing Entity.	

ADAPTATION FUND

PRE-CONCEPT FOR A REGIONAL PROJECT/PROGRAMME

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme:	Integrated water resources management and early warning system for climate change resilience in the Lake Chad Basin
Countries:	Chad, Cameroon, Central African Rep., Niger, Nigeria
Thematic Focal Area:	Disaster risk reduction and early warning systems
Type of Implementing Entity:	Multilateral implementing entity
Implementing Entity:	World Meteorological Organisation (WMO)
Executing Entities:	Lake Chad Basin Commission (LCBC), Global Water Partnership Central Africa (GWP-Caf)
Amount of Financing Requested:	**10,620** million (in U.S Dollars Equivalent)

Project / Programme Background and Context

Shared by 5 countries classified among the poorest in the world, the Lake Chad basin, with an area of around 2,400,000 km², is one of the most threatened Lake ecosystems in Africa. The lake and its basin currently provide livelihoods for a population currently estimated at 50 million people. For thousands of years, it has been the economic heart that provides life for millions of people and a focus of development, trade and cultural exchanges between the populations of the northern Sahara and those of the south. As a host for migrating water-birds, Lake Chad also plays a role in wildlife conservation. From this point of view, it offers very rich ecosystems in an arid environment and is therefore included in the Ramsar List of Wetlands of International Importance.

Climate variability has strong effects on the stability of the Lake Chad basin, and concrete projects need to be undertaken to address the many crises that are affecting the region. Since the 1970s, the region has been suffering from the harmful effects of climate change, characterized in particular by drought combined with episodic floods, and the surface of the lake has infamously decreased by 90%, thus negatively impacting the population, the agriculture and development perspectives. Out of an estimated total basin population of 17.4 million people, 5 million are food insecure and 10.7 million are requiring humanitarian assistance. As a result, in addition to the crystallization of tensions, there is widespread concern among the riparian countries that the lake could disappear again, and a water transfer project from the Congo Basin is being considered.

The riparian populations around the Basin which are predominately livelihood-based economies have developed adaptive strategies based on mobility and are thus highly dependent on the natural resources in the areas for fishing, livestock farming and agriculture. The Basin's wetlands are thus critical to agriculture and food supply to cope with recurrent droughts. Given the low adaptive capacity, hydrometeorological hazards can translate into real disasters for the population and the local economy. Extreme events lead to displacement, food insecurity, malnutrition and epidemics as it was the case in recent years, with negative impact on socio-economic development, and climate change is expected to continue to aggravate the situation.

Two projects had previously been developed in collaboration with the LCBC and its member countries, the Lake Chad-HYCOS project by WMO and the Early Warning System project by GWP-Caf. Upon request from the LCBC and in accordance with its Strategic Action Plan, the two institutions have been mandated to help develop a common project to relaunch hydromet monitoring activities for improved water management in the basin and set up an Early Warning System (EWS) for water-related disaster risks, particularly floods and droughts. This collaboration between the three institutions is a powerful alliance to promote the exchange of experiences between partners to ensure that the expected results are met.

Project / Programme Objectives

The five-year project core objective is to contribute to provide concrete technical solutions to climate resilience and water resource management in the Lake Chad basin. Project activities will build on existing data and lessons learned from former projects and other WMO activities such as the WMO HydroHub which has developed a new WHYCOS operational strategic plan and the Global Hydrological Status and Outlook System (HydroSOS), as well as the Associated Programme on Flood Management (APFM) and Integrated Drought Management Programme (IDMP), promoted by both WMO and the GWP, to offer robust, innovative and sustainable solutions, both for water monitoring and for disaster risk reduction and climate change adaptation. The project will serve the participating countries as a demonstration of an appropriate end-to-end solution for service delivery responding to the needs of basin-wide end-users, to ensure long-term water monitoring for a sustainable environmental and economic development. It will synergize with other ongoing or planned projects in the basin. Its main specific objectives are as follows:

- To build an effective water information system through establishing a consolidated network of national Hydromet observing systems that provide coherent and reliable data, transmitted in appropriate time to national and regional databases through the WMO Global Telecommunications System (GTS) or any other appropriate channel;
- To anticipate and inform vulnerable population on emerging risks through strengthening the technical and institutional capacities of dedicated national technical services and developing an EWS to forecast disasters, such as dangerous floods and droughts;
- To sustain hydrological products and services development through strengthening the technical and institutional capacities of the National Hydrometeorological Services (NMHSs) in the area of data collection and processing;
- To promote and facilitate the dissemination and use of services and relevant products related to water resource management, environmental protection and protection of human life and property against water-related risks using the appropriate means including the new technologies (e.g., GSM message in locale language) and with the pro-active engagement of Agencies and communities (Gender mainstreaming);
- To strengthen regional cooperation through improved knowledge management of the Lake Chad and its tributaries.

The project aims at combining regional, national and local information systems. Specific needs of countries and sub-national entities will be identified in the first phase of the project.

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Project / Programme Components and Financing

Each of these project components will be executed in each of the considered 5 riparian countries

Project Components	Expected Outcomes	Expected Concrete Outputs	Amount (US$)x$10^3$
1. Governance and project management	- Project partners benefit from an effective and efficient management and coordination process. - Sustainability of project achievements is guaranteed.	1.1. Operational plan developed 1.2. Institutional Structures established 1.3. Project management unit operational 1.4 Sustainable funding mechanism for water monitoring established	790
2. Improvement of hydrological and meteorological observing systems networks	- Strengthened institutional capacity contributing to reduce socioeconomic and environmental risks associated with climate related hazards	2.1. Hydromet observation network and information system, including groundwater, modernized/established	2 500
3. Development of the regional hydrometeorological information system (database and data sharing mechanism)	- The database is accessible, with up to date information, and used by the relevant stakeholders -Potential of HydroSOS identified and mechanism identified	3.1. Development of a harmonised regional database owned and managed by dedicated stakeholders 3.2. Flood and drought forecasting instruments and EWS within the riparian countries and coordination at regional level are	1 000

		improved, HydroSOS ready for implementation	
4. Identification and development of hydrometeorological products and services	- The needs and requirements of users of hydrometeorological products and services are well known: countries, end-users including minorities, considering gender and cultural aspects - Strengthened technical and institutional capacities of the NMHSs to monitor and stock relevant and up-to-date data, and for development of model products	4.1. A baseline study is completed, with concrete understanding of the knowledge and infrastructure needs on the basin; 4.2. Development of a national EWS mechanism, with LCBC providing guidance and warning advisories at the regional level;	1 000
5. Training of project stakeholders and knowledge development	- Improved collaborative interactions amongst the key stakeholders - Better assessment of the current situation and the capacity needs of key stakeholder groups and categories	5.1. Organizational arrangements on a national and regional level, as well as communication procedures are established 5.2. Hydromet staff is trained in installation and maintenance	1 500
6. Awareness raising with decision makers, lawmakers and water users on the importance of information and hydrometeorological services (Communication and diffusion of water-related information)	- Sustainability of the hydrological and meteorological monitoring activities; - Strengthened awareness to sustainable integrated approach to water resource management, including climate change issues; - Increased interest on the part of governments; - Strengthened awareness and ownership of the Hydromet monitoring; - Secured continuous and efficient use of data consistently gathered in a demand-driven way.	6.1. Awareness raising workshops for decision makers and lawmakers 6.2. Awareness raising workshops and on-site demonstrations for water users 6.3. A communication and warning dissemination system is set up, operational and accessible to a wide audience, including vulnerable people 6.4. Warning messages are recognised and understood by users' communities in the basin, including the most vulnerable ones.	1 000
7. Contingency plans (communities' response capacity)	- Enhanced governance coherence at the basin level and increased adaptive capacity within the agricultural and natural resource sectors	7.1. Development and implementation of contingency plans at the regional and national levels 7.2. Medium and long-term adaptation and mitigation measures are recommended in the prioritized areas	2 000
8. Project/Programme Execution cost			**855**
9. Total Project/Programme Cost			**9 000**
10. Project/Programme Cycle Management Fee charged by the Implementing Entity			**765**
Amount of Financing Requested			**10 620**

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Project Duration: 5 years (60 months)

PART II: PROJECT / PROGRAMME JUSTIFICATION

Project components

The transboundary dimension of the basin makes the regional approach essential to promote collaboration, data and information exchange and exchanges of experience between national partners, as well as with the LCBC, the regional institution common to the 5 countries, which ensures, among other things, a global analysis of the impact of climate change on the entire basin. This approach is also a powerful tool for building solidarity, mutual trust and collaboration between the different technical teams of the countries participating in the project. This practice, which should continue beyond the project, is conducive to mutual assistance among agents for a better

implementation of activities related to the knowledge and management of water resources, as well as EWS in the Lake Chad basin. It also strongly supports the exchange of data and information that underpins transparent decision-making particularly important to prevent conflicts in competitive usages, namely with regard shared resources of the transboundary basin.

In addition to the first component, relative to the governance and project management, the other six components focus on three main areas. (i)The first area is dedicated to strengthening and updating an operational and reliable system for collecting, transmitting, processing and archiving data on the situation and the quality of both surface and groundwater resources in a timely manner to meet the needs of end users throughout the basin. It will particularly be supported by WMO-HydroHub, which will help to facilitate the adoption of appropriate innovative technologies to complement standard measures. (ii)The component on capacity building aims in particular to ensure full ownership of new generation Hydromet tools and equipment by the various actors. It will also integrate organisational and financial aspects putting a particular emphasis on the training of women and young people. (iii)As for the third component, the development and dissemination of products will take into account the different needs and opportunities of men and women, in order to best reach different social categories and reduce inequalities, to allow facing climate hazards and promoting better resilience to climate change. The products and services developed adjusted to the needs of end users in order to better contribute to decision-making as well as contributing to the sustainability of project achievements, at both national and regional levels. The project will particularly develop, through participatory approach, and implement contingency plans at the regional and national level, to improve the communities' response capacity towards climate hazards.

Cost effectiveness of the proposed project

The scale of the basin allows the project to reach its goals in five countries within five years. In addition to the cost-effectiveness, a regional unified network system will enable participating countries to benefit not only from a basin-wide transboundary management framework to ensure long-term environmental and economic development, but also from the sharing of experiences as well as the construction a network of actors for concrete solutions to reduce economic losses linked to climate-related hazards and a negative impacts on livelihoods and increase communities resilience to climate change. On the other hand, in addition to its importance in terms of cooperation and mediation, the LCBC will ensure the consolidation of the project's results, particularly after its completion, in order to ensure its sustainability, serving as a regional expertise Center continuously supporting national entities.

Consistency with sub-national, national, regional and international strategies

The project proposal is in line with the LCBC's strategic action plan developed in a mutual agreement with its member countries, based on their different national and regional priorities, including national climate change adaptation plans. As such, the project will be built on existing initiatives (at the national, regional and international levels), which include the Program to Rehabilitate and Strengthen the Resilience of Lake Chad Basin socio-ecological Systems (AfDB and its partners). It will, moreover, align with the outcomes of the "Sustainable Water Resources Management in the Lake Chad Basin" project (German Cooperation). This project will furthermore synergize with all other ongoing and planned initiatives in collaboration with other partners, as well as the "Vision 2025 of the Lake Chad Basin" and the 2012 Lake Chad Water Charter, etc...

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Consultative process

Projects activities outcomes are for population and local communities. In accordance with this, a tailored and modern user requirement process will be put in place, taking into account minorities, genders and cultural aspects. This will ensure that the project adequately meets the needs and requirements of countries, as well as those of end users of hydrometeorological products and services. This participatory process will be led by the LCBC Executive Secretariat involving stakeholder platforms agreed in the Water Charter (Development Partners, Media, Research / Academic), with focus on civil society organizations representing women, marginalized ethnic groups and vulnerable populations. The activities will also capitalize traditional rulers and civil administrators. Additionally, close cooperation will be guaranteed with major development projects in the Lake Chad basin to make sure the project is delivering necessary products and synergies.

Economic, social and environmental benefits
The basin population is composed mainly of vulnerable groups, as most of it lives in rural areas with a livelihood-based economy. A strong emphasis on subsistence farmers and women will thus be developed throughout the project. The project will integrate smallholder farmers and farming communities in water resources management and increase their resilience to climate change effects. Furthermore, ensuring the full and effective participation of women in decision-making processes enables them to act as agents of change in all circumstances, with climate change-related actions subsequently benefiting from the insights, knowledge and other resources that they bring to bear in crafting effective and sustainable solutions for adapting to and mitigating climate change impacts. The project is expected to be a category C according to the Adaptation Fund's classification and should not have any negative effect on the environment or society.

Duplication of project with other funding sources
A number of initiatives are underway or planned in the Lake Chad Basin (most of which addressing either a sectoral monitoring or pilot sites), but no mechanisms have been put in place to ensure efficient, sustainable knowledge for sound water resources management, disaster risk reduction or the organization of actions between technical services and decision-making institutions to mitigate their impacts. This project has been designed to build on, synergise and complement results of activities of those projects financed by the Africa Development bank (PRESIBALT), the World Bank (PULCI), CREWS Chad, PROLAC and the German Cooperation (Adaptation to Climate Change). A complete inventory of current and developing projects and programmes will be carried out at the next stage of the project development process, with a view to strengthening synergies and ensuring complementarity.

Justification for funding requested
This objective will be achieved by investing the resources sought more specifically in (i) strengthening the institutional and technical capacities of hydrometeorological services at the national and regional levels, but also those in charge of civil protection and food security; (ii) producing information and services that adequately meet the urgent needs of economic sectors and populations in terms of food security, health, water management and disaster risk reduction; and (iii) Improving the multi-hazard warning systems of the participating countries; knowledge and detection of disaster risks and possible consequences, roles, responsibilities and coordination mechanisms for civil protection. The proposed project will also commit the LCBC and participating countries to support and maintain, in the long term, the actions undertaken in the development of its activities, both within countries and at the regional level. The total budget for these activities is estimated at **$9.0** million to support implementation in the five participating countries. Funding for project management is estimated at **$0.855**MK to ensure sufficient coordination at the regional and national levels. Additional funding also in the order of **$0.765**MK is planned to cover the expenses of the implementing entity, for a total of **$10.62**MK for the entire project.

PART III: IMPLEMENTATION ARRANGEMENTS

The Adaptation Fund will provide resources to WMO as the accredited entity to effectively mobilize LCBC as the Project Executing Agency that coordinates the development of project activities through a Project Management Unit (PMU) to be set up including 3 to 4 new staff to be appointed. A Steering Committee (SC) will be set up to oversee and validate the project implementation strategy. It will be composed of a representative from each participating country, representatives of the Implementing Agency, technical partners and donors, a representative of WMO who will act as the Project Supervisory Agency and the National Designated Authorities of Adaptation Fund in participating countries make sure that the project is being implemented according to the Adaptation Fund procedures. The technical services concerned, from the participating countries, in particular the NMHSs and the Civil Protection Services, will ensure the effective implementation of activities on the ground, with the assistance of the technical partners (if necessary), including in particular the GWP-Caf. Each country's NMHS will be engaged to be at the forefront of project development. Finally, local communities will play a key role in ensuring the ownership of the project, its efficiency and that the data is gathered in a demand-driven way. The Executing Agency is responsible for the implementation, direction, administration and financial monitoring of the project through the PMU it will set up.

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PART IV: ENDORSEMENT BY GOVERNMENTS AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[1] *Provide the name and position of the government official and indicate date of endorsement for each country participating in the proposed project/programme. Add more lines as necessary. The endorsement letters should be attached as annexes to the project/programme proposal.*

Mr. Yerima Peter Tarfa Director, Department of Climate Change, Abuja, Nigeria Federal Ministry of Environment	January 16th 2020
Dr. Kamaye Maazou Secrétaire Exécutif du Conseil National de l'Environnement pour un Développement Durable BP 10193, Niamey, Niger	January 17th 2020
Mr. Michel Dimbele Kombe Chargé d'Etudes en matière de Mobilisation de Fonds Innovants liés aux Changements Climatiques Coordination Nationale Climat Ministère de l'Environnement et du Développement Durable Bangui, Central Africa Republic	January 15th 2020
M. Francis D. Matip Nouga, Chef de Cellule de Suivi Ministry of Environment, Protection of Nature and Sustainable Development P.O Box 320, Yaoundé, Cameroon	January 14th 2020
Mrs. Fatime Ousmane Geographer and Environmentalist Ministry of Environment, Water and Fisheries Ndjamena, Chad	January 15th 2020

B. Implementing Entity certification *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address*

[1] Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (*Contribution Prévue Déterminée au niveau National (CPDN) de la République du Tchad (Septembre 2015); Cameroon's National Adaptation Plan (June, 2015); Contribution Prévue Déterminée au niveau National (CPDN) de la République Centrafricaine (Septembre 2015); Programme d'Action national pour le changement climatique (PANA), Niger (Juil. 2006); National Adaptation Strategy and Plan of Action (NASPA) on climate change for Nigeria, (November 2011))* and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

Jean-Paul Gaudechoux
Senior Programme Manager
Office of Development Partnerships
Member Services and Development Department
Implementing Entity Coordinator

Date: July 1st, 2020	Tel. and Email: +41 79 514 4261 jpgaudechoux@wmo.int

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