ADAPTATION FUND

AFB/PPRC.29/37
11 March 2022

Adaptation Fund Board
Project and Programme Review Committee
Twenty-ninth Meeting
Bonn, Germany (hybrid meeting), 5-6 April 2022

Agenda Item 10 c)

PROPOSAL FOR LARGE INNOVATION PROJECT FOR THE GAMBIA AND UNITED REPUBLIC OF TANZANIA

Background

1. At its thirtieth meeting, having considered document AFB/B.30/5/Rev.1, the Adaptation Fund Board (the Board) decided:

> *(a) To adopt the medium-term strategy as amended by the Board, as contained in the Annex 1 of the document AFB/B.30/5/Rev.1 (the MTS); and*
>
> *(b) To request the secretariat:*
>
> *(i) To broadly disseminate the MTS and work with key stakeholders to build understanding and support;*
>
> *(ii) To prepare, under the supervision of the MTS task force, a draft implementation plan for operationalizing the MTS, containing a draft budget and addressing key assumptions and risks, including but not limited to funding and political risks, for consideration by the Board at its thirty-first meeting; and*
>
> *(iii) To draft, as part of the implementation plan, the updates/modifications to the operational policies and guidelines of the Adaptation Fund needed to facilitate implementation of the MTS, for consideration by the Board at its thirty-first meeting.*
>
> *(Decision B.30/42)*

2. Pursuant to decision B.30/42, subparagraph (b) (ii), the secretariat prepared a draft implementation plan for the MTS, including an assessment of assumptions and risks. The secretariat shared a version of the draft with the MTS task force for comments.

3. The draft implementation plan also contains suggestions for specific funding windows that might be opened under the MTS in complement of the Fund's existing funding windows for single-country and regional adaptation projects and readiness support projects. Following the approval of the implementation plan, the secretariat would present specific proposed details for each new funding window at subsequent meetings of the Board for its consideration, in accordance with the timeline contained in the implementation plan.

4. At its thirty-first meeting, the Board discussed the draft implementation plan for the MTS, and members of the Board proposed amendments to the document. The secretariat then presented a revised draft, in document AFB/B.31/5/Rev.1. Having considered that document, the Board decided:

> *(a) To approve the implementation plan for the medium-term strategy for the Fund for 2018–2022 contained in the Annex I to document AFB/B.31/5/Rev.1 (the plan);*
>
> *(b) To request the secretariat:*
>
> *[…]*

(iii) To prepare, for each proposed new type of grant and funding window, a specific document containing objectives, review criteria, expected grant sizes, implementation modalities, review process and other relevant features and submit it to the Board for its consideration in accordance with the tentative timeline contained in Annex I to document AFB/B.31/5/Rev.1, with input from the Board's committees;

(iv) Following consideration of the new types of support mentioned in subparagraph (b)(iii), to propose, as necessary, amendments to the Fund's operational policies and guidelines Fund to better facilitate the implementation of such new types of support; and

[…]

(Decision B.31/32)

5. At the -second session of its thirty-fifth meeting, the Board considered document AFB/PPRC.26.b/16 , *Program on Innovation: Large Grants for Innovation,* and the Board decided:

(a) To approve the process for providing funding for innovation through large grants to Implementing Entities (IEs) as described in document AFB/PPRC.26.b/16; including the proposed objectives, review criteria, expected grant sizes, implementation modalities, review process and other relevant features as described in the document;

(b) That the large grants for innovation would fall outside the country cap approved by the Board in decision B.13/23 or, in the case of regional or multi-regional proposals, the regional provision, whereas they would count against the Multilateral Implementing Entity cap as per decision B.12/9;

(c) To request the secretariat to prepare the first Request for Proposals to IEs for a total amount of US $30 million to be launched by the first quarter of calendar year of 2021; and

(d) To request the secretariat to consider the need to develop specific objectives and indicators for the innovation aspects of the projects, beyond what is included in the regular project performance reporting process and make relevant recommendations to the Board at its thirty-seventh meeting.

(Decision B.35.b/8)

6. At its thirty-sixth meeting, the Board considered the document AFB/PPRC.27/28, Programme on Innovation: Operationalization of Large Grants for Innovation, and the Board decided:

(e) To approve the Innovation Large Grant Project Proposal template, the Review Criteria template and the Instructions for Preparing a Proposal for Innovation Large Grants, as described in annexes II, III and IV to document AFB/PPRC.27/28;

(f) To launch the request for proposals so that submissions of Innovation Large Grants proposals are invited to be considered as early as the thirty-seventh meeting of the Board.

(Decision B.36/24)

7. Subsequently, the first call for project and programme proposals under the indicative set-aside amount of US$ 30 million was issued to eligible Parties to submit innovation large grant project and programme proposals to the Fund through accredited NIEs, RIEs and MIEs.

8. The following pre-concept proposal document titled “Enhancing Hydromet Services through Regional Monitoring Innovation Hubs in Africa” was submitted for the Gambia and United Republic of Tanzania by the World Meteorological Organization (WMO), which is a Multilateral Implementing Entity of the Adaptation Fund.

9. This is the first submission of the proposal, using the three-step submission process.

10. The current submission was received by the secretariat in time to be considered in the thirty seventh Board meeting. The secretariat carried out a technical review of the project proposal, assigned it the Project ID number AF00000288, and completed a review sheet.

11. In accordance with a request to the secretariat made by the Board in its 10th meeting, the secretariat shared this review sheet with WMO and offered it the opportunity of providing responses before the review sheet was sent to the PPRC.

12. The secretariat is submitting to the PPRC the summary and, pursuant to decision B.17/15, the final technical review of the project, both prepared by the secretariat, along with the final submission of the proposal in the following section. In accordance with decision B.25/15, the proposal is submitted with changes between the initial submission and the revised version highlighted or with track changes.

ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Innovation Pre-concept proposal

Countries/Region: **The Gambia and United Republic of Tanzania**
Project Title: **Enhancing Hydromet Services through Regional Monitoring Innovation Hubs in Africa**
Thematic Focal Area: **Disaster risk reduction and early warning systems**
Implementing Entity: **World Meteorological Organization (WMO)**
Executing Entities: **National Meteorological and Hydrological Services (NMHSs) of Tanzania and The Gambia; UK Centre for Ecology & Hydrology**
AF Project ID: **AF00000288**
IE Project ID: **[To be filled by IE]** Requested Financing from Adaptation Fund (US Dollars): **5,000,000**
Reviewer and contact person: **Alyssa Gomes** Co-reviewer(s): **Eleanor Saunders, Saliha Dobardzic**
IE Contact Person: **[To be filled by IE]**

Technical Summary	The project "Enhancing Hydromet Services through Regional Monitoring Innovation Hubs in Africa" aims to improve the delivery of hydromet services through two "Regional Innovation Hubs" in Africa by advancing the uptake of innovative hydrometric approaches by the NMHSs in Tanzania, The Gambia and surrounding countries. This will be done through the four components below: Component 1: Increased operational capacity of the NMHSs to provide fit for purpose hydrological data through the use of innovative monitoring approaches(USD 2,000,000). Component 2: Two developed innovation centers of excellence in hydrological monitoring, which bring together public and private entities to support research, the development, manufacturing and maintenance of digital and physical monitoring technologies(USD 600,000) Component 3: Enhanced regional cooperation for mutual technical assistance among NMHSs and other monitoring organizations within the region where the Innovation Hubs are established (USD 900,000). Component 4: Increased political and institutional commitment for operational hydrology through improved stakeholder collaboration and engagement, including co-production of hydromet services. (USD 600,000).

	Requested financing overview: Project/Programme Execution Cost: USD 437,788 Total Project/Programme Cost: USD 4,170,507 Implementing Fee: USD 391,705 Financing Requested: USD 5,000,000 The initial technical review found the proposal to be strong pre concept describing the setup of an innovation ecosystem through Regional Innovation Hubs with capacity building. The proposal sits in the early stages of the innovation pathway with the opportunity to explore problems and search for solutions. The initial technical review raised some issues, such as clarifications on the climate vulnerabilities in the target countries, justification for the regional approach, further clarification on the concrete outputs, the nature of the innovation hubs, as discussed in the number of Clarification Requests (CRs) and Corrective Action Request (CAR) raised in the review. The final technical review finds that all CRs and CARs raised have been sufficiently clarified at pre-concept stage.
Date	18 February 2022

Review Criteria	Questions	Comments Initial Technical Review	Comments Final Technical Review
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?	**Not clear.** Specific climate change vulnerabilities are not mentioned. **CR1:** Please explain briefly the actual and projected climate change vulnerabilities in the two target countries.	**CR1: Clear,** p.1-2. Gambia is vulnerable to the variability in the amount and distribution of rainfall resulting in more frequent extreme events. Flash and riverine floods thus affect peoples' livelihoods in lowland agricultural fields. Similarly, agriculture sector in Tanzania is particularly vulnerable to climate change because of dependance on rainfall. Furthermore, its

			adaptation needs to be enhanced through data-driven decisions
Project Eligibility	1. Have the designated government authorities for the Adaptation Fund from each of the participating countries endorsed the project/programme?	**Yes.** Letter of endorsement for the Gambia dated 1 December 2021 and Letter of endorsement for Tanzania dated 22 December 2021	**-**
	2. Has the pre-concept provided necessary information on the problem the proposed project/programme is aiming to solve, including both the regional and the country perspective?	**Not clear.** Problem identification is not entirely clear. The proposal goes only so far as to explain that there is a need for reliable hydrometeorological data and early warning information in the African continent; however, there is a need to expand the problem identification to the vulnerabilities (e.g. disaster risks, impacts on productive sectors, small holder farmers, food security) exacerbated by the lack of credible data and early warning information. **CR2:** Please present a clear problem identification of the climate change vulnerabilities, thus justifying the need for the target intervention/ approach of the project. **CR3:** Please provide some additional information in 1-2 paragraphs on the climate impacts on the environment, economic and social context in each of the countries. In line with this, the proposal would benefit from describing	**CR2: Clear**, p. 2 The problem statement has been clarified to the extent necessary for pre-concept proposal. To achieve effective data-driven hydromet services for agriculture, water management and DRR sectors, the project aims to optimize the efficiency of many hydromet monitoring systems through innovations. **CR3: Clear,** p.1-2 Details provided are sufficient for a pre-concept proposal. **CR4: Clear,** p.5 The revised proposal has included details of sectors that will benefit from reliable hydromet data and early warning information that will be the focus of this project. These include: 1) Local communities affected by hydrological disasters; 2) Agriculture sector, including farmers, small holder

		the sectors that will benefit from reliable hydromet data and early warning information that will be the focus of this project. **CR4:** Please clarify the target beneficiaries, vulnerable communities or end users and other stakeholders that will ultimately benefit from the project.	tidal irrigation farmers, women oyster farmers; 3) Students and researchers, 4) Women headed households who are subsistence farmers, and 5) Regional data collection and research initiatives
	3. Have the project/programme objectives, components and financing been clearly explained?	**Not clear** The proposal sits in the early stages of the innovation pathway with the opportunity to explore problems and search for solutions. **CR5:** Please clarify how the intervention contributes to overcome the specific problems identified through an innovative process. **CR6:** Please provide a bit more description of the innovation ecosystem by clarifying (i) the nature of the innovation hubs: physical, dispersed, or virtual, (ii) the type of space for the Centre of excellence raised in point 2 (page 4), (iii) clarify output 2.1 and 2.2- depending on if they are events, grants and camps, they could in theory be dispersed or virtual. **CR7:** Please clarify if project aims at broadening the breadth of actors who will be part of the ecosystem (if so, who	**CR5: Clear**, p.6 The project aims to leverage innovative solutions that have already been through proof-of-concept testing but need further assistance to tailor them to the needs of hydromet services in West and East Africa or help operational services transition to the new technology. At the next stage of the proposal, additional details should be provided. **CR6: Clear,** p.2 The details provided are sufficient for a pre-concept proposal. There is further clarification on the hubs and their proposed purpose to bring together learning and knowledge exchange opportunities, engage unusual actors, and have a role in developing the countries towards being centres of excellence.

		are they) i.e., looking to new or unconventional/non-traditional actors to ensure innovation can be stimulated outside the normal operations of the National Meteorological and Hydrological Services.	However, the concrete nature of these hubs will need to be detailed and clarified in the concept proposal stage. **CR7: Clear,** p.2 Actors include engaging young entrepreneurs, engineers and scientists through working with universities.
	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 helps spread successful innovative adaptation practices, tools and technologies; and/or it pilots at larger scale innovative ada ptation practices, tools or technologies generated that have demonstrated viability at a small scale? - it is cost-effective?	**Needs some development.** <u>Concrete actions:</u> In the AF Operational Policies and Guidelines, a concrete adaptation project is defined as *"a set of activities aimed at addressing the adverse impacts of and risks posed by climate change. The activities shall aim at producing visible and tangible results on the ground and… that are measurable, monitorable, and verifiable."* The innovation calls listed in outcome 1.2 (USD 2,000,000) *"Innovation Calls projects (involving collaborations between in-region and international operational and research partners) implemented to find operationalize innovative water monitoring solutions to NMHSs"* show an actionable focal point in the ecosystem whereby innovations will be sought and trailed. These activities move into the mid stages of the innovation pathway and ensure that the project is more than just research and has an application arm as well.	**CR8: Clear,** p.6 The selection process has been clarified. The criteria for selecting concrete action have been provided, however they can be further strengthened at concept proposal stage. 'Innovativeness' is listed as one of the selection criteria for innovative projects. This criterion needs to be further developed into a descriptor for what innovativeness means for this project. **CR9: Clear,** p.5 In addition to the current technical and innovation positioning of the two countries, the project aims to establish the two Regional Innovation Hubs in two different regions in Africa i.e. East and West Africa, as these could then support hydrometric monitoring innovation across other countries in the region. E.g., in West Africa, the Gambia's membership of ECOWAS should simplify regional trade for any start-ups that might stem from the Hub. Looking further ahead, it is envisaged

	- it is consistent 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.	**CR8:** Please provide some information on the selection process for finalizing the envisaged concrete adaptation outputs (output 1). <u>Regional approach:</u> **CR9:** Please provide a rationale for the selection of the two target countries. Why are they well placed for setting up innovation hubs or what is the value add of setting up of regional innovation hubs in the chosen countries versus any other chosen country? **CR10:** Please explain in a bit more detail how the setting up of Regional Innovation Hubs will change the way data is collected and disseminated. **CR11:** What kinds of new partnerships will emerge from setting up these regional hubs and how these are expected to bring about transformational change. E.g. page 5 mentions "synergies with universities and regional training centers (potentially the National Water Research Center (NWRC) in Cairo, AGRHYMET Center in Niamey) will be sought to ensure innovations can get supported both at the demonstration, instrument maintenance and operational levels.". <u>Innovation and spread of innovative solutions:</u> The pre-concept describes an	that the regional Innovation Hub model of supporting improvements in water monitoring could be replicated in other regions e.g. North and Southern Africa should the project be successful. An active innovation ecosystem also exists in Tanzania, with a number of other incubators and accelerators established across different sectors that could provide useful linkages with the hydrometry Innovation Hubs – such collaborations in both countries will be explored in detail at the Concept development stage. **CR10: Clear,** p.5-6 The Regional Innovation Hubs will change the way hydromet data is collected by catalyzing the operationalization of emerging cost-effective technologies and the integration of non-traditional data sources such as citizen science, improving sustainability of hydromet data collection through the mentoring and learning exchanges activities generated in the respective Hubs and dissemination of the resulting data and information among the broader hydromet network. **CR11: Clear,** p.6 Expected partnerships include 1) NMHSs and private sector technology providers; 2) NMHSs and hydromet data users; 3) NMHSs and citizen science

		innovation ecosystem with stakeholder engagement, innovation space, and capacity building. However, in its current submission the proposal will benefit from clarifying the expected concrete adaptation outputs (e.g. 1.2). <u>Knowledge management and learning</u> The proposal also has a strong focus on capacity building and learning opportunities. Whilst these activities are usually associated with mid to later stages of innovation, here they form part of an innovation ecosystem that enables learning loops to flourish from the offset. <u>Promotion and scale up</u> On page 4, the proposal briefly covers promotion and scaling. Co-design, project selection, implementation and scaling are all touched upon here and are key components of innovation. Diffusion of the activities, findings and outcomes of the innovation hubs will be vital to the success of this proposal and ensure that there are tangible learnings impacting the lives of people. Currently the preconcept acknowledges the need for this, and states that it will be further elaborated in the concept proposal stage <u>Consistency with strategies and plans</u> **CR12:** Please clarify *how* the project is aligned with the Gambia and	groups, including youth, women and vulnerable communities; 4) private sector technology providers and academia; 5) among NMHSs of various countries; and 6) among existing innovators from various sectors. **CR12: Clear,** p.7 Alignment with Gambia and Tanzania's NAPAs have been explained. **CR13: Clear**, p.6 Two consultation workshops will be organized during the Concept preparation phase to help identify what the gaps and needs are in terms of hydrological monitoring in Tanzania, The Gambia and neighboring countries. **CR14: Clear** Addressed as part of CR11. **CR15: Clear** An intention to comply with AF ESP requirements at concept proposal stage has been provided.

		Tanzania's National Adaptation Plan (NAPA) and other relevant national plans and strategies listed on page 4. <u>Consultations</u> **CR13:** Please include some details on the consultative process that will be planned to be undertaken during project preparation (at concept stage and fully developed proposal stage), in compliance with AFs ESP and GP but also considering broader stakeholders and partners. <u>Sustainability and cost-effectiveness</u> **CR14:** Please include some additional details on how the project will ensure sustainability of the innovation regional ecosystem itself. What are the kinds of institutional linkages / partnerships that may need to be developed / are being considered under the project to ensure that they sustained after the project ends, also ensuring cost-effectiveness? <u>Compliance with the Environmental and Social Policy of the Adaptation Fund</u> **CR15:** Please clarify in a bit more details the next steps that will be undertaken at the concept development or fully developed proposal stage to ensure compliance with the ESP. At this stage it is acceptable to describe the process for compliance. <u>Duplication of project / programme with</u>	

		other funding sources At the next stage please submit a comprehensive mapping of ongoing and planned activities identifying synergies, seeking collaboration with regional and national institutions in the region and ensuring non-duplication.	
	5. Does the pre-concept briefly explain which organizations would be involved 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?	**Yes** (page 5). The NMHSs of Tanzania and The Gambia, and the UK Centre for Ecology & Hydrology (UKCEH) will act as executing entities. (Page 5)	At the concept proposal stage, please include a justification for the involvement of UKCEH as an executing entity, as well as highlight UKCEH's unique strengthens and positioning for executing the project in the target region.
Resource Availability	6. Is the requested project / programme funding within the funding windows of the programme for regional projects/programmes?	**Yes.** **CAR1:** Please note that the components section adds to USD 4,929,493. Kindly ensure consistency.	**CAR1: Clear,** p.4
	7. Are the administrative costs (Implementing Entity Management Fee and Project/ Programme	**Yes.**	**-**

	Execution Costs) at or below 20 per cent of the total project/programme budget?		
Eligibility of IE	8. Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?	**Yes.**	

ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Innovation Pre-concept proposal

Countries/Region: The Gambia and United Republic of Tanzania
Project Title: Enhancing Hydromet Services through Regional Monitoring Innovation Hubs in Africa
Thematic Focal Area: Disaster risk reduction and early warning systems
Implementing Entity: World Meteorological Organization (WMO)
Executing Entities: National Meteorological and Hydrological Services (NMHSs) of Tanzania and The Gambia; UK Centre for Ecology & Hydrology
AF Project ID:
IE Project ID: [To be filled by IE] Requested Financing from Adaptation Fund (US Dollars): 5,000,000
Reviewer and contact person: Alyssa Gomes Co-reviewer(s): Eleanor Saunders, Saliha Dobardzic
IE Contact Person: [To be filled by IE]

Technical Summary	The project "Enhancing Hydromet Services through Regional Monitoring Innovation Hubs in Africa" aims to improve the delivery of hydromet services through two "Regional Innovation Hubs" in Africa by advancing the uptake of innovative hydrometric approaches by the NMHSs in Tanzania, The Gambia and surrounding countries. This will be done through the four components below: Component 1: Increased operational capacity of the NMHSs to provide fit for purpose hydrological data through the use of innovative monitoring approaches (USD 2,000,000). Component 2: Two developed innovation centers of excellence in hydrological monitoring, which bring together public and private entities to support research, the development, manufacturing and maintenance of digital and physical monitoring technologies (USD 600,000). Component 3: Enhanced regional cooperation for mutual technical assistance among NMHSs and other monitoring organizations within the region where the Innovation Hubs are established (USD 900,000). Component 4: Increased political and institutional commitment for operational hydrology through improved stakeholder collaboration and engagement, including co-production of hydromet services (USD 678,082).

	Requested financing overview: Project/Programme Execution Cost: USD 388,128 Total Project/Programme Cost: USD 4,566,210 Implementing Fee: USD 433,790 Financing Requested: USD 5,000,000 The initial technical review finds the proposal to be strong pre concept describing the setup of an innovation ecosystem through Regional Innovation Hubs with capacity building. The proposal sits in the early stages of the innovation pathway with the opportunity to explore problems and search for solutions. The initial technical review raises some issues, such as clarifications on the climate vulnerabilities in the target countries, justification for the regional approach, further clarification on the concrete outputs, the nature of the innovation hubs, as discussed in the number of Clarification Requests (CRs) and Corrective Action Request (CAR) raised in the review.
Date	27 January 2022

Review Criteria	Questions	Comments	Responses from WMO
Country Eligibility	3. Are all of the participating countries party to the Kyoto Protocol?	**Yes.**	
	4. Are all of the participating countries developing countries particularly vulnerable to the adverse effects of climate change?	**Not clear.** Specific climate change vulnerabilities are not mentioned. **CR1:** Please explain briefly the actual and projected climate change vulnerabilities in the two target countries.	**CR1:** **The Gambia:** The Gambia is a low-lying country, dissected by a deep estuary, with tidally inundated swamps covering 20% of the country, which are at risk of permanent flooding by sea level rise of one meter (Njie, 2002). The low-lying topography, combined by

			high dependence on subsistence rain-fed agriculture, and inadequate drainage and storm water management system in a context of rapidly expanding unregulated urban expansion has placed The Gambia among those countries most vulnerable to climate change. This vulnerability is linked to the country's widespread poverty and limited adaptive capacity to deal with the effects of such changes. The following sectors are particularly vulnerable to climate change: forestry, rangelands, health, agriculture, fisheries, water resources, energy and the coastal zone. **Tanzania:** The livelihoods and socio-economic development of Tanzania is strongly dependent on rain-fed agricultural activities and therefore strongly affected by the climate variability and change. Over the recent years, most parts of Tanzania have been increasingly experiencing stronger spatial and temporal variability of climate and changes in the climate systems including increasing temperature trends, and increasing frequency and intensity of extreme climate events such as droughts, heavy precipitations and flooding. In

			2019 and 2020, the average warming was around 0.8 Centigrade, which is consistent with the observed global temperature pattern, and most of the record-breaking high precipitation have been observed over the last ten years. The observed climate extremes have been associated with significant loss of life and destruction of properties and Infrastructure. These climate change induced extreme events are already aggravating the vulnerability of the people and the country, and are projected to increase further due to enhanced warming and make the people and all socio-economic sectors, particularly Agriculture, Water and Energy, extremely vulnerable. In general, most of the socio-economic sectors are already very vulnerable to the current climate and are projected to be more vulnerable under warmer climate.
Project Eligibility	9. Have the designated government authorities for the Adaptation Fund from each of the participating countries endorsed the project/programme?	**Yes.** Letter of endorsement for the Gambia dated 1 December 2021 and Letter of endorsement for Tanzania dated 22 December 2021	
	10. Has the pre-concept provided necessary information on the problem the proposed project/programme is aiming to solve, including both the regional and the country	**Not clear.** Problem identification is not entirely clear. The proposal goes only so far as to explain that there is a need for reliable hydrometeorological data	

	perspective?	and early warning information in the African continent; however, there is a need to expand the problem identification to the vulnerabilities (e.g. disaster risks, impacts on productive sectors, small holder farmers, food security) exacerbated by the lack of credible data and early warning information. **CR2:** Please present a clear problem identification of the climate change vulnerabilities, thus justifying the need for the target intervention/ approach of the project. **CR3:** Please provide some additional information in 1-2	**CR2:** As climate change exacerbates current weather conditions, sea levels will rise and flood into cities and salt water will contaminate aquifers and other fresh water sources, cyclones and storm surges will hit the coasts, and heat waves and droughts will hamper farming and agriculture, leaving millions food and water insecure and crippling economies. African countries face a combination of these risks and effective data-driven hydromet services are essential for the adaptation and mitigation to these challenges. To achieve this however, many hydromet monitoring systems need optimization of their efficiency and Operation & Maintenance (O&M)

		paragraphs on the climate impacts on the environment, economic and social context in each of the countries. In line with this, the proposal would benefit from describing the sectors that will benefit from reliable hydro met data and early warning information that will be the focus of this project. **CR4:** Please clarify the target	cost. Here, existing and emerging innovative technologies and approaches offer new opportunities. Their operational uptake by NMHSs is currently low due to (1) insufficient collaboration between academia, private sector and hydromet services, (2) insufficient translation of research into operational tools and/or (3) high costs of technologies and their ownership/operational costs. Moreover, in order to sustainably operate hydromet monitoring systems, political commitment, viable financial models, qualified human resources as well as effective engagements with the user community are a prerequisite. **CR3: 2 paragraphs have been added in the Background/Context section** **The Gambia:** Variability in the amount and distribution of rainfall in the Gambia is projected to increase, resulting in more frequent extreme events, namely droughts and floods. The flooding events include flash and riverine floods thus affecting people and lowland agricultural fields.

		beneficiaries, vulnerable communities or end users and other stakeholders that will ultimately benefit from the project.	Further decline in the amount and distribution of rainfall, together with increased temperatures, is expected to constrain productivity of in the agricultural and forestry sectors. Groundwater in western Gambia is at risk of increased salinization, while coastal aquifers may become reduced, which would affect fresh water supplies and peri-urban agriculture. The impact of sea level rise and coastal erosion on tourism and the artisanal fisheries sector is likely to be significant. Ecosystems will be impacted through the combination of rising temperatures and changing rainfall, largely in negative ways. **Tanzania:** The study on economics of climate change revealed that current climate change variability already costs Tanzania around 1% of GDP annually and it could go up to 2% of GDP by 2030. The agriculture sector in Tanzania is particularly vulnerable to climate change because it is customarily dependent on rainfall, its adaptation needs to be enhanced through data supported decisions. The sectors that will benefit from hydromet data and early waring

			information include Disaster Management, Irrigation, Hydropower, and the Water Sector in water management and allocation. The data and early warning information will back up decision making. **CR4: Additional text available in Part II of the Pre-Concept.** With regard to the vulnerable communities, groups, end-users that will be the beneficiaries of the project through improved hydromet services, five main groups have been identified: 1) Local communities affected by hydrological disasters including those living in flood prone areas in Tanzania and along the lower reaches of the river Gambia basin; 2) Agriculture sector, including farmers working in irrigation schemes/field such as paddy farms, small holder tidal irrigation farmers, women oyster farmers in the Tanbi Wetland Complex; 3) Students and researchers, through the provision of data for climate change and sea level rise modeling and the potential for employment of graduates in the area of innovation for hydromet; 4) Women, as a vulnerable group, yet being the pillars of in family economy through subsistence farming, and 5) Regional data collection and

			research initiatives, international partners and initiatives.
	11. Have the project/programme objectives, components and financing been clearly explained?	**Not clear** The proposal sits in the early stages of the innovation pathway with the opportunity to explore problems and search for solutions. **CR5:** Please clarify how the intervention contributes to overcome the specific problems identified through an innovative process. **CR6:** Please provide a bit more description of the innovation ecosystem by clarifying (i) the nature of the innovation hubs: physical, dispersed, or virtual, (ii) the type of space for the Centre of excellence raised in point 2 (page 4), (iii) clarify output 2.1 and 2.2- depending on if they are events, grants and camps, they could in theory be dispersed or virtual.	The innovative solutions that will be leveraged in the project would have already been through proof-of-concept testing but need further assistance to, for example: tailor them to the needs of hydromet services in West and East Africa; build the support infrastructure (e.g. local manufacturers and maintenance providers) or; help operational services transition to the new technology. As such, the project sits at the middle of the innovation pathway. **CR5: Text added in the Background/Context section** The project will deliver activities leading to an increase in availability of reliable hydrological data and information needed for the provision of hydromet services in the region. These improved hydromet services will support data-driven decisions in agriculture, disaster risk reduction, water resources management and environmental protection among others. **CR6: Minor edits have been done**

		CR7: Please clarify if project aims at broadening the breadth of actors who will be part of the ecosystem (if so, who are they) i.e., looking to new or unconventional/non-traditional actors to ensure innovation can be stimulated outside the normal operations of the National Meteorological and Hydrological Services.	**throughout the Pre-Concept** **(i) Innovation Hubs** Innovation Hubs are foreseen to be regional partnerships that bring together a broad range of stakeholders from operational hydromet services, academia, private sector, data user communities. Coordinated by small secretariats based in The Gambia and Tanzania the Hubs will fund and facilitate virtual and in-person activities that accelerate innovations and scale-up proven solutions. Such activities which might take place virtually or physically hosted by one or more partners would include mentoring, learning exchanges, workshops, collaborative research projects. **(ii) Centers of Excellence** For consistency, the Pre-Concept only uses Innovation Hubs and not Centers of Excellence. The ambition is that, through setting up these Hubs, Tanzania and The Gambia will become long-term centers of excellence in hydrometry with critical masses of organizations and individuals able to support sustainable operational water monitoring in their wider regions. **(iii) Outputs 2.1 and 2.2** International twinning/mentoring

			could be delivered in person, virtually or (perhaps most likely) through hybrid models where the Hubs setup the relationships and provide funding for familiarization visits and then ongoing knowledge exchange activities happen virtually. Innovation Camps are intended to be in person events to maximize the generation of new ideas across new groupings of individuals with differing skills. Virtual versions could be considered further and might be possible depending on the problem being focused on (e.g. if it were a largely software issue then perhaps an online 'hackathon' type event could work. **CR7:** The Innovation Hubs would look to engage with broad and diverse communities in setting up the partnerships needed to advance innovations. This is likely to include engaging young entrepreneurs, engineers and scientists through, for example, working with universities. The project aims at establishing a mechanism for integrating citizens' science data and information collected by local and vulnerable communities into the operations of NMHSs in a sustainable way (including through Innovation Calls).

	12. 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 helps spread successful innovative adaptation practices, tools and technologies; and/or it pilots at larger scale innovative adaptatio n practices, tools or technologies generated that have demonstrated viability at a small scale? - it is cost-effective? - it is consistent 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	**Needs some development.** <u>Concrete actions:</u> In the AF Operational Policies and Guidelines, a concrete adaptation project is defined as *"a set of activities aimed at addressing the adverse impacts of and risks posed by climate change. The activities shall aim at producing visible and tangible results on the ground and… that are measurable, monitorable, and verifiable."* The innovation calls listed in outcome 1.2 (USD 2,000,000) *"Innovation Calls projects (involving collaborations between in-region and international operational and research partners) implemented to find operationalize innovative water monitoring solutions to NMHSs"* show an actionable focal point in the ecosystem whereby innovations will be sought and trailed. These activities move into the mid stages of the innovation pathway and ensure that the project is more than just research and has an application arm as well. **CR8:** Please provide some information on the selection process for finalizing the envisaged concrete adaptation outputs (output 1.2).	

	considerations, in compliance with the Environmental and Social Policy of the Adaptation Fund? - it will take into account sustainability.	Regional approach: **CR9:** Please provide a rationale for the selection of the two target countries. Why are they well placed for setting up innovation hubs or what is the value add of setting up of regional innovation hubs in the chosen countries versus any other chosen country?	**CR8:** Innovation Call applications will be technically evaluated based on a set of criteria including: a low total cost of ownership; cost effectiveness of the solution; innovativeness; open source; scalability to other countries and regions; possibility for local manufacturing; involvement of youth, women and vulnerable communities in the project scoping and design. An established mechanism for this exists and has been demonstration in WMO HydroHub Innovation Calls in its Phase I. **CR9:** Throughout the Phase I of the WMO HydroHub (February 2017 – August 2021) active engagement with the NMHSs of the Gambia and Tanzania took place with both countries proactively expressing interests in scaling up their involvement in future WMO HydroHub activities. This prior experience and interest in future collaboration were one key reason

		CR10: Please explain in a bit more detail how the setting up of Regional Innovation Hubs will change the way data is collected and disseminated. **CR11:** What kinds of new partnerships will emerge from setting up these regional hubs and how these are expected to bring about transformational change. E.g. page 5 mentions “synergies with universities and regional training	that initial discussions regarding potential Innovation Hubs were started. In Tanzania, a successful innovation project was implemented by the Trans-African Hydro-Meteorological Observatory (TAHMO) in the framework of the 2nd WMO HydroHub Innovation Call, specifically looking at open-source non-contact river flow observations with cameras. In the Gambia, the participation of an NMHS representative in WMO HydroHub Innovation Workshops highlighted the need for innovation to address some of the country's most pressing hydrometric challenges, and helped the design of solutions in a way that integrated some of the realities on the ground e.g. short battery lifespan in data loggers. These engagements with the NMHSs of The Gambia and Tanzania have proven to be successful resulting from active and responsive communications and support as well as country-driven perspective. In addition to this prior experience and enthusiasm from the NMHSs in both countries, both The Gambia and Tanzania were thought to be suitable locations in which to support the growth of innovation ecosystems around water monitoring. In The Gambia, the government has made

		centers (potentially the National Water Research Center (NWRC) in Cairo, AGRHYMET Center in Niamey) will be sought to ensure innovations can get supported both at the demonstration, instrument maintenance and operational levels.”. <u>Innovation and spread of innovative solutions:</u> The pre-concept describes an innovation ecosystem with stakeholder engagement, innovation space, and capacity building. However, in its current submission the proposal will benefit from clarifying the expected concrete adaptation outputs (e.g., 1.2). <u>Knowledge management and learning</u> The proposal also has a strong focus on capacity building and learning opportunities. Whilst these activities are usually associated with mid to later stages of innovation, here they form part of an innovation ecosystem that enables learning loops to flourish from the offset. <u>Promotion and scale up</u> On page 4, the proposal briefly covers promotion and scaling. Co-design, project selection, implementation and scaling are all	strong commitments to entrepreneurship and a number of technological incubators/accelerators have been established in recent years, that could provide useful synergies with the proposed Innovation Hub. An active innovation ecosystem also exists in Tanzania, with a number of other incubators and accelerators established across different sectors that could provide useful linkages with the hydrometry Innovation Hubs – such collaborations in both countries will be explored in detail at the Concept development stage. In addition to the current technical and innovation positioning of the two countries, it was thought beneficial to establish the two Regional Innovation Hubs in two different regions in Africa i.e. East and West Africa, as these could then support hydrometric monitoring innovation across other countries in the region. For example, in West Africa, the Gambia’s membership of ECOWAS should simplify regional trade for any start-ups that might stem from the Hub. Looking further ahead, it is envisaged that the regional Innovation Hub model of supporting improvements in water monitoring could be replicated in other regions e.g. North and Southern Africa should the project be successful.

		touched upon here and are key components of innovation. Diffusion of the activities, findings and outcomes of the innovation hubs will be vital to the success of this proposal and ensure that there are tangible learnings impacting the lives of people. Currently the preconcept acknowledges the need for this, and states that it will be further elaborated in the concept proposal stage <u>Consistency with strategies and plans</u> **CR12:** Please clarify *how* the project is aligned with the Gambia and Tanzania's National Adaptation Plan (NAPA) and other relevant national plans and strategies listed on page 4. <u>Consultations</u> **CR13:** Please include some details on the consultative process that will be planned to be undertaken during project preparation (at concept stage and fully developed proposal stage), in compliance with AFs ESP and GP but also considering broader stakeholders and partners. <u>Sustainability and cost-effectiveness</u> **CR14:** Please include some additional details on how the project will ensure sustainability of the	Tech incubators in Tanzania. Gambia use text in startup genome. **CR10:** The Regional Innovation Hubs will change the way hyromet data is collected by catalyzing innovation. This includes, the progressive operationalization of emerging cost-effective technologies and the integration of non-traditional data sources such as citizen science. In addition to this, the sustainability of hydromet data collection will be improved through the mentoring and learning exchanges activities generated in the respective Hubs. The Regional Innovation Hubs will furthermore help disseminate the resulting data and information among the broader hydromet network. **CR11:** Expected partnerships that will emerge from the Regional Innovation Hubs include 1) NMHSs and private sector technology providers (for the development and uptake of innovative solutions that meet NMHSs' needs); 2) NMHSs and hydromet data users, both private and public sectors such as agriculture, civil defense (for the improvement of user-oriented data provision); 3) NMHSs and citizen science groups, including youth,

		innovation regional ecosystem itself. What are the kinds of institutional linkages / partnerships that may need to be developed / are being considered under the project to ensure that they sustained after the project ends, also ensuring cost-effectiveness? <u>Compliance with the Environmental and Social Policy of the Adaptation Fund</u> **CR15:** Please clarify in a bit more details the next steps that will be undertaken at the concept development or fully developed proposal stage to ensure compliance with the ESP. At this stage it is acceptable to describe the process for compliance. <u>Duplication of project / programme with other funding sources</u> At the next stage please submit a comprehensive mapping of ongoing and planned activities identifying synergies, seeking collaboration with regional and national institutions in the region and ensuring non-duplication.	women and vulnerable communities (for the integration of non-traditional data sources into NMHSs operations); 4) private sector technology providers and academia (for collaborative research and development of technologies); 5) among NMHSs of various countries (for continuous learning, mentoring and collaboration); and 6) among existing innovators from various sectors (for improved business incubation and acceleration). **CR12** **The Gambia** The Gambian National Adaptation Plan of Action in Climate Change, Nov, 2007 (NAPA) recognizes the inadequate knowledge between the climate and biophysical process within the Gambia. It stresses on the risk of the disappearance of freshwater swamps and salinization resulting from the effect sea level rise. Furthermore, its emphases that the combination of sea level rise, global warming and changes in rainfall patterns, could impact freshwater resources qualitatively and quantitatively. Surface evaporation is expected to increase, whilst

			groundwater recharge is expected to take the reverse trend. Thus, the NAPA recommended the preparation and implementation of the strategic and effective water resources management tools such as policies, legislations and action plans. The supplementary Agriculture and Natural Resources (ANR) Policy (2017 - 2026), which calls for regional cooperation in the sustainable management of the shared water resources. It also emphasizes the need to expedite the water sector reform with a draft Gambia Water bill, that would enhance effective water policy implementation to minimize water conflict and promote cooperation among the various users and uses. **Tanzania** The project responds to the Tanzania's National Adaptation Plan (NAPA), the National Five-Year Development Plan 2021/22-2025/26; and the National Climate Change Response Strategy 2021-2026 through aims to address issues of increase in frequency and intensity of extreme events such as strong wind, heavy rainfall, hailstorm and higher temperatures that are devastating socio-economic impacts including

			loss of life and properties, and destruction of infrastructure. **CR13: A sentence has been added in the section on Consultation process in Part II.** Two consultation workshops will be organized during the Concept preparation phase to help identify what the gaps and needs are in terms of hydrological monitoring in Tanzania, The Gambia and neighboring countries. These workshops will include representatives from the main hydrological monitoring actors in the countries, including the NMHSs as well as other competent authorities such as Disaster Management/Civil Protection and Environment Agencies among others. It is foreseen to hire local consultants (one in the Gambia and one in Tanzania) to organize these workshops. In the next steps, it is also planned that the consultants will carry out community consultations, Environmental Impact Assessments (EIA), and Social Impact Assessments (SIA), mainly screening the 15 principles of the Adaptation Fund Environmental and Social Policy (ESP) and Gender Policy (GP).

			CR14 It is foreseen that the Regional Innovation Hubs will be fully operational by mid-project, with all relevant stakeholders identified and engaged. This will allow to evaluate the sustainability of the Hubs functions (including the development of expected partnerships/linkages outlined in response to CR11) during the project lifetime and to take adjustments measures should they be needed before the end of the project. **CR15** EIA and SIA (screening of the Adaptation Fund 15 principles of the ESP and GP) will be carried out through consulting various relevant agencies in the two countries. Based on this, an Environment and Social Risk Management plan will be developed for the project activities.
	13. Does the pre-concept briefly explain which organizations would be involved in the proposed regional project/programme at the regional and national/sub-national level, and how coordination would be arranged? Does it explain	**Yes** (page 5). The NMHSs of Tanzania and The Gambia, and the UK Centre for Ecology & Hydrology (UKCEH) will act as executing entities. (Page 5)	

	how national institutions, and when possible, national implementing entities (NIEs) would be involved as partners in the project?		
Resource Availability	14. Is the requested project / programme funding within the funding windows of the programme for regional projects/programmes?	**Yes.** **CAR1:** Please note that the components section adds to USD 4,929,493. Kindly ensure consistency.	Has been corrected in the table.
	15. Are the administrative costs (Implementing Entity Management Fee and Project/ Programme Execution Costs) at or below 20 per cent of the total project/programme budget?	**Yes.**	
Eligibility of IE	16. Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?	**Yes.**	

PRE-CONCEPT FOR A REGIONAL INNOVATION PROJECT/PROGRAMME

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme:	**Enhancing Hydromet Services through Regional Monitoring Innovation Hubs in Africa**
Countries:	Tanzania, The Gambia
Thematic Focal Area:	Disaster risk reduction and early warning systems
Type of Implementing Entity:	Multilateral Implementing Entities
Implementing Entity:	World Meteorological Organization
Executing Entities:	National Meteorological and Hydrological Services (NMHSs) of Tanzania and The Gambia; UK Centre for Ecology & Hydrology
Amount of Financing Requested:	5,000,000 USD

Project / Programme Background and Context:

Recognizing the cross-sectoral nature of water and aware of the increasing water-related challenges around the world, many countries are now taking steps to address water security through, for example, sustainable water management, enhancing flood and drought resilience and improving water quality. These steps require reliable hydrological data and early warning information in order to support decision-making through the provision of hydromet services and to help build trust amongst stakeholders. However, the availability of hydrological data of adequate quantity and quality often remains a challenge, which constrains provision of effective hydromet services.

The African continent has made significant achievements in development over the last few decades, but climate-related and disaster risks threaten present and future development gains. These risks affect 10 million people annually, yet hydromet services are presently not equipped to meet the needs of society. Weather and climate related disasters are reversing development gains, setting countries 10 to 20 years back.

In The Gambia, the variability in the amount and distribution of rainfall is projected to increase, resulting in more frequent extreme events, namely droughts and floods. The flooding events include flash and riverine floods thus affecting peoples' and lowland agricultural fields. Further decline in the amount and distribution of rainfall, together with increased temperatures, is expected to constrain productivity of in the agricultural and forestry sectors. Groundwater in western Gambia is at risk of increased salinization, while coastal aquifers may become reduced, which would affect fresh water supplies and peri-urban agriculture. The impact of sea level rise and coastal erosion on tourism and the artisanal fisheries sector is likely to be significant. Ecosystems will be impacted through the combination of rising temperatures and changing rainfall, largely in negative ways.

For Tanzania, a study on economics of climate change has revealed that current climate change variability already costs around 1% of GDP annually and it could go up to 2% of GDP by 2030. The agriculture sector in Tanzania is particularly vulnerable to climate change because it is customarily dependent on rainfall, its adaptation needs to be enhanced through data-driven decisions. The sectors that will benefit from hydromet data and early waring information include disaster management, irrigation, hydropower, and water resources management and allocation.

As climate change exacerbates current weather conditions, sea levels will rise and flood into cities and salt water will contaminate aquifers and other fresh water sources, cyclones and storm surges will hit the coasts, and heat waves and droughts will hamper farming and agriculture, leaving millions food and water insecure and crippling economies. African countries face a combination of risks and effective data-driven hydromet services can offer adaptation solutions to these challenges.[1] To achieve this however, many hydromet monitoring systems need optimization of their efficiency and Operation & Maintenance (O&M) cost. Here, existing and emerging innovative technologies and approaches offer new opportunities. Their operational uptake by NMHSs is currently low due to (1) insufficient collaboration between ~~innovators~~academia, private sector and~~,~~ hydromet services ~~and their user communities~~, (2) insufficient translation of research into operational tools and/or (3) high costs of technologies and their ownership/operational costs. Moreover, in order to sustainably operate ~~NMHSs~~hydromet monitoring systems, political commitment, viable financial models, qualified human resources as well as effective engagements with the user community are a prerequisite.

The proposed project will execute a portfolio of activities through the WMO HydroHub Phase II – *that started in September 2021 –* to advance innovation in the hydrometry agenda. The project will deliver activities that accelerate the pull-through of new cost-effective approaches and technologies into operational use by monitoring agencies within the target countries and develop new sustainable partnerships ~~across the public and private sectors~~ , through providing actors across the public and private sectors at local, regional and~~,~~ national ~~and transboundary~~ levels with capacity, innovation and engagement ~~possibilities, to build innovation capacity within the target countries~~opportunities.~~–~~ Together, these actions will lead to an increase in availability of reliable hydrological data and information needed for the ~~to support the~~ provision of hydromet services in the region. These improved hydromet services will support data-driven decisions in agriculture, disaster risk reduction, water resources management and environmental protection among others. ~~that meet users' needs in two "Regional Innovation Hubs" in Africa~~.

The Regional Innovation Hubs will be established in Tanzania and The Gambia ~~as centres of excellence in hydrometric technology~~ that support improved monitoring and early warning in their own and surrounding countries, with a particular focus on the use of innovative monitoring approaches to support flood forecasting and drought risk management. Both Hubs will be established as regional partnerships ~~-~~ through collaborations between NMHSs, relevant national and regional entities active in the field of hydrological monitoring, academia and private sector entities that could support the manufacturing and maintenance of new technological solutions (including Small and Medium Enterprises (SME) and start-ups). In Tanzania, synergies with the recently established Water Resources Centre of Excellency will be sought, in view of increasing the sustainability of project outcomes. In T~~t~~he Gambia, the ECOWAS Hydromet Initiative – that seeks to promote the modernization of Hydromet Services in ECOWAS member states – will be leveraged as well as the Gambia River Development Organization (OMVG).

Project / Programme Objectives: The overall aim of the project is to improve the delivery of hydromet services through two "Regional Innovation Hubs" in Africa by advancing the uptake of innovative hydrometric approaches by the NMHSs in Tanzania, The Gambia and surrounding countries. The objectives of the project are:

- Increase operational capacity of the NMHSs to deploy and maintain innovative hydrometeorological observation, data and metadata exchange, calibration and data processing technologies (e.g. Artificial Intelligence, innovative water level sensors, locally manufactured data loggers, locally innovated hydrometeorological infrastructure) through collaborative Innovation Call projects, training interventions (both train-the-trainer and short/long course trainings) and support for Regional Technical Champions;
- Develop two Regional I~~i~~nnovation Hubs ~~focused centers of excellence~~ in hydrological monitoring and data processing, which use novel mechanisms (such as Innovation Camps and International Twinning) to bring

[1] https://www.worldbank.org/en/region/afr/brief/hydromet-in-africa

together public and private entities to support the development, manufacturing and maintenance of digital and physical monitoring technologies;

- Enhance regional cooperation for mutual technical assistance among NMHSs and other monitoring organizations within the region where the Innovation Hubs are established;
- Increase political and institutional commitment for operational hydrology through improved stakeholder collaboration and engagement, including co-production of hydromet services.

Project / Programme Components and Financing:

The proposed project will implement a portfolio of activities to address identified needs. The table below provides an overview of the proposed activities.

Project/Programme Components	Expected Outcomes	Expected Outputs	Countries	Amount (USD)
1. Increased operational capacity of the NMHSs to provide fit for purpose hydrological data through the use of innovative monitoring approaches	Improved and sustained technical expertise of NMHSs staff and uptake of innovative technologies	1.1 Enhanced local trainings capacity, research and tailored technical guidance material to addressing specific technical expertise deficits related to hydrometric monitoring within the Regional Innovation Hub (e.g. linked to the use of new instrumentation) 1.2 Innovation Calls projects (involving collaborations between in-region and international operational and research partners) implemented to find and operationalize innovative water monitoring solutions to NMHSs hydrometric challenges within the Regional Innovation Hub	Tanzania, The Gambia	2,000,000
2. Two developed Regional ~~i~~Innovation ~~centers of excellence~~Hubs in hydrological monitoring, which bring together public and private entities to support research, the development, manufacturing and maintenance of digital and physical monitoring technologies	Locally designed, manufactured and maintained capabilities exist in both countries to service water monitoring needs across their regions	2.1. International twinning/mentoring, events bring together hydro monitoring institutions and startups that innovate from across the world to assess their suitability to address identified hydrometric challenges in The Gambia and Tanzania. Selected startups will benefit from ~~and~~ pump priming grants to ~~establish and~~ grow both public and private sector capability ~~through start-up incubators~~ and linkages with the research sector, with the potential to lead to job creation. 2.2 Innovation Camps and other activities established to bring together public and private entities to support the development, manufacturing and maintenance of	Tanzania, The Gambia	600,000

		digital and physical monitoring technologies		
3. -Enhanced regional cooperation for mutual technical assistance among NMHSs and other monitoring organizations within the region where the Innovation Hubs are established	Improved dialogues and exchanges within Regional Innovation Hubs and beyond	3.1 Organization of Learning Staff Exchanges to facilitate and guide learning exchanges among NMHSs within a Regional Innovation Hub in view of addressing specific common hydrometric challenges 3.2. Organization of Innovation Workshops to bring together NMHSs, academia, private sector (solution providers) and others, and facilitate targeted interactions among them in a way that allows NMHSs to express their operational challenges and needs, and the private sector to tailor their solutions to operational realities of NMHSs	Tanzania, The Gambia	900,000
4. Increased political and institutional commitment for operational hydrology through improved stakeholder collaboration and engagement, including co-production of hydromet services.	Increased support to NMHSs through budget and Water Legislations, and fit-for-purpose innovative hydrometric technologies and user-oriented hydromet services	4.1 Organization of Ministerial Roundtables in each country of the Regional Innovation Hubs that will showcase the comprehensive results and recommendations of national cost-benefit analysis of hydrological data investments 4.2 Organization of User-provider Workshops and Webinars, to bring together NMHSs, public and private sectors (users of hydromet services) and facilitate targeted interactions among them, including for identifying and developing new markets for NMHSs services	Tanzania, The Gambia,	~~600,000~~678,082
~~5~~6. Total Project Activity 6. Project/Programme Execution cost 7. Total Project/Programme Cost 8. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)				4,178,082 388,128~~437,788~~ ~~4,170,507~~4,566,210 433,790~~391,705~~
Amount of Financing Requested				5,000,000

Project Duration: *5 years (2023 – 2027)*

PART II: PROJECT / PROGRAMME JUSTIFICATION

Regional Programme

The project will advance the provision of hydromet services in Africa through the establishment of "Regional Innovation Hubs" in Tanzania and The Gambia. Throughout the Phase I of the WMO HydroHub (February 2017 – August 2021) active engagement with the NMHSs of The Gambia and Tanzania took place with both countries proactively expressing interests in scaling up their involvement in future WMO HydroHub activities.

In Tanzania, a successful innovation project was implemented by the Trans-African Hydro-Meteorological Observatory (TAHMO) in the framework of the 2nd WMO HydroHub Innovation Call, specifically looking at open-source non-contact river flow observations with cameras. In The Gambia, the participation of an NMHS representative in WMO HydroHub Innovation Workshops highlighted the need for innovation to address some of the country's most pressing hydrometric challenges, and helped the design of solutions in a way that integrated some of the realities on the ground e.g. short battery lifespan in data loggers.

Building on this previous engagement with the WMO HydroHub, the project will develop Regional Innovation Hubs in Tanzania and The Gambia that will play the role of incubators for innovation both locally and in neighboring countries. The Regional Innovation Hubs will change the way hydromet data is collected, managed and disseminated through (1) progressive operationalization of emerging cost-effective technologies, (2) integration of non-traditional data sources such as citizen science, (3) improved sustainability of hydromet monitoring through, for example, mentoring and learning exchanges activities, and (4) enhancing engagement with stakeholders in the hydromet data user community. The enhanced hydrological data collection and management capacity acquired during the project will help improve the delivery of hydromet services in the regions (e.g. enhancing the collection and management of observation of floods to underpin improvements in flood forecasting), hence improve decision-making in water management. Based on preliminary consultations, the following gaps and needs to improve hydrological monitoring systems were identified:

- Lack of real time data for disaster risk reduction and flood early warning systems;
- Lack of capacity in operational hydrology;
- Lack of capacity in instrumentation (fabrication, maintenance);
- Lack of connection with end-users; and
- Inadequate government support

To address the identified needs, the proposed project will implement a set of activities through four project components:

1. Increased operational capacity of the NMHSs to provide fit for purpose hydrological data through the use of innovative monitoring approaches;
2. Two developed ~~innovation focused centers of excellence~~Regional Innovation Hubs in hydrological monitoring to support the development, manufacturing and maintenance of digital and physical monitoring technologies;
3. Enhanced regional cooperation for mutual technical assistance among NMHSs;
4. Increased political and institutional commitment for operational hydrology through improved stakeholder collaboration and engagement.

The two first components will ensure that the NMHSs within the Regional Innovation Hub will improve and sustain their provision of hydrological data, whereas the two last will ensure that the regions are strengthened through mutual technical assistance and increased political commitment.

With regard to the vulnerable communities, groups, end-users that will be the beneficiaries of the project through improved hydromet services, five main groups have been identified: 1) Local communities affected by hydrological disasters including those living in flood prone areas in Tanzania and along the lower reaches of the river Gambia basin; 2) Agriculture sector, including farmers working in irrigation schemes/field such as paddy farms, small holder

tidal irrigation farmers, women oyster farmers in the Tanbi Wetland Complex; 3) Students and ~~universities~~researchers, through the provision of data for climate change and sea level rise modeling and the potential for employment of graduates in the area of innovation for hydromet; 4) Women, as a vulnerable group, yet being the pillars of in family economy through subsistence farming, and 5) Regional data collection and research initiatives, international partners and initiatives.

Promotion of new and innovative solutions

Innovative solutions will be promoted through the project, notably through Innovation Calls that will address regional hydrometric challenges common to all countries within a Regional Innovation Hub and enhanced linkages with research sector to support co-design of new innovative solutions. The innovative solutions that will be leveraged in the project would have already been through proof-of-concept testing but need further assistance to, for example: (1) tailor them to the needs of hydromet services in West and East Africa, (2) build the support infrastructure (e.g., local manufacturers and maintenance providers), and/or (3) help operational services transition to the new technology.

The Innovation Calls will be implemented in ~~Tanzania and The Gambia~~both Hubs ~~in view of having a good basis for scaling up~~ through provision of financial and technical support to project proposed via open calls. Innovation Call applications will be technically evaluated based on a set of criteria including: a low total cost of ownership; cost effectiveness of the solution; innovativeness; open source; scalability to other countries and regions; possibility for local manufacturing; involvement of youth, women and vulnerable communities in the project scoping and design. An established mechanism for this exists and has been demonstration in WMO HydroHub Innovation Calls in its Phase I.

The Gambia and Tanzania were thought to be suitable locations in which to support the growth of innovation ecosystems around water monitoring. In The Gambia, the government has made strong commitments to entrepreneurship and a number of technological incubators/accelerators have been established in recent years, that could provide useful synergies with the proposed Regional Innovation Hub. An active innovation ecosystem also exists in Tanzania, with a number of other incubators and accelerators established across different sectors that could provide useful linkages with the hydrometry Innovation Hubs. In developing the Concept Note, other initiatives such as UNDP Innovation Labs will be considered in shaping the proposal.

In addition to the current technical and innovation positioning of the two countries, the project aims to establish the two Regional Innovation Hubs in two different regions in Africa i.e., East and West Africa, as these could then support hydrometric monitoring innovation across other countries in the region. For example, in West Africa, the Gambia's membership of ECOWAS should simplify regional trade for any start-ups that might stem from the Hub. Looking further ahead, it is envisaged that the Regional Innovation Hub model of supporting improvements in water monitoring could be replicated in other regions e.g., North and Southern Africa should the project be successful.

Scaling up of innovative solutions

The innovative hydrometric solutions implemented in Tanzania and The Gambia will be designed in a way that makes the innovations applicable to other countries or regions facing the same or similar hydrometric challenges. They will then be scaled up to the other countries within the Regional Innovation Hub.

Expected partnerships that will emerge from the Regional Innovation Hubs and help bring about transformative change include 1) NMHSs and private sector technology providers (for the development and uptake of innovative solutions that meet NMHSs' needs); 2) NMHSs and hydromet data users, both private and public sectors such as agriculture, civil defense (for the improvement of user-oriented data provision); 3) NMHSs and citizen science groups, including youth, women and vulnerable communities (for the integration of non-traditional data sources into NMHSs operations); 4) private sector technology providers and academia (for collaborative research and development of technologies); 5) among NMHSs of various countries (for continuous learning, mentoring and collaboration); and 6) among existing innovators from various sectors (for improved business incubation and acceleration).

Cost Effectiveness
The project is designed in a cost-effective way with a high return on investments. Implemented activities are such that they will have a long-term impact and will build on existing WMO entities present in the region. The project being developed in the broader framework of the WMO HydroHub Phase II will leverage investments by other donors in developing tools and networks e.g. Innovation Calls. A full logframe, including indicators, will be developed if this pre-concept is approved.

Consistency with national or sub-national sustainable development strategies
The project will be consistent with national sustainable development strategies, including:

- Gambian National Adaptation Plan of Action (NAPA) on Climate Change (November, 2007)
- National Development Plan in The Gambia (NDP 2018 – 2021)
- Tanzania's National Adaptation Plan (NAPA)
- National Five-Year Development Plan in Tanzania 2021/22–2025/26
- Tanzania's National Climate Change Response Strategy 2021-2026

The Gambian National Adaptation Plan of Action (NAPA) on Climate Change recognizes the inadequate knowledge between the climate and biophysical process within the Gambia. It stresses the risk of the disappearance of freshwater swamps and salinization resulting from the effect of sea-level rise. Furthermore, it emphasizes that the combination of sea-level rise, global warming and changes in rainfall patterns, could impact freshwater resources qualitatively and quantitatively. Surface evaporation is expected to increase, whilst groundwater recharge is expected to take the reverse trend. Thus, the NAPA recommended the preparation and implementation of strategic and effective water resources management tools such as policies, legislations and action plans. The supplementary Agriculture and Natural Resources (ANR) Policy (2017 - 2026) calls for regional cooperation in the sustainable management of shared water resources. It also emphasizes the need to expedite the water sector reform with a draft Gambia Water bill, that would enhance effective water policy implementation to minimize water conflict and promote cooperation among the various users and uses.

The project responds to the Tanzania's National Adaptation Plan (NAPA), the National Five-Year Development Plan 2021/22-2025/26; and the National Climate Change Response Strategy 2021-2026 through aims to address issues of increase in frequency and intensity of extreme events such as strong wind, heavy rainfall, hailstorm and higher temperatures that are devastating socio-economic impacts including loss of life and properties, and destruction of infrastructure.

Learning and knowledge management
The project includes learning and knowledge management aspects such as the trainings on technical deficits in component one, the learning exchanges in component three and the results of cost-benefit analysis presented in the context of Ministerial Roundtables in component four.

Consultation process
This pre-concept was developed by the NMHSs in Tanzania and The Gambia together with WMO. It also went through an internal WMO peer-review. More consultations will be carried out with all relevant stakeholders in the preparation of the Project Concept Note. Mechanisms that would be used have been developed by WMO through experience and wide consultation with Members. Two consultation workshops will be organized during the Concept preparation phase to help identify what the gaps and needs are in terms of hydrological monitoring in Tanzania, The Gambia and neighboring countries.

Sustainability
The sustainability of the project will be ensured by the Regional Innovation Hubs and the full range of stakeholders who encompasses them. All activities have long-term impact potential and are designed in a sustainable way. Innovation Calls for example are expected to be locally self-manufactured and with a low total cost of ownership. A specific focus will be placed on enhancing peer-to-peer support across water monitoring organizations in each supported region as well as growing a network of research collaborations, private sector SMEs and start-ups with the capabilities to support monitoring operations.

Economic, social and environmental benefits

The project will bring economic, social and environmental benefits to the regions through improved hydromet services that will allow for improved decision-making, save lives and protect the environment.

Compliance with the Environmental and Social Policy of the Adaptation Fund
The project is compliant with the Environmental and Social Policy of the Adaptation Fund and does not have the potential to cause environmental or social harm throughout its implementation.

Duplication of project / programme with other funding sources
The project will not duplicate activities being carried out in the framework of other projects. A mapping of ongoing and planned activities will be made, in view of identifying synergies and ensuring coherence with regional programmes and seeking collaboration with regional and national institutions in the region.

PART III: IMPLEMENTATION ARRANGEMENTS

WMO will be the implementing entity for this project. The NMHSs of Tanzania and The Gambia, and the UK Centre for Ecology & Hydrology (UKCEH) will act as executing entities. While the NMHSs of Tanzania and The Gambia will play a key role in developing partnerships – with the other NMHSs and relevant organizations – within the Regional Innovation Hubs by taking the lead on consultations and hosting activities such as Learning Exchanges, the UKCEH will support the project coordination. International experts from across the WMO Membership will be deployed where appropriate (for example, as innovation mentors or deliver of train-the-trainer interventions). Also, synergies with universities and regional training centers (potentially the National Water Research Center (NWRC) in Cairo, AGRHYMET Center in Niamey) will be sought to ensure innovations can get supported both at the demonstration, instrument maintenance and operational levels.

Compliance and quality control will be ensured through appropriate WMO Bodies e.g. Infrastructure Commission.

Other partners will be identified during the Concept Note development. The Associated Programme on Flood Management (APFM) Support Based Partners represents a pool of possible partners that could be leveraged.

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

A. Record of endorsement on behalf of the government[2] *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.*

GAMBIA (The Republic of) Mr. Bubacar Zaidi Jallow Director Central Project Coordinating Unit Ministry of Environment, Climate Change and Natural Resources (MECCNAR)	Date*:* 1/12/2021
TANZANIA Mr. Mohammed Khamis Abdulla Deputy Permanent Secretary Vice President's Office	Date*:* 22/12/2021

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*

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 (National Five-Year Development Plan in Tanzania 2021/22–2025/26 and National Development Plan in The Gambia (NDP 2018 – 2021)) 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 Implementing Entity Coordinator	
Date: *(Month, Day, Year)*	Tel. and email: +41 79 514 4261 jpgaudechoux@wmo.int

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.

Project Contact Person: Sophia Sandström
Tel. And Email: ssandstrom@wmo.int

REPUBLIC OF THE GAMBIA
Ministry of Environment, Climate Change & Natural Resources (MECCNAR)
GIEPA House - 1st Floor
Kairaba Avenue
Kanifing Municipality

PB 33/200/03 PART I (167) **1st December 2021**

The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for enhancing Hydromet Services through Regional Monitoring Innovation Hubs in Africa

In my capacity as designated authority for the Adaptation Fund in The Gambia, I confirm that the above national grant proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the Gambia.

Accordingly, I am pleased to endorse the above grant proposal with support from the Adaptation Fund. If approved, the project will be implemented by UK Center for Ecology and Hydrology and executed by Department of Water Resources.

Sincerely,

Bubacar Zaidi Jallow
Director, Central Project Coordination Unit /Adaptation Fund Focal Point

THE UNITED REPUBLIC OF TANZANIA
VICE PRESIDENT'S OFFICE

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In reply please quote:
Our Ref: BA.90/201/01

22th December, 2021

The Adaptation Fund Board,
c/o Adaptation Fund Board Secretariat,
Email: Secretariat@Adaptation-Fund.org,
Fax: 202 522 3240/5.

Ref: **NO OBJECTION TO THE IMPLEMENTATION OF THE PROJECT ENHANCING HYDROMET SERVICES THROUGH REGIONAL MONITORING INNOVATION HUBS IN AFRICA**

The above subject matter is concerned.

2. In my capacity as Designated Authority for the Adaptation Fund in Tanzania, I confirm that the above national grant proposal is in accordance with the government's national priorities including third National Five Years Development Plan **2021-2026,** National Climate Change Response Strategy **2021-2026** and Nationally Determined Contribution (NDC) **2021-2026** in implementing adaptation activities to reduce adverse impacts and risks posed by climate change in Tanzania.

3. In this regard, I am pleased to endorse the above grant proposal with support amounting to USD Five Millions from the Adaptation Fund. If approved, the project will be implemented by the World Meteorological Organisation (WMO) and executed by Ministry of Water in Tanzania.

Mohammed Kh. Abdulla
DEPUTY PERMANENT SECRETARY