



ADAPTATION FUND

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25 September 2026

Adaptation Fund Board
Project and Programme Review Committee
Thirty-eighth Meeting
Bonn, Germany, 19-23 October 2026

**PROPOSAL FOR CAMBODIA, LAO PEOPLE'S DEMOCRATIC
REPUBLIC, THAILAND, VIETNAM**



ADAPTATION FUND

ADAPTATION FUND BOARD SECRETARIAT
TECHNICAL REVIEW OF PROJECT PROPOSAL FOR
"ENHANCING CLIMATE ADAPTATION AND RESILIENCE OF MEKONG COMMUNITIES
THROUGH STRENGTHENING OF WEATHER, WATER AND CLIMATE SERVICES (ECR-
MEKONG) "

Project Title Enhancing Climate Adaptation and Resilience of Mekong Communities through Strengthening of Weather, Water and Climate Services (ECR-MEKONG)

Project ID AF00000268

Category Regular size project (over \$1 million)

Type Regional project

Stage Pre-concept

Country Regional (Cambodia, Lao People's Democratic Republic, Thailand, Vietnam)

Implementing Entity WMO

Financing Requested USD 12,466,575.00

Reviewer Una May Gordon

Co-reviewer(s)

IE Contact Person

Ana Laura Zuanazzi, Jason Watkins, Moyenda Chaponda, Petra Mutic, Ramesh Tripathi

Secretariat's Overall Comment

The initial technical review raised several issues, such as lack of focused objectives, realistic goals and the lack of support to concrete adaptation actions, as was discussed in the number of Clarification Requests (CRs) and Corrective Action Requests (CARs) raised in the review. The second technical review found that the proposal has not addressed most of the CR and CAR requests. Namely, the lack of focused objectives, realistic goals and the lack of support to concrete adaptation actions remains. The third technical review finds that the proposal has made no progress with respect to the lack of focused objectives, realistic goals and the lack of support to concrete adaptation actions. The fourth technical reviews find the proposal has not addressed some areas such as a practical sequence between climate information and adaptation results, indicative location per country, gender considerations, duplication of efforts, sustainability, as well as errors in PFG application, as was discussed in the number of Clarification Requests (CRs) and Corrective Action Requests (CARs) raised in the review.

Country Eligibility

Are all of the participating countries party to the Kyoto Protocol, or the Paris Agreement?

Response: Yes

Secretariat: N/A

Are all of the participating countries developing countries particularly vulnerable to the adverse effects of climate change?

Response: Yes

Secretariat: Participating countries are particularly vulnerable to climate change-exacerbated floods and droughts, with increasing frequency and severity TR1_ Sept 2023

Project Eligibility

Have the designated government authorities for the Adaptation Fund from each of the participating countries endorsed the project/programme?

Response: Pending

Secretariat: Yes. As per the Endorsement letters dated 22 June 2023 (Cambodia), 23 December 2022 (Lao PDR), 19 July 2023 (Thailand) and 17 March 2023 (Viet Nam). TR1_ Sept 2023

Response: Pending

Secretariat: No. The DA who signed for Cambodia is not the DA currently on record. TR2_ Feb 2024

Response: Pending

Secretariat: No. The letter for Viet Nam is unsigned and the DA mentioned is not the DA currently on record. TR3_ Jul 2024

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?

Response: Pending

Secretariat: No. Essential information needed to justify the funding request, is lacking. The scope of the project is so broad that the diversity and complexity of the problems the proposal aims to address is not presented or reflected in the proposed approach. CR 1: Please provide the necessary information on the problem as well as the proposed remedy, as required, at the different levels. TR1_Sept 2023

Response: Pending

Secretariat: CR 1: Not cleared. There is no doubt that an effective EWS would be a valuable adaptation asset for communities and households in the Mekong river basin. However, the nature of the challenges in developing a suitable EWS for the Mekong basin has not been addressed. The level of the proposed interventions is disconnected from the actual decision making processes in the countries and there is a lack of decision making abilities at the regional level. The link between data collection and analysis and decision making is absent. There is no pathway for such data to progress and relevant policy and political frameworks determining decision making are ignored. The diversity and complexity of the problems the proposal aims to address are not adequately presented or reflected in the proposed approach. The executing entities are also the main direct beneficiaries of the project. In addition, the EEs have also been the main source of information on the problem, mostly related to their own capacity. There is a need for independent identification of the most effective and indicated approaches. TR2_Feb 2024

Response: Pending

Secretariat: No. CR 1: Not cleared. The earlier findings have not, or not adequately, been addressed and the issues identified remain. TR#_ Jul 2024

Response: Pending

Secretariat: CR 1: Not cleared. The proposal summarises the challenges faced by the countries of the Mekong River Basin, including challenges emerging when applying to pilot basins. i. Please indicate that during the concept note preparation process that an independent assessment of needs, existing capacities, previous

investment and alternative approaches of the Executing Entities will be undertaken. Please also refer to CAR 1 (vii). ii. Please clarify if there is a regional body to support EWS that can collaborate with MRC and explicitly state how regional level decision-making will be strengthened. TR4_28 Jul 2026

Have the project/programme objectives, components and financing been clearly explained?

Response: Pending

Secretariat: No. The pre-concept note is a broad mix of issues and topics, some with a clear climate change link, others with only a marginal or no connection at all. 1. The target area of the proposal is not clearly defined and misaligned with the envisaged objective. The absence from the proposal of PR China (and, to a lesser extent, Myanmar) as a participating country is a major gap as a key source of flood-determining flow and flow control through hydropower management is thereby not included. Furthermore, apart from Cambodia and Lao PDR, only relatively small parts of the territories of Thailand and Viet Nam are located in the Mekong river basin. It is unclear to what extent and how these two countries will use and develop national and nation-wide structures based on these limited requirements. 2. The target communities are poorly identified. The project title refers to “Mekong river communities”, while elsewhere they are referred to as “riparian communities” or yet as “vulnerable communities in the Participating Countries”. The flood and drought risks directly related to Mekong river flows and rainfall extend far beyond its direct riparian area. 3. The main objective of the project is described as being achieved “by implementing climate-smart decision-making networks”. The proposal does not explain how these decision-making networks will be relevant in decision making across all the sectors involved in the management of drought and flood disaster risks. 4. There seems to be a major disconnect between the information that is needed and relevant for flood and drought disaster risk management (i.e. mostly weather forecasts) and the envisaged “climate services production and delivery”. At the community level, for the mentioned sector of agriculture, weather forecasts are relevant, as decisions at a temporal scale where ‘climate services’ are relevant are typically not taken at the level of those communities. 5. There is a conceptual bias in the term ‘flood’ as used in the proposal. It is only used in the sense of being a catastrophic or disastrous event, one that should be avoided or minimised through a disaster preparedness approach. The recurrent flooding associated with the natural hydrological cycle of the Mekong river and its vital importance to globally unique biodiversity, ecosystem processes, ecosystem services and livelihoods, while documented and demonstrated ad nauseam, is entirely absent from the proposal. The proposal makes some references to hydropower development as a factor affecting flooding but ignores the impact of e.g. irrigation development and loss of wetlands and floodplain vegetation, dynamics and other features such as connectivity. 6. Similarly, the proposal ignores the livelihoods and ways of life of millions of households in the Mekong river basin who have adapted to naturally occurring floods and droughts and, in a number of cases, have developed over several thousands of years ways to cope, exploit and often prosper with these natural hydrological cycles. 7. The project objective includes “better (...) water resources management encompassing hydropower generation.” The development of both mainstream and tributaries hydropower infrastructure in the Mekong river basin of the past three decades has clearly shown the inability of the countries and companies involved to take into consideration factors in their hydropower operations that are not directly in support of their own profitability. Clearly, considering their impact on river flows, they are of vital importance in flood and drought disaster risks management. However, the proposal does not demonstrate how it will achieve such engagement with the hydropower sector. Attempts at their engagement have consistently failed, despite the existence of bespoke international agreements and institutions established for that exact purpose (e.g. the Mekong River Commission). CR 2: Please clarify the link between the project objectives, the project components and the proposed allocation of financing, taking into consideration the above remarks. CR 3: Please clarify the components to demonstrate how they will realistically result in outcomes that contribute to achieving the project objectives. TR1_Sept 2024

Response: Pending

Secretariat: CR 2: Not cleared. None of the seven points made have been adequately addressed. CR 3: Not cleared. TR2_ Feb 2024

Response: Pending

Secretariat: No. CR 2: Not cleared. 1. The disconnect between the Mekong river basin focus and the necessary national approach for parts of the project remains. The lack of involvement of PR China and Myanmar is unlikely to be resolved, and the proposed remote-sensing alternative is unrealistic. Points 2-7 have not, or not adequately, been addressed. CR 3: Not cleared. TR3_ Jul 2024

Response: Pending

Secretariat: CR2: Not Cleared 1. Efforts have been made to engage both countries (People's Republic of China and Myanmar) are documents in pre-concept note. If not as direct beneficiaries, there are other ways to include both countries in the project, especially through knowledge management and learning. Please also define the geographic scope within each country and relevance of Thailand and Vietnam beyond the Mekong Basin area. Note as per the third review, the pre-concept note proposal clarifies that remote sensing is not to replace in-site data or upstream cooperation but to complement it. 2. While the countries have been identified, please share a brief statement of the 20 communities (5 per country) that will potentially be targeted or indicate that there will be a selection process to identify the communities. These communities, as well as details regarding the selection process should be further elaborated in the concept to be developed. Note 20 communities were referenced in the PFG and the number should be reflected in the pre-concept note. Please also refer to CAR 1 (i). 3. Please ensure the information in the review sheet are incorporated in the proposal. 4. Please ensure the information in the review sheet are incorporated in the proposal. 5. It is acknowledged that the dual purpose will be included in the proposal development stage. However, please include a brief statement to reflect the dual perspective. 6. Please also include a brief statement acknowledging the traditional systems. Note comment 5 & 6 may be best reflected by including an introductory statement on the context of the Mekong River Basin (i.e. first paragraph of 'Project/Programme Background and Context'). 7. The project will seek to engage hydropower operators through technical cooperation and demonstration of co-benefit. The concept note developed under PFG should reflect their engagement given the concern. CR3: Not Cleared. Improved forecasts and warnings are not, by themselves, concrete adaptation. The pre-concept note should show in a simple pathway or sequence of how the proposed Early Warning Systems, climate services and governance activities, will lead to concrete adaptation action and benefits. Please state in a brief paragraph, the main users, the decisions they will take because of this information, what action is taken and measurable benefits. . A high-level results chain is adequate at this stage. Note a detailed Theory of Change may be developed at the concept note stage. TR4_ 28 Jul 2026

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 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?

Response: Pending

Secretariat: No. Despite its very broad scope, it can be concluded that the proposal would contribute primarily to disaster risk reduction and early warning systems. The potential for the project to support concrete adaptation actions is low, as the allocation of funding to activities that could be considered concrete adaptation, or that are

likely imminently leading to such adaptation, is very limited, involving only an unspecified number of pilot cases and sites. The added value of the regional approach is not demonstrated (please also see comment 1 under point 3 above). For rainfall forecasting, regional impacts in terms of flood and drought risk materialise in a lagged manner through the hydrology of the river, which is extensively monitored and for which robust flood forecasting has already existed for several years (please see e.g. <https://portal.mrcmekong.org/monitoring/flood-forecasting>). The description of how the project would provide new and innovative solutions for climate change adaptation is vague and contains very few new and no innovative elements. Numerous attempts to “solve potential conflicts in water use between agriculture, energy, and water management using multipurpose infrastructures” have been made in the past, many through MRC, and have mostly failed. The section on cost-effectiveness provides no information on how the proposed project would be a cost-effective way to achieving the project objectives. The proposal contains no gender considerations. Sustainability of the project is said to be “guaranteed” by the national meteorological institutions “in their roles of government agencies supported by public funding with officially mandated duties.” The proposal contains no relevant information in support of the claim of sustainability of the project outcomes. CAR 1: Please provide the required information justifying the proposed project. TR1_ Sept 2023

Response: Pending

Secretariat: CAR 1: Not cleared. None of the considerations raised in the initial review have been adequately addressed. In addition, it is now clearer how the project justifications were established. The diagnostic assessment of capacity gaps and capacity building needs is the same of what MRC and the national institutions have been claiming for decades, and which has never been effectively addressed. The source of the justification grounds for the project are ‘preliminary consultations’. In these, potential direct project beneficiaries were asked to identify financing needs to address self-determined capacity gaps. The ‘needs’ established in this manner are not further corroborated or queried but presented as established facts. All these identified ‘needs’ have already been addressed and funded several times over, as is illustrated in part by the list of ongoing similar initiatives in the region presented in the response sheet. There is no information to suggest that the requested funding would be more effective than all the previous projects. A central flood forecasting system for the lower Mekong basin was already set up at the beginning of the 1970s. In addition, capacity building at MRC has proven to have very low levels of sustainability. At one point, the MRC and the counterpart agencies in the four countries had one of the most performant state of the art bespoke hydrodynamic modelling capacity in the world for the Mekong, thanks to long-term support from bilateral donors and the WB. None of that capacity is still available or has been institutionalised following the conclusion of the external support. Apart from new output 1.2.2 - EWSs and concrete adaptation measures are tested in selected vulnerable communities – there are few concrete adaptation actions involved. TR2_ Feb 2024

Response: Pending

Secretariat: No. CAR 1: Not cleared. None of the considerations raised in the initial and second reviews have been addressed. TR3_ Jul 2024

Response: Pending

Secretariat: CAR 1: Not Cleared. The additional information does not yet adequately resolve the concerns raised in the previous reviews. Please address the following matters directly in the pre-concept note, noting where applicable that detailed analysis to be completed in the concept note preparation stage. i) Concrete adaptation solutions: The causal chain should be explicit, and the indicative scale of implementation remains unclear. Please confirm (or revise) if needed) the indicative target of 20 communities (5 per country as indicated in the PFG) and briefly indicate the site selection criteria and indicative beneficiaries. State that the final site selection may be completed during the concept note stage Community-level interventions are identified with an indicative allocation of USD 2.7 million, but the basis for prioritising them is unclear. Please briefly explain in the pre-

concept note how these will be prioritised. Note that the priority areas may be defined in the concept note. ii) Added value of regional approach: The rationale for a regional approach is highlighted. However, it needs to explain the additionality and why current systems cannot achieve results with incremental support. Please briefly explain why results cannot be achieved with incremental support and or explain or focus on the regional results can be achieved without China's and Myanmar's direct participation and how the two countries can be possibly engaged through knowledge management and learning. iii) Innovation: Potential innovative elements are identified but these need to be differentiated from existing technologies and previous regional initiatives. Please briefly state a structured review of existing and ongoing initiatives will be undertaken during concept note development to adequately benchmark the proposed features, confirm additionality and avoid duplication of efforts. iv) Cost-effectiveness: Please briefly compare the proposed approach with credible alternatives or briefly highlight why this request would provide better results than previous investments. Note that the cost figures '100-150 times more', and 'US\$150-300 million' should be supported. v) Gender considerations: Gender is acknowledged but gender considerations are yet to be operationalised in project design. Please indicate the preliminary actions that will be undertaken to integrate gender in the project design. For example, specifying the initial gender analysis will be conducted based on desktop research and consultations with communities, and the commitment to engage with stakeholders with a gender remit vi) Sustainability: The sustainability claim of being guaranteed is unsupported and should be removed. The pre-concept should highlight its exit strategy such as ownership, recurrent-cost estimates, operation and maintenance arrangements, budget commitments, staff-retention plans, system ownership and specific post-project responsibilities. This will ensure that these are adequately covered in the next stage. Please highlight possible exit strategies and explain that these will be elaborated in the concept note stage. Note general commitments by government do not adequately address the concern. Please consider how this will be addressed and ensure it is elaborated in the concept note to be developed. vii) Duplication of efforts: A lesson learned analysis will be critical, simply asserting will not be adequate. Please briefly explain how the project will adopt lessons learned from previous donor initiatives. The concept to be developed should highlight previously funded initiatives, highlighting lessons learned from what failed and what was successful. It should also highlight any gaps at the different levels that should be addressed. CAR 1.1(NEW): Please number each paragraph and include sub-headings, particularly under Part II: Project/Programme Justification to allow for ease of reference and readability. TR4_ 28 Jul 2026

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?

Response: Pending

Secretariat: Unclear. The proposal includes eight organisations as named Executing Entities, four in each participating country, and four located outside the project region. In addition, unspecified "relevant national institutions" will execute activities at community level in each country. The role of MRC as regional partner is unclear. CR 4: Please clarify (i) the role of each executing entity in executing the proposed components/outputs, as well as (ii) the process through which a smooth coordination among the myriad of EEs will be ensured. None of the participating countries has an accredited NIE. The IE will be involved in the execution of some activities. The proposal should comply with relevant AF guidelines related to implementing entities providing execution services. CAR 2: Please clarify the role of the IE in the execution of the project, and correct the administrative costs accordingly as needed, in line with relevant AF guidelines. TR1_ Sept 2023

Response: Pending

Secretariat: CR 4: Partially cleared. The identity and role of the now six executing entities has been clarified. However, the process of coordination among the EEs has not been clarified. CAR 2: Cleared for this stage. The response sheet states that the IE “will apply 1.5% of the execution fee in order to provide support in the execution of activities under various components of the proposed project”, which is unclear. Further, the response sheet states that the IE will not directly implement any activities in the countries “but mainly provide guidance and support through the WMO technical partners (especially from WMO Associated Programme on Flood Management (APFM) and Integrated Drought Management Programme (IDMP))”. A concept note will need to see a clear description of the relation between these programmes and the IE, as well as their specific roles in the implementation and execution of the project. TR2_ Feb 2024

Response: Pending

Secretariat: Unclear. CR 4: Not cleared. The additional information provided includes the establishment of National Working Groups in each country. Otherwise, there is no further clarification of the process of coordination among the EEs. TR3_ Jul 2024

Response: Pending

Secretariat: CR4: Cleared As per Part III, Implementation Arrangements, page 8, reference is made to coordination among EEs supported by a regional project coordination unit and Regional Working Groups. These implementation arrangements should be further elaborated in the concept note in the form of a diagram, so roles and responsibilities remain clear TR4_ 28 Jul 2026

Resource Availability

Is the requested project / programme funding within the funding windows of the programme for regional projects/programmes?

Response: Pending

Secretariat: Yes. TR1_ Sept 2023

Response: Pending

Secretariat: CR 5: The previous submission of the proposal included a request for a project formulation grant that is not included in this submission. Please clarify if the project still requests a PFG at this stage and include such request with the resubmission. TR2_ Feb 2024

Response: Pending

Secretariat: No. CR 5: Partially cleared. The response sheet clarifies that the IE is still requesting a PFG. However, the request contains errors. The IE is further suggested to consider AFB Decision B.42/37 related to PFGs. The updated template is available at <https://www.adaptation-fund.org/readiness/readiness-grants/project-formulation-grants/> TR3_ Jul 2024

Response: Pending

Secretariat: CR5: Not Cleared Please make the following amendments to the PFG application: i. Please clarify if WMO is executing the PFG. If so, please remove all EEs from the PFG request and replace them with WMO. ii.

Please include a budget row for IE fees so it is differentiated from activities of the PFG and please ensure all budget notes reflect the activity total. iii. Please ensure the PFG request is explicit in the following: • identification of 20 communities and the selection process. • A well-defined and validated theory of change. iv. Please clarify why only women and youth of two countries will be consulted. Please also ensure the stakeholders with gender remit are included in the consultation process. v. Please ensure the title of the PFG request is consistent with the project title. Additionally, the PFG makes references to HydrSOS which is not explicitly reflected in the pre-concept note. Please revise and review all activities in the PFG request for consistency and accuracy. vi. Please clarify if an initial gender analysis be conducted internally rather than supported under the PFG? This analysis must be included in concept notes. vii. Note given the grant size, the PFG at the pre-concept stage should be no more than 20% of the eligible PFG amount which is a USD 35,000 (or maximum of USD36,000). Please ensure the cover page of the pre-concept note proposal reflects only the PFG amount for the pre-concept note stage. vii. The consultations note reflects 1250* 5+ 6250 whereas the amount column reflect 5000.

Are the administrative costs (Implementing Entity Management Fee and Project/ Programme Execution Costs) at or below 10 per cent of the project/programme for implementing entity (IE) fees and at or below 10 per cent of the project/programme cost for the execution costs?

Response: Pending

Secretariat: Unclear. The total funding requested does not correspond to the sum of the project activities and the administrative costs. CAR 3: Please correct the amounts of funding requested. At 8.5 per cent, the Implementing Entity Management Fee is at or below 10% of the project/programme cost, as are at 8.7 per cent the Project Execution Costs. TR1_ Sept 2023

Response: Pending

Secretariat: CAR 3: Cleared TR2_ Feb 2024

Eligibility of IE

Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?

Response: Pending

Secretariat: Yes.

Response: Cleared

Secretariat: N/A

PRE-CONCEPT FOR A REGIONAL PROJECT/PROGRAMME

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme: Enhancing Climate Change Adaptation and Resilience of Mekong Communities through Strengthening of Weather, Water and Climate Services (ECR-MEKONG)

Countries: Cambodia, Lao People's Democratic Republic (PDR), Viet Nam, and Thailand

Thematic Focal Area¹: Disaster risk reduction and early warning systems

Type of Implementing Entity: Multilateral Implementing Entity

Implementing Entity: World Meteorological Organization (WMO)

Executing Entities: In Cambodia: Ministry of Environment and Ministry of Water Resources and Meteorology
In Lao PDR: Department of Meteorology and Hydrology (DMH), Ministry of Agriculture and Environment (MoAE).
In Thailand: Thai Meteorological Department (TMD), Ministry of Digital Economy and Society (MDES).
In Viet Nam: Viet Nam Meteorological and Hydrological Administration (VNMHA), Ministry of Agriculture and Environment (MAE).

Amount of Financing Requested: 12,466,575 (in U.S Dollars Equivalent)

Project Formulation Grant Request: Yes ☒ No ☐

Amount of Requested financing for PFG: 35,000 (in U.S Dollars Equivalent)

Letters of Endorsement (LOE) signed for all countries: Yes ☒ No ☐

NOTE: LOEs should be signed by the Designated Authority (DA). The signatory DA must be on file with the Adaptation Fund. To find the DA currently on file check this page: <https://www.adaptation-fund.org/apply-funding/designated-authorities>

Stage of Submission:

☒ This pre-concept has been submitted before

☐ This is the first submission ever of the pre-concept

In case of a resubmission, please indicate the last submission date: 7/10/2026

¹ Thematic areas are: Food security; Disaster risk reduction and early warning systems; Transboundary water management; Innovation in adaptation finance.

Project / Programme Background and Context:

The frequency and severity of drought and floods in Southeast Asia are increasing and are expected to continue to increase over the next decades (IPCC Sixth Assessment Report). The least developed and developing countries in the region, such as Cambodia, Lao PDR, Thailand, and Viet Nam (hereinafter referred to as the Participating Countries) are particularly vulnerable to the adverse effects of climate change especially through more severe and frequent droughts and floods. Moreover, in the past three decades, droughts and floods have affected more than 100 million people in these countries (Asian Development Bank; WMO 2021). Use of integrated ground-based observations, satellite Earth observation information, and relevant traditional knowledge (change of river water color, sediments accumulation, flow speeds and erosion etc.) to strengthen flood and drought monitoring across the Mekong Basin, including upstream conditions in China and Myanmar has been limited and will be required through any proposed project (this combined approach will improve data coverage, forecasting accuracy, and the reliability of early warning systems, enabling more timely and informed decision-making). The report published by Mekong River Commission (MRC)² suggest that the Lower Mekong Basin has been experiencing severe drought hazards especially through reduction in yields of rice and other lifeline crops plummet as a result of water shortages and saltwater intrusion in the Mekong Delta. The low flow observed in the Mekong River during the 2019–2020 drought was estimated to have a return period of 50–100 years. In the recently concluded rapid assessment study of the Early Warnings for All (EW4All), it is found that both Cambodia and Lao PDR (two of the initial 30 priority countries for EW4All globally) require support for developing hydro-meteorological impact-based forecasting systems and capacity for warning services. Also, in Viet Nam, reports highlight the need for effective, innovative approaches for flood and drought monitoring, preparedness and management measures are important for growing population and economy. In addition, the Nationally Determined Contributions (NDCs) submitted to the United Nations Framework Convention on Climate Change (UNFCCC) by the Participating Countries indicate the need to strengthen drought and flood early warning systems (EWS), especially improving warning services, and risk-informed decision making for the agriculture, energy and water sectors. The Mekong is a transboundary river that runs through the Participating Countries. The river flow is fundamental for the communities residing near the Mekong River and its tributaries and other rivers in the countries as their livelihood mostly depends on agriculture (including crops, livestock, and inland fisheries). Agriculture is the primary source of employment in Lao PDR (61%), Viet Nam (41%), Cambodia (27%), Thailand (32%) and 29% in Viet Nam. In the last ten years, the lower Mekong River countries faced around 100 reported meteorological and hydrological hazardous events leading to the deaths of more than 1000 people and affecting socio-economic activities of more than 24 million (EM-DAT/CRED). In Lao PDR, during 2018, there was a dam outbreak situation leading to loss of lives, damage to property and infrastructure and displacement of population³. The impact of drought on vulnerable communities in the Participating Countries has been demonstrated using the disastrous consequences of the El Niño phenomenon 2015-2016 and the latest of 2023⁴. Based on a desk review, the impacts in Participating Countries were: Cambodia – an estimated 2.5 million people were affected by drought; Thailand – the total rice production fell to 27 million tonnes, the lowest since 2000-2001; Viet Nam – it was the worst drought in the past 90 years, affecting 52 out of 63 provinces, with 1.1 million people experiencing food insecurity and more than 2 million facing damaged or lost their livelihoods. Climate change projections for the Mekong River Basin over the next 20–30 years, based on downscaled global climate models, indicate an average basin-wide temperature increase of approximately 0.79 °C, accompanied by an estimated increase in annual rainfall of about 200 mm (13.5%). These projections also suggest increased dry-season rainfall in northern catchments and decreased rainfall in southern catchments, as well as an overall rise in annual runoff of about 21%, which is expected to heighten flood risk across the basin, particularly in downstream areas of the Mekong River.

Presently, each National Meteorological and Hydrological Service (NMHS) and other competent authority of the Mekong River basin countries is managing water-related hazards and issues in silos (providing flood and drought warning services mainly based on global or regional products or available in pilot basins, having limited temporal scale, accuracy and precision) and there are limited mutual cooperation, tools and technical support shared by each other. The NMHS has the responsibility in each country to install, maintain and collect information related to the hydro-meteorological situation, carry out modelling and forecasting and issue alerts and advisories to various stakeholders. Disaster Management and other agencies (Agriculture, Irrigation, Water Resources, Environment, (Hydro-) Power, Energy, etc.) are the users of the warning or advisory services provided by the NMHSs and support them in making decision related to informing population, advisories for supporting livelihoods, operations of infrastructure and services such as power, tele-communication, transports etc. Presently, in each country of the Mekong River basin, there is limited of operational hydrological monitoring and observation networks, insufficient weather, water and climate databases, unavailability of downscaled meteorological and hydrological models and forecasting tools, leading to limited data and information for impact-based forecasting and advisories for weather, water and climate related status, forecasts and outlook. In the past, the EWS for floods and drought have been established for pilot basins but there has been limited support to upgrade or maintain it after the project. WMO being mandated to support NMHSs to strengthen the EWS in the countries will ensure its development and use beyond the scope of the project. Apart from unavailability of technical instruments or tools, there is lack of or inadequate/outdated climate change (adaptation) and disaster risk management plans and policies, agreed institutional roles and responsibilities at national and regional levels to adopt an integrated approach for socio-economic development. Following the discussions with stakeholders from various sectors in the Participating Countries, it was identified that accurate and actionable knowledge about meteorological and hydrological parameters (precipitation, temperature, soil moisture, water levels etc), their spatial and temporal distribution, and impact-based forecasts on various time scales from days to months (sub-seasonal to seasonal) are considered vital for the sustainable social and economic development of the lower Mekong River countries and for long-term development planning purposes. The Early warning for All Road Map 2025-2028 for [Cambodia](#) and [Lao PDR](#) as well as National Adaptation Plan (NAP) for [Thailand](#) and [Vietnam](#) suggesting the development of multi hazard early warning system for the water and agricultural sector, which is accurate, easily [accessible](#), timely, and linked effectively with other early warning systems. The project will conduct an independent assessment of national and regional needs, capacities, institutional arrangements, and previous investments using established WMO tools and guidance (applying the [WMO End-to-End Flood Forecasting Assessment Guidance](#), [Guidelines for Seasonal Hydrological Predictions](#) and [Multi-Hazard Early Warning Systems: A Checklist](#)) to identify technical, operational, and coordination gaps. The project will allow a platform for co-designing tools, sharing experience and build an environment of trust, following the already defined procedure for data sharing, monitoring of water resources to support the implementation of the 1995 Mekong Agreement on water cooperation. WMO-led coordination and cooperation between the NMHSs (as WMO Members) in the Participating Countries, and MRC as regional entity (implementing [Basin Development Strategy for the Mekong River Basin 2021–2030 & MRC Strategic Plan 2021–2025](#) through an integrated basin-wide forecasting and warning system, management of water resource, transboundary cooperation for sharing of climate, weather and water information, etc.) will work jointly to provide improved monitoring, forecasting and warning services of hydro-meteorological hazards in their day-to-day work and services. As a result, all of these improvements will provide stakeholders in the agriculture, irrigation, energy, and water sectors, in cross-sectoral disaster risk management and in local communities with weather-, water- and climate-related information for saving lives and livelihoods, adapting to climate change, and creating social, economic and environmental benefits.

Project / Programme Objectives: The ECR-Mekong project is aligned with the Adaptation Fund objective to “reduce vulnerability and increase adaptive capacity of communities to respond to the impacts of climate change at local, national and regional level”. The overall objective of the ECR-MEKONG project is to strengthen climate resilience and adapt to hydro-climatic risks in the four targeted Mekong countries, thereby reducing the vulnerability of more than 100 million people. This objective will be achieved through integrated, technical, institutional, and governance interventions, including the developing and scaling-up of national early warning systems to an integrated, transboundary hydro-meteorological [End-to-End Early Warning System](#) (including short term status, forecasts and seasonal outlook- system will allow to produce and disseminate warnings according to pre-defined levels of risks, using colour coding and icons for the different types of hazards, building upon the EWS largely established

² <https://www.mrcmekong.org/our-work/topics/flood-and-drought/#:~:text=The%20LMB%20has%20been%20experiencing,intrusion%20in%20the%20Mekong%20Delta>

³ <https://www.ohchr.org/en/press-releases/2022/07/lao-dam-disaster-un-experts-decry-lack-progress-survivors-four-years#:~:text=A%20torrent%20of%20water%20C%20mod,left%20homeless%20by%20the%20disaster.>

⁴ <https://bkktribune.com/el-nino-likely-increasing-later-this-year-wmo/> and <https://community.wmo.int/en/activity-areas/climate/wmo-el-nino-la-nina-updates>

in a large number of countries and transboundary watersheds), the provision of updated climate risk information and projections, and the promotion of locally tailored adaptation strategies for integrated water resources management.

The project will collaborate with regional organizations, including MRC, Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES), Asian Disaster Preparedness Center (ADPC), United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), South-East Asia Regional Climate Centre (SEA-RCC) network and ASEAN mechanisms to strengthen transboundary information sharing, harmonize forecasting approaches, and improve regional decision-making. Technical support from WMO regional centres, including Regional Forecast Support Centre (RFSC) Ha Noi, will support the design, implementation, and operationalization of an interoperable Multi-Hazard Early Warning System across the Mekong Basin. By involving the four-countries, previous knowledge and funding, as well as existing capacities through the current projects or activities, can be considered to ensure minimum overlap and transfer of methodologies from one area to the other. The project implementation focuses mainly on the development of the MHEWS and will cover the entire region of the four countries (Cambodia, China, Laos, Thailand and Viet Nam as shown below in Figure 1) as countries have faced floods and drought or other hydro-meteorological events beyond main Mekong basins for example for floods: [Northern Thailand flood 2024](#), [Southern Thailand flood 2024](#), [Northern Vietnam floods 2025](#) etc. and [Hydrological drought in Mekong countries](#) which are important to be monitored and warning services to be delivered by national meteorological and hydrological services and not responsibility of MRC.



Figure 1: Targeted Participating Countries of the Mekong Basin where EWS and risk profiles will be developed

Project/ Programme Components	Expected Outcomes	Expected Outputs	Countries	Amount (US\$)
1. Risk Preparedness and adaptation through user-centred and integrated national early warning systems (EWS) for drought and floods	Outcome 1.1 Risk informed decision making at regional, national and local levels for disaster risk reduction and climate change adaptation measures improving socio-economic and environmental stats	Output 1.1.1 Strengthen observation networks and social-structural databases, drought and flood risk maps for current and future predicted climate are developed/updated for decision making and specific advisories for stakeholders including communities	Cambodia Lao PDR Thailand Viet Nam	3,150,000
		Output 1.1.2 Develop capacity and established frameworks at the local, national, and regional levels to ensure risk informed decision-making to various stakeholders		
		Output 1.1.3 Long-term risk management strategies are identified and integrated into development plans (economic, social, environmental aspects)		
	Outcome 1.2: Operational web-based multi-hazard EWSs are established/strengthened to support warning and advisory services at (regional) national, provincial, and local levels.	Output 1.2.1 Hydrological and meteorological status and outlook products within the EWSs are developed and operationally used by the NMHSs	Cambodia Lao PDR Thailand Viet Nam	2,700,000
		Output 1.2.2 EWSs and concrete adaptation measures are tested in selected vulnerable communities during the monsoon and dry seasons.		
2. Established Locally led adaptation and disaster risk reduction strategies to counter the adverse impact of drought and floods	Outcome 2.1 Preparedness and resilience to climate change is increased/promoted through innovative and community-based initiatives.	Output 2.1.1 Implementation of community-based floods and drought management strategies and plans (including adaptation measures such as raising of house levels, changing agriculture and cropping patterns, water resources management, green infrastructures etc.) in 20 vulnerable communities/sites and different ecosystems	Cambodia Lao PDR Thailand Viet Nam	2,700,000
		Output 2.1.2 Enhanced local stakeholders and communities' capacities to adapt to climate change by understanding and proactively applying warning information or advisories tailored to their needs for strengthening livelihoods and risk management and adaptation policies and plans, including national Adaptation Plans (NAPs), NAPA and Nationally Determined Contributions(NDCs)		
	Outcome 2.2: Strengthened awareness of vulnerable communities and agencies on hydro-meteorological risks through education programmes.	Output 2.2.1 Enhanced knowledge and awareness of stakeholders on nature-based solutions and mainstreaming gender for managing climate-related hazard events.	Cambodia Lao PDR Thailand Viet Nam	
		Output 2.2.2: Strengthened capacity of stakeholders to improve management of climate change adaptation and disaster risk reduction measures including innovative learnings and experience sharing		
	3. Water, Weather and Climate resilient regional and national cooperation arrangements together with stakeholders including community involvement	Outcome 3.1 regional cooperation mechanisms (Regional Hydrological and Climate Outlook Forums (RHCOFs) among the NMHSs and stakeholders are strengthened and have updated policies, plans and guidelines	Output 3.1.1 Updated regional and national plans / policies on climate change adaptation and disaster risk reduction/management and sustained capacity building through regional transboundary strategic alliances and partnerships coordinated by the Mekong River Commission (MRC)	Cambodia Lao PDR Thailand Viet Nam
Output 3.1.2 Established regional technical working groups with the NMHSs, agriculture, energy, water sectors and disaster management agencies including the South-East Asia Regional Climate Centre (SEA-RCC) Network and other partners to analyse and develop regional and national water and climate change adaptation and disaster risk reduction policies, plans and actions.				
Outcome 3.2 Strengthened governance strategies on water resources management and services at transboundary, national and local levels		Output 3.2.1 Governance strategies are reviewed and improved for water resources management and services including linkages between transboundary, national, and local levels		
5. Project/Programme Execution cost				983,250
6. Total Project/Programme Cost				11,333,250
7. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)				1,133,325
Amount of Financing Requested				12,466,575

Project Duration: 5 years (2027 – 2032)

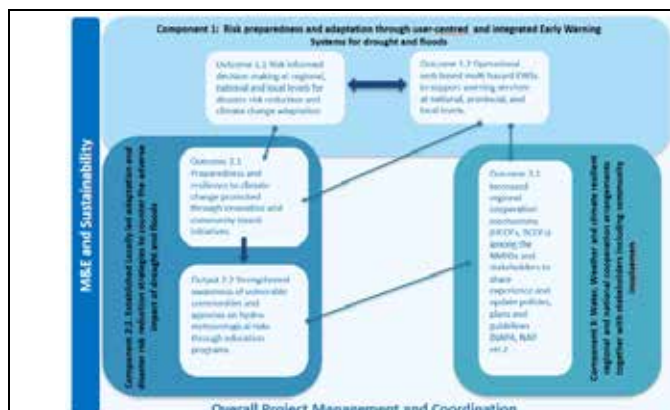


Figure 2: Linkages between components, outcomes and outputs of the project

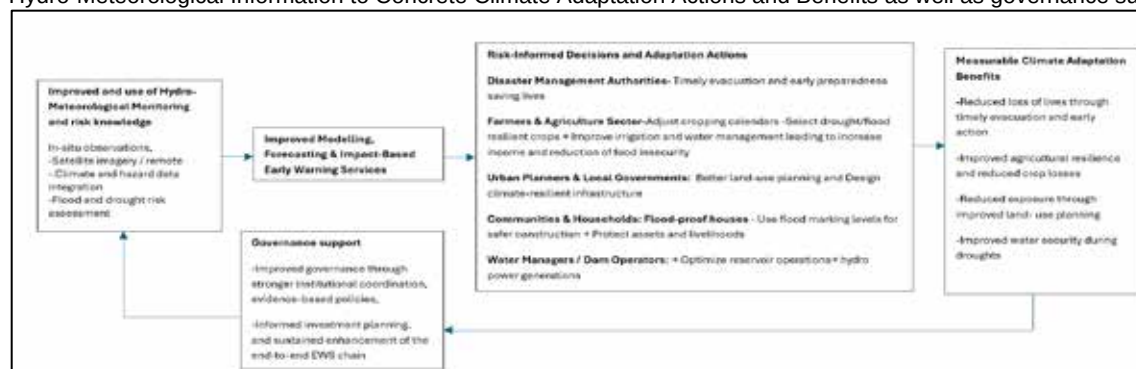
The proposed project through Components 1 and 2 will implement activities to address the climate change-influenced climate variabilities and events mainly through the EWSs and related services production and delivery to various stakeholders. The full value chain of observation, monitoring, forecasting and warning services will be demonstrated in pilot sites that the Participating Countries will identify. Community-based flood and drought management activities include participatory risk assessment, hazard mapping, strengthening people centered early warning systems, preparedness planning, and community capacity building. They also promote climate-resilient infrastructure, ecosystem-based solutions, water management, climate-smart livelihoods, local monitoring, and coordination among communities, authorities, and technical agencies to enhance resilience. Evidence-based socio-economic benefits of resilience and adaptation measures such as user-centred EWSs will be quantified at communities' level. Component 3 will be on strengthening governance/cooperation to ensure the experience and good practices gained from the proposed project leads to review and update of national policies and plans (NAPs, NAPA, NDCs and disaster risk reduction strategies) eventually leading to long-term investments for strengthening climate change adaptation at regional, national and local levels.

PART II: PROJECT / PROGRAMME JUSTIFICATION

Project Justification for regional approach, cost effectiveness, innovative, socio-economic benefits etc.

The project is advancing a multi-sectoral (hydro-meteo, agriculture, irrigation, energy, and water utility etc.) approach to support their day-to-day operational activities and minimize the vulnerability and exposure of the Participating Countries communities and to increase their adaptive capacity to climate change, variability and extremes. EWS can provide more than a tenfold return on investment. Just 24 hours' notice of an impending hazardous event can cut the ensuing damage by 30 per cent⁵. The Global Commission on Adaptation (GCA) found that spending just US\$800 million on such systems in developing countries would avoid losses of US\$3 to 16 billion per year⁶. Given high vulnerability of local communities in the Participating Countries to the impact of droughts and floods and the need to prepare for, adapt to and build resilience to these hazards, (eventually improve their livelihoods); the project will focus on enhancing integrated, tailored and sustainable EWSs for droughts and floods for effective management of water resources through improved availability of and access to weather, water and climate products tailored to specific needs of sectors and communities. Specific interactions and support for local stakeholders would include the following: the Cambodian Farmer Federation Association of Agricultural Producers (CFAP); Atlantic Commodities Vietnam (ACOM) in Viet Nam; National Agriculture and Forestry Research Institute, Ministry of Finance in Lao PDR; and Department of Agriculture in Thailand; and many more stakeholders.

The existing EWSs (including <https://portal.mrcmekong.org/monitoring/flood-forecasting>) are mainly providing [monitoring](#), [forecasts](#) and warnings for riverine flood and [flash flood](#) events within the next days (usually for 0-5 days) and [agrometeorological droughts](#). However, the ECR-Mekong project is proposing a system (integrating information and products from other completed and on-going projects or initiatives) which will provide hydro-meteorological information for various stakeholders such as hydropower dam operators, river basin authorities, MRC, irrigation, etc. for timely decision-making on water availability in river stream mainly its status (current flow whether it is normal situation, above normal (high flow) or low (below normal)), forecasts (0-7 days for floods and hydro-meteorological drought events), and sub-seasonal to seasonal outlooks (how the situation is going to change in coming months accessing also the meteorological and climatological parameters) which will improve the efficient use or release of water to communities for irrigation, agriculture, aquatic bio-diversity, etc. The project partners will ensure collaboration with government or private dam authorities in each targeted countries to identify cooperation needs, design tailored solutions to monitor and release of stored water from dams preventing the situation of flooding or providing water during dry season. The regional basin scale approach is a suitable way to identify and implement cost-effective measures, as Mekong countries have similar challenges related to climate-related events (floods and droughts) that will be addressed by this project. The increasing transboundary nature of floods and droughts in the Mekong countries requires a regional approach that goes beyond national systems by strengthening coordination, interoperability, data sharing, and joint forecasting across interconnected river systems, including the Sesan, Srepok, and Sekong (3S) basin. The project will enhance regional cooperation through harmonized hydro-meteorological services, shared knowledge, capacity building, community-based solutions, and basin-wide resilience planning among Mekong countries. While China and Myanmar are not direct project countries, they will be engaged through regional platforms, technical exchanges, knowledge sharing (Open labs, Digital Twins, community of practice), and advisory mechanisms to support wider Mekong Basin resilience. The below figure shows high-level results pathway from Hydro-Meteorological Information to Concrete Climate Adaptation Actions and Benefits as well as governance support.



These challenges are being exacerbated by a changing climate, deterioration in socio-economic and environmental conditions and unplanned development. It is thus vital that the Mekong Basin is better understood through a regional project which provides opportunities to share experiences, good practices and address knowledge gaps in a coordinated approach rather than in silos. A structured review of existing and ongoing initiatives will be undertaken during concept note development to benchmark proposed interventions, identify gaps, confirm additionality, and avoid duplication of efforts. The review will assess relevant national programmes, regional initiatives, and technical platforms led by organizations such as MRC, WMO, NMHSs, regional climate centres, and development partners. Building on existing systems, the project's innovation will focus on an integrated transboundary flood and drought MHEWS, multi-source data integration, impact-based forecasting, AI-enabled decision support, strengthened

⁵ <https://wmo.int/topics/early-warning-system>

⁶ <https://www.un.org/africarenewal/magazine/april-2023/fast-tracking-global-early-warnings-systems#:~:text=Early%20Warning%20Systems%20provide%20more,damage%20by%2030%20per%20cent>

interoperability, and improved linkages between regional forecasting and community-level adaptation actions. The assessment will ensure that proposed solutions complement existing investments while delivering additional adaptation benefits across the Mekong Basin. Presently only Thailand has a national drought monitoring system and policy.

An important part of flood and drought risk management plans are to link the hazard monitoring and risk knowledge to community-led preparedness and response actions on the ground. Local communities of the Participating countries will be consulted and engaged continuously in the co-production of the early warnings of droughts and floods, which will improve their preparedness, response capability and resilience saving lives and livelihoods. The IE has consulted the People's Republic of China (PRC) especially with the China Meteorological Administration (CMA) to have China join as the project beneficiary country or as technical partner (support in the development and implementation of regional and national products, tools etc. in the targeted) or advisory committee member/observers. CMA is discussing internally to check on possible involvement and will provide further update during concept note submission. Also in Myanmar, the issue of political instability is not allowing for consultation with agencies and communities leading to lack of their participation in the project (hoping the situation will improve and there will be collaboration for ECR-Mekong project in the next stage). WMO and other executing partners will continue to approach the two countries and request them to join as the beneficiary countries, technical partners supporting in the development of the tools, sharing of knowledge products and tools or as an observer to the project advisory committee. In terms of absence or support from upstream countries, the project will promote dual approach to use advance satellite-based hydrological monitoring sharing reliable, cost-effective, and timely data that can support flood and drought forecasting, particularly in data-sparse or transboundary contexts as well as combine it with ground-based observations and modelling tools to enhance the accuracy and robustness of the Early Warning System, while remaining adaptive to improvements in data availability over time. Expected innovative deliverables through this project include: An sustainable, integrated, tailored and state-of-the-art floods and drought risk maps and warning system, integrating environmental indicators to the impact on human and properties approaches, will be open-source and thus facilitate mainstreaming of results into other initiatives relating to floods and drought management (evacuation, hazard zoning, risk mapping etc.) or generally supporting the development processes (raising of houses, cropping patterns, water resources management etc.) in the target Participating countries. In these countries during a flooding situation in one part, there can be a slow developing drought events in another part of the country. The project will be applying the APFM Gender Mainstreaming Training Manual to integrate gender considerations throughout planning, implementation, monitoring, and evaluation. Gender focal points, gender-responsive indicators, sex-disaggregated data, and inclusive participation of women, youth, and vulnerable groups will be embedded across project activities. During the concept note stage, consultations with gender experts and relevant organizations in Mekong countries will identify opportunities and challenges for effective gender mainstreaming. A detailed Gender Analysis and Action Plan with targets, responsibilities, and indicators will be developed to ensure equitable and sustainable climate adaptation outcomes. The project will promote nature-based solutions for adaptation and help maintain an ecological balance for the entire basin by ensuring systematic measures to improve restoration of wetlands or flood plains, mitigate land degradation and soil desertification are implemented. The project will bring together policymakers and decision makers to review, develop and refine existing local and national policies on water management and disaster risk management following experiences and lesson learned from the outcomes under components 1 and 2. This will allow developing or updating regional/transboundary water management, disaster risk reduction and climate change adaptation strategies, plans and guidelines instead of country-specific ones. This will be particularly important to solve on-going or potential conflicts in water use between agriculture, energy, and water management using multipurpose infrastructures. The updated or new transboundary or national policies or plans will allow investments from the government (through budget allocation to agencies) to ensure use and sustainability of the tools, products and knowledge support.

Cost-effectiveness: The cost-effectiveness analysis includes various short-term benefits such as prevention and minimisation of losses from hydro-meteorological hazards through availability and access to impact-based EWSs. In the medium-term, climate change adaptation and disaster risk management planning will be augmented through development of risk maps, sub-seasonal to season water resources information for irrigation facilities, climate-resilient cropping, renewable energy generation and development of local economy etc and through local initiatives, creation of new social institutions, tailored system for adaptation to climate change events. In the long-term perspective, there will be optimal use of water resources leading to prevention and mitigation of flood and droughts, ecological restoration, and formulation and implementation of policies for making communities adapt and resilient to climate change and natural hazards. Alternatively, large structural measures such as flood-control dams and reservoirs generally require investments ranging from **US\$200 million to over US\$1 billion**, making them approximately **10–100 times more expensive** than comprehensive basin-scale or national Early Warning Systems in countries, while also involving substantially longer implementation periods and greater environmental and social impact. Alternatives to the proposed measures, such as resettlement of vulnerable communities, involve much higher costs (costing 100–150 times more than the proposed project approach) but with limited benefits and detrimental environmental consequences. Other [World Bank \(WB\)](#) and WMO analyses estimate benefit-cost ratios of **4:1 to 36:1**, meaning that every US\$1 invested can generate US\$4–36 in avoided losses and economic benefits. In contrast, structural flood-control infrastructure such as dams and reservoirs typically requires investments ranging from several hundred million to several billion US dollars while addressing only specific locations and often involving significant environmental and social impacts. Given the relative costs and benefits of possible climate change adaptation and disaster risk reduction measures, the project has selected the three least-expensive interventions through EWSs, risk maps and knowledge/capacity building measures at all levels, to generate significant benefits in the form of increased safety and economic activities as opposed to significant investment in structural measures and degradation of environment and associated ecosystem. During the concept note preparation, the project partners will present a detailed and quantitative analysis of cost effectiveness of the selected measures as compared to alternative options.

Consistent with national or sub-national sustainable development strategies: The Project will be consistent with international, national and regional sustainable development, climate change adaptation and disaster risk management strategies, among them:

- **Cambodia:** Cambodia Climate Change Strategic Plan (2014-2023), the Agricultural Development Plan, the Climate Change Strategic Plan for Water Resources and Meteorology, NDC
- **Lao PDR:** The National Strategy on Climate Change, NAPA
- **Thailand:** Thailand Climate Change Master Plan 2015-2050, 13th National Economic and Social Development Plan (NESDP) 2023-2027, latest NAP, Second Updated NDC 3.0
- **Viet Nam:** The Climate Change Action Plan for Agriculture and Rural Development, the National Adaptation Programme for Climate Change, the National Climate Change Strategy
- **Regional:** Mekong River Commission Basin Development Strategy (2021-2030) and Mekong River Commission Strategic Plan 2021-2025, and the Lancang-Mekong Environmental Cooperation Strategic Framework (2019-2023), ASEAN Regional Plan of Action for Adaptation to Drought (ARPA-AD), and others.
- The proposed project will contribute to the UN Sustainable Development Goal (SDG) 6, namely its target 6.5 to implement integrated water resources management at all levels, including through transboundary cooperation. It also contributes to SDG 1, namely its target 1.5 in building resilience through reduction in exposure and vulnerability for climate related extreme events; SDG 2, namely its target 2.4 to ensure sustainable food production through climate adaptation to drought, flooding, and other disasters; and SDG 11, namely its target 11.5 making human settlements inclusive, safe, resilient and sustainable; as well as the Sendai Framework for Disaster Risk Reduction 2015-2030.

Learning and knowledge management: A learning and knowledge management component to capture and disseminate lessons learned will be provided by WMO Regional and National Climate (Outlook) Forums (RCOFs/NCOFs) which are a platform for regular interactions between climate specialists and users in a regional/national context. Lessons learnt from knowledge management in this project will facilitate the dissemination of best practices among Participating countries. This learning and knowledge management component will target three different levels: 1) learning among the NMHSs and other competent authorities (specialist level); 2) learning among local governments and communities (local level), and 3)

learning and collaboration over shared resources (the Mekong River, as being the major and significant river in the region that would be affected by climate change) mainly among specialists from all Participating Countries and regional/international organisations and development partners. Knowledge management tools and platforms will be developed for sharing experience with non-participating countries and repository of project documents, reports, voices from the field etc. will be support in replication of approaches and tools. A dedicated website for the project with a community of practice (online forum, in different language if possible) will be designed for sharing experience and supporting stakeholders with information during and beyond the duration of the project.

Consultative process: The first national consultations were undertaken in November 2019 at the ASEAN Regional Climate Outlook Forum (ASEANCOF) and then virtually during the COVID-19 pandemic, community consultations during CREWS Cambodia and Lao PDR project and followed by EW4All roadmap consultation workshops conducted in each country. Other organisations such as UNDP, Food and Agriculture Organization (FAO), Global Water Partnership (GWP), World Food Programme (WFP), ADPC, and WB were consulted during the implementation of the WMO CREWS project in Cambodia and Lao PDR to gather needs, challenges and possible solutions for improved flood and drought management. MRC was consulted as one of the main stakeholders of the project to understand the issues in managing floods and drought, transboundary cooperation, and challenges on sustainability of developed solutions and tools. In addition, the discussions among five countries (China, Lao PDR, Cambodia, Thailand, and Viet Nam) facilitated by the Lancang-Mekong Water Resources Cooperation Centre (LMWRCC) in 2018 and 2019 have shown that climate variability and change make the urgency of climate information services over the upper and lower Mekong River basin even more prominent, thus requiring transboundary cooperation of all Mekong countries starting by data and information exchange on water, weather and climate information as the basis of integrated river basin planning in the region. Recent community consultations were carried out in Cambodia during August 2022 (check Annex 3 below) where issues and needs were provided (such as riverine floods in the downstream agriculture areas are generating negative impacts). There is a need to develop local capacities to manage the agricultural production between the floods to ensure food security and adequate income. A new mode of early warning communication is required for increasing self-help capabilities and for taking preparedness and response measures. A regional consultation workshop was organized during August 2024 to discuss the needs from various stakeholders from the proposed ECR-Mekong project. Based on survey conducted during workshop with 50 participants, key needs identified include improving forecasting accuracy through better monitoring infrastructure, reliable data systems, and upgraded forecasting tools. Respondents also emphasized the need for localized and actionable warning dissemination, stronger coordination among institutions, sustainable funding, and wider outreach to vulnerable communities. Activities related to water and soil conservation are required to improve agricultural production and improve food security. In the next project preparation phase (concept note development), the IE and EEs have planned to carry out consultations workshop (concept note available here) with other agencies in the countries such as Agriculture, Irrigation, dam authorities, water resources (the consultation will assess existing collaboration, information-sharing practices, and institutional, technical and policy barriers to coordinated reservoir management, while identifying hydropower facilities for pilot technical cooperation. It will develop agreed recommendations and a regional roadmap to strengthen data sharing, forecasting integration, and coordinated hydropower operations within the Multi-Hazard Early Warning System.), private companies, municipality chiefs, as well as 20 vulnerable communities in the four Participating countries (5 in each country from specific vulnerable floods and drought prone districts/provinces and communities will be selected based on at least 500-100 resident (more than 40% females), impacts from past floods and drought events, agriculture or urban areas, with mobile network or no mobile network coverage, existing community based committees or structure available etc.) to identify their needs, gaps, capacities and gather support (including finalise the list of activities and pilot sites for testing the current and future EWSs, prepare for the EIA and SIA and gender analysis studies (The gender analysis will be covered internally by the IE and EEs gender experts and the initial gender analysis and gender action plan will be presented in the concept note), determine the roles and responsibilities of the national and regional agencies, etc) for collaboration in the development and later implementation.

Sustainability of the project/programme: The participating government agencies as Executing entities are sustainable institutions within their national governments who have mandates for monitoring, forecasting and delivering advisory and warning services to stakeholders which have been a challenge until now or carried out with limitation. The project sustainability is guaranteed through commitment by Cambodia's Ministry of Environment and DOM and DHRW, Lao PDR's DMH, Thailand's TMD, and Viet Nam's VNMHA in their roles as government agencies supported by public funding who will ensure adequate both financial and human resources (human, infrastructure, capacities) are available not only during but also after the project period. In the concept note preparation phase, the project will further develop a clear exit and sustainability strategy based on strong institutional ownership (operating MHEWS day to day without external support, if any recurrent costs coverage through national budget), integration of experts or tools into existing national and regional systems and defined post-project responsibilities (including opportunity for experts to gain and apply knowledge to other regions etc.). Project-supported tools, forecasting services, data platforms, and community-based approaches will be embedded within the mandates and operational workflows of NMHSS, MRC, disaster management agencies, and other relevant institutions. Sustainability will be ensured through budget commitment, Operation & Maintenance arrangements, resource planning, knowledge transfer, and regional cooperation mechanisms to maintain and further improve end-to-end early warning services beyond the project period. With the initial consultation carried out with the national and regional stakeholders and information available on planned outputs and activities at this stage, the project is expected to fall into medium risk category B because interventions such as information through risk maps and EWSs could lead to movement of communities to a safer zone where they might need to identify new resources (livelihoods, house, adoption to new culture etc.) for survival.

Economic, social and environmental risks and benefits: A comprehensive description of social and environmental benefits will be provided in the final proposal, after due assessments (EIA and SIA including screening of the 15 environmental, social, and gender principles of the Adaptation Fund) and consultations are carried out with the respective authorities and communities. The ECR-Mekong project will reduce environmental and social risks associated with floods, droughts, and other hydro-climatic hazards by strengthening early warning, preparedness, and climate-resilient planning. From an environmental viewpoint, the International Union for the Conservation of Nature (IUCN) Red List of Ecosystems Categories and Criteria will be studied to better understand the status of ecosystems, applicable at local, national and global levels. A balanced ecosystem services-approach will be promoted through natural and nature-based solutions linking ecosystem management with livelihoods.

Duplication of project/programme with other funding sources: The project will not duplicate the efforts of other initiatives or funding sources. Instead, the proposed project will identify synergies and complementarities with existing, ongoing and planned initiatives (check Annex 1 on the other projects in Lao PDR, CREWS projects in South-East Asia, and De-Risk Southeast Asia, FAO's GCF PEARL and SAMIS, UNEP/Mekong Ecosystem-based Adaptation (EbA) South, UN-Habitat projects in Viet Nam and Cambodia to ensure coherence with the proposed regional ECR-Mekong project and ensure use of existing resources (human, tools, infrastructures etc.) available to build upon it. A structured lesson-learned and gap analysis will be undertaken during concept note preparation to review relevant investments, identify successful approaches, challenges, remaining gaps, and opportunities for additional value where the proposed project can provide additional value and strengthen existing investments rather than create parallel systems. Thus, the project will seek engagement with the regional and national institutions in the region to identify good practices, gaps and needs so that common efforts could be delivered jointly with the stakeholders. There are presently no regional projects that bring the four Mekong River countries together to address the common climate-induced events and their impacts and that apply integrated approaches for drought and flood EWSs and for locally led adaptation and disaster risk reduction.

PART III: IMPLEMENTATION ARRANGEMENTS

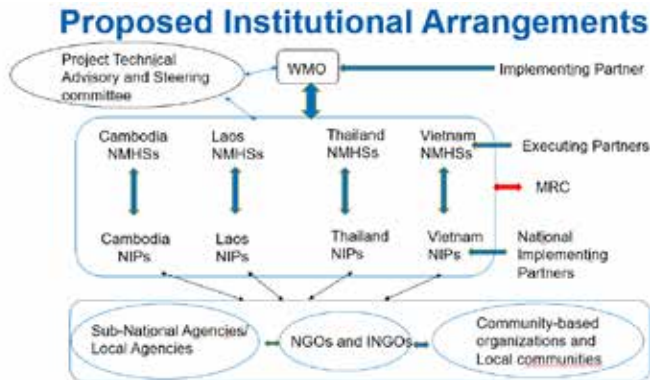
WMO will be the implementing entity for this project. WMO will indirectly implement this project through the targeted countries Ministry of Environment and the Ministry of Water Resources and Meteorology (MOWRAM) as national executing partners, regional coordination partners (mainly MRC and RFSCs) with technical guidance and support (e.g. partners of the WMO/GWP Associated Programme on Flood Management (APFM) and Integrated

Flood and Drought Management (IDMP)) on project activities delivering affordable, sustainable, tailored water, weather and climate monitoring, forecasting and warning related products and services. The NMHSs of the Participating Countries as Executing Entities will play the key role in developing partnerships for the project's implementation by taking the lead on national consultations and co-production of various products or services related to management of climate change events. The WMO GPC-LRF hosted by the Australian BoM and other WMO GPC-LRFs will be requested to provide global, regional, and national climate information (high-quality data and products for drought and flood monitoring and prediction) and support the NMHSs and other stakeholders mainly assisting them with advisory and decision-making tools for food production, hydro-power generation, irrigation, agriculture, and water management. FAO, GWP, ADPC, the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES), NMHSs and other relevant national institutions (Ministries of Climate Change, Agriculture, Irrigation, Environment and Water Management) would be appointed for implementing specific activities at the national and local/community level, based on their extensive experience in (i) assisting communities to make agriculture more productive and sustainable, (ii) enabling inclusive and efficient agricultural, irrigation and food systems, and (iii) increasing the preparedness and resilience of livelihoods to threats and emergencies. Other projects implemented by MRC, ADPC, UNDP, WFP, UNDRR, WB, FAO, UNEP, WMO, etc. have been preliminary screened (Annex 1) for developing synergies and complementarities and avoiding duplication of efforts. A detailed review of on-going projects or initiatives will be conducted during the concept note preparation phase. A project steering committee and an advisory committee/group will be established with membership of national designated authority/agencies specialised in hydrology, meteorology, climatology, water resources, agriculture, irrigation, disaster management as well as relevant regional entities. An initial institutional /implementing arrangement can be found in Annex 2, with a description of the roles and responsibilities (organization chart showing how they report to each other) of the implementing and executing entities and stakeholders involved in the project. For coordination at all levels, a regional working strategy group (RWSG) (mainly to check implementation progress of the activities, engage in policy dialogues and knowledge exchange, facilitate cooperation, and develop advocacy and joint strategies for dissemination at global platforms) and National Working Group (NWG) (supported by the appointed National Project coordinator of the Executing Entity (EE)) will be established in each country and will be responsible for the overall execution of the project and facilitating coordination with various stakeholders including IE and EEs of the project providing overall guidance, assessing implementation progress with the intended objective and technical support during the implementation of the project activities. A Project Management Unit (PMU) will be established with the WMO, national entities staff working directly with the NWGs (formed with the representatives of various agencies) to ensure the planning and timely execution of the project activities. At the regional level, the project will convene periodic coordination meetings among the EEs, facilitated by the regional project coordination unit established by the Implementing entity and regional coordination agency (MRC) and supported by the PMU. Communication between NWGs, RWGs and PMU will be further supported through an integrated project management system that allows real-time reporting, data sharing, and documentation of decisions. During the next phase of the project development, it will be refined with additional stakeholders from global, regional, national and local levels.

Annex 1: List of projects or initiatives for developing synergies or complementarities with the proposed ECR-Mekong project.

[ECR-Mekong draft list of projects or initiatives for developing synergies and complementarities with the proposed ECR.docx](#)

Annex 2: Proposed Institutional Arrangements of the ECR-Mekong project which will be updated in the next preparation phase with the national and regional entities and detailed role and responsibilities will be provided.



Annex 3: National and Community consultation reports provided with some initial needs or justifications for the proposed project.

[Community consultation report - Cambodia- 19 August 2022 KM.pdf](#)

Early warning for All Road Map 2025-2028 for Cambodia and Lao PDR

<https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Projects/EW4A/Cambodia-National-Roadmap-for-Early-Warnings-for-All-EW4ALL-2025-2028.pdf>

https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Projects/EW4A/EW4All%20Road%20Map_2024-2027_Lao%20PDR.pdf

National Adaptation Plan (NAP) for Thailand and Vietnam

NAP is suggesting the development of early warning system for the water and agricultural sector, which is accurate, easily accessible, timely, and linked effectively with other early warning systems.

https://unfccc.int/sites/default/files/resource/NAP_THAILAND_2024.pdf

https://www.undp.org/sites/g/files/zskgke326/files/2024-11/2024_update_viet_nam_nap_2021-2030_with_vision_to_2050_final_small.pdf

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

A. Record of endorsement on behalf of the government

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.

Chuop Paris Secretary of State Ministry of Environment Cambodia	Date: 11 June 2024
Ms. Phakkavanh Phissamay Director General Department of Environment Ministry of Agriculture and Environment Lao PDR	Date: 19 February 2026
Mr. Phirun Saiyasitpanich Director General Department of Climate Change and Environment Ministry of Natural Resources and Environment Thailand	Date: 09 February 2026
Dr. Nguyen Tuan Quang Deputy Director General Department of Climate Change Ministry of Agriculture and Environment of Viet Nam	Date: 03 July 2026

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 (<u>Cambodia</u>: National Climate Change Adaptation Plan; <u>Laos</u>: The National Strategy on Climate Change, the National Adaptation Program of Action; <u>Thailand</u>: Thailand Climate Change Master Plan 2015-2050; <u>Viet Nam</u>: The Climate Change Action Plan for Agriculture and Rural Development, the National Adaptation Programme for Climate Change, the National Climate Change Strategy), and subject to the approval by the Adaptation Fund Board, <u>commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund</u> and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
Moyenda Chaponda  Implementing Entity Coordinator Head, Multilateral Finance and Development Partnerships Unit	
Date: 10 August 2026	Tel. and email: mchaponda@wmo.int
Project Contact Person: Ben Churchill	Tel. and email: bchurchill@wmo.int



Project Formulation Grant (PFG)

Submission Date: 10 August 2026

Adaptation Fund Project ID: AF00000268

Country/ies: Cambodia, Lao People's Democratic Republic (PDR), Viet Nam, and Thailand

Title of Project/Programme: Enhancing Climate Change Adaptation and Resilience of Mekong Communities through Strengthening of Weather, Water and Climate Services (ECR-MEKONG)

Type of IE (NIE/MIE): MIE

Implementing Entity: World Meteorological Organization

Executing Entity/ies: Mekong River Commission (MRC) and in Cambodia: Department of Meteorology (DOM) and Department of Hydrology and River Works (DHRW) under the Ministry of Water Resources and Meteorology (MOWRAM) and Ministry of Environment
In Lao PDR: Department of Meteorology and Hydrology (DMH), Ministry of Natural Resources and Environment (MoNRE).

In Thailand: Thai Meteorological Department (TMD), Ministry of Digital Economy and Society (MDES).

In Viet Nam: Viet Nam Meteorological and Hydrological Administration (VNMHA), Ministry of Environment (MONRE).

A. Project Preparation Timeframe

Start date of PFG	15 October 2026
Completion date of PFG	30 January 2027

B. Proposed Project Preparation Activities (\$)

Describe the PFG activities and justifications:

List of Proposed Project Preparation Activities	Output of the PFG Activities	USD Amount	Budget Note
Hire a consultant to contribute to the development of the concept note by: · Performing a need assessment and developing operational solutions proposal for the MHEWS (Identify country specific activities needed for developing Multi hazard early warning system (MHEWS)) <i>Budget for IE (WMO)</i>	Obtain full description of problems to be solved, available data and historical events, define needs and priorities and propose operational activities needed for developing MHEWS	7,550	The costs will be for hired consultant to develop the concept note (200 USD per day * 25 days) with consultation of various stakeholders (including 2550 USD for the travel costs)
Organizing and participating in the	Meet the national and regional partners	20,000	Workshop logistical costs (venue costs- 2000 USD,

regional Workshop organized) to validate the concept note especially list of activities, define tasks distribution, Monitoring and Evaluation plan, institutional arrangements, review environmental and social risks, project exit or sustainability strategy and validate pilot areas for testing MHEWS <i>Budget for IE (WMO) and one of the EEs</i>	and stakeholders to validate the draft concept note and discuss detailed implementation arrangements, pilot testing areas, and finalize the above		Audio-video and interpretation costs of 2000 USD, 15-20 participants from countries including travel and DSA for 3 days-16,000 USD Note: Additional costs related to other invited participants will be covered by WMO from other on-going projects in the targeted region
Local authorities and community-based consultations in the four countries (approximately visits to 20 communities (5 in each country) including meetings with women and youths <i>Budget for EEs</i>	Consultation meetings with more than 500 stakeholders are organized to present the project, gather inputs on the project support	5,000	EEs staff costs for field visits to 20 communities (5 in each country) – 250 USD per community (250 USD*20=5000 USD)
WMO project support cost (7%)		2450	
Total Project Formulation Grant		35,000	

C. Implementing Entity

This request has been prepared in accordance with the Adaptation Fund Board's procedures and meets the Adaptation Fund's criteria for project identification and formulation

Implementing Entity Coordinator, IE Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Moyenda Chaponda, World Meteorological Organization	<i>Moyenda Chaponda</i>	10 August 2026	Ben Churchill	+41 22 730 8646	bchurchill@wmo.int