AFB/PPRC.18/17
1 March 2016

Adaptation Fund Board
Project and Programme Review Committee
Eighteenth Meeting
Bonn, Germany, 15-16 March 2016

Agenda Item 8 b)

PROPOSAL FOR (CAMBODIA, THE LAO PEOPLE'S DEMOCRATIC REPUBLIC, MYANMAR, THAILAND, VIET NAM)

Background

1. The strategic priorities, policies and guidelines of the Adaptation Fund (the Fund), as well as its operational policies and guidelines include provisions for funding projects and programmes at the regional, i.e. transnational level. However, the Fund has thus far not funded such projects and programmes.

2. The Adaptation Fund Board (the Board), as well as its Project and Programme Review Committee (PPRC) and Ethics and Finance Committee (EFC) considered issues related to regional projects and programmes on a number of occasions between the Board's fourteenth and twenty-first meetings but the Board did not make decisions for the purpose of inviting proposals for such projects. Indeed, in its fourteenth meeting, the Board decided to:

> *(c) Request the secretariat to send a letter to any accredited regional implementing entities informing them that they could present a country project/programme but not a regional project/programme until a decision had been taken by the Board, and that they would be provided with further information pursuant to that decision*
>
> *(Decision B.14/25 (c))*

3. In its eighth meeting in March 2012, the PPRC came up with recommendations on certain definitions related to regional projects and programmes. However, as the subsequent seventeenth Board meeting took a different strategic approach to the overall question of regional projects and programmes, these PPRC recommendations were not included in a Board decision.

4. In its twenty-fourth meeting, the Board heard a presentation from the coordinator of the working group set up by decision B.17/20 and tasked with following up on the issue of regional projects and programmes. She circulated a recommendation prepared by the working group, for the consideration by the Board, and the Board decided:

> *(a) To initiate steps to launch a pilot programme on regional projects and programmes, not to exceed US$ 30 million;*
>
> *(b) That the pilot programme on regional projects and programmes will be outside of the consideration of the 50 per cent cap on multilateral implementing entities (MIEs) and the country cap;*
>
> *(c) That regional implementing entities (RIEs) and MIEs that partner with national implementing entities (NIEs) or other national institutions would be eligible for this pilot programme, and*
>
> *(d) To request the secretariat to prepare for the consideration of the Board, before the twenty-fifth meeting of the Board or intersessionally, under the guidance of the working group set up under decision B.17/20, a proposal for such a pilot programme based on consultations with contributors, MIEs, RIEs, the Adaptation Committee, the Climate Technology Centre and Network (CTCN), the Least Developed Countries Expert Group (LEG), and other relevant bodies, as appropriate, and in that proposal make a recommendation on possible options*

on approaches, procedures and priority areas for the implementation of the pilot programme.

(Decision B.24/30)

5. The proposal requested under (d) of the decision above was prepared by the secretariat and submitted to the Board in its twenty-fifth meeting, and the Board decided to:

(a) Approve the pilot programme on regional projects and programmes, as contained in document AFB/B.25/6/Rev.2;

(b) Set a cap of US$ 30 million for the programme;

(c) Request the secretariat to issue a call for regional project and programme proposals for consideration by the Board in its twenty-sixth meeting; and

(d) Request the secretariat to continue discussions with the Climate Technology Center and Network (CTCN) towards operationalizing, during the implementation of the pilot programme on regional projects and programmes, the Synergy Option 2 on knowledge management proposed by CTCN and included in Annex III of the document AFB/B.25/6/Rev.2.

(Decision B.25/28)

6. Based on the Board Decision B.25/28, the first call for regional project and programme proposals was issued and an invitation letter to eligible Parties to submit project and programme proposals to the Fund was sent out on 5 May 2015.

7. In its twenty-sixth meeting the Board decided *to request the secretariat to inform the Multilateral Implementing Entities and Regional Implementing Entities that the call for proposals under the Pilot Programme for Regional Projects and Programmes is still open and to encourage them to submit proposals to the Board at its 27th meeting, bearing in mind the cap established by Decision B.25/26.*

(Decision B.26/3)

8. According to the Board Decision B.12/10, a project or programme proposal needs to be received by the secretariat no less than nine weeks before a Board meeting, in order to be considered by the Board in that meeting.

9. The following project pre-concept document titled "Groundwater resources in Greater Mekong Sub-region: Collaborative management to increase resilience" was submitted by the United Nations Educational, Scientific and Cultural Organization (UNESCO), which is a Multilateral Implementing Entity of the Adaptation Fund.

10. This is the second submission of the proposal. It was first submitted as a pre-concept in the twenty-sixth Board meeting but withdrawn before consideration by the PPRC. The present submission was received by the secretariat in time to be considered in the twenty-seventh Board meeting. The secretariat carried out a technical review of the project proposal, assigned it the diary number ASI/MIE/Water/2015/1, and completed a review sheet.

11. The secretariat received on 4 February 2016 comments regarding the proposal, sent by the Adaptation Fund NGO Network, on behalf of the following organizations: the NGO Forum on Cambodia, NGOs Environment and Climate Change Alliance, Regional Hub members. The secretariat considered these comments as reference when conducting the technical review of the proposal. However, although Decision B.18/24 (b) required that such comments be made publicly available on the Adaptation Fund website, after confirming with the organizations that they did not object to doing so, the format through which the comments were provided does not allow to do so. Indeed, the comments have been provided as inserted comments in a PDF version of the pre-concept proposal, which made it difficult to extract them. However, in accordance with the same Decision, the comments as inserted in the proposal are provided as an annex to the present document. The comments have been taken into account when reviewing the proposal and are reflected in the technical review and secretariat's recommendation to the PPRC for this project.

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

13. 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. Also, pursuant to Decision B.18/24 (b), the comments from civil society on the project, as inserted in the proposal submitted by UNESCO on January 2016, are annexed in this document. Lastly, in accordance with decision B.25.15, the proposal is submitted with changes between the initial submission and the revised version highlighted.

Project Summary

Cambodia, Lao PDR, Myanmar, Thailand, Vietnam – Groundwater resources in Greater Mekong Sub-region: Collaborative management to increase resilience

Implementing Entity: *UNESCO*
Project/Programme Execution Cost: USD 1,119,458
Total Project/Programme Cost: USD 365,000
Implementing Fee: USD 327,250
Financing Requested: USD 4,542,250

Project Background and Context:

The countries of the Greater Mekong Sub-region (GMS) – Cambodia, Lao PDR, Thailand, Myanmar and Vietnam) have abundant surface water resources that includes some of the largest rivers in Asia: the Mekong discharges around 475 km³ annually, and the Ayeyarwady around 400 km³. All GMS countries are vulnerable to the adverse effects of climate variability and climate change; flooding and heavy monsoon rains are common but the region also experiences a (prolonged) dry season with pronounced and frequent water scarcity. Even though surface water is abundant, major shortfalls occur spatially (particularly in lowlands and plains) and temporally (during the dry season). These structural water shortages are normally met with supply from groundwater (GW). However climate variability is creating a more uncertain dimension for water availability and to address this GW is being more heavily relied upon as a coping strategy since it is better buffered to climate shocks than surface water. In addition there is limited information and knowledge on the GW resources of the GMS, in particular the kind of insight required to deal with pressing issues. The project's objective is to develop and implement targeted GW vulnerability reduction measures (VRM) for sustainable use of GW resources as an adaptation response to protect people, food production, health, livelihoods and ecosystems in the GMS. Improve the regional capabilities and information base to introduce and regionally apply the VRM to support the Sustainable Development Goals (SDGs).

Component 1: Resource assessment and monitoring (USD 1,000,000)

This component seeks to harmonise regional GW resource inventory supporting regional GMS approach to address challenges of climate change and resilience. It will promote the development of information-based policies to better manage resources and further develop new GW based resilience strategies and practical interventions. It is expected that regional GW resources will be updated and aquifer inventory will be shared across the region. GW vulnerability and resilience potential will be assessed leading to the identification of pilot regions; a common regional GW systems monitoring network will be established, with standardized protocols and on-line information systems.

Component 2: Priority use and stakeholders (USD 500,000)

This component will seek to increase participation by the wider stakeholder community, to make them aware of resource management issues and give them access to tailored information and guidelines that support more sustainable use region-wide. To do so, dialogues with GW policy makers, practitioners and users will be initiated, to assess GW use scenarios for different sectors and to develop and provide custom- made practical guidelines to attain sustainable use. Stakeholders will be engaged in the pilots to demonstrate VRM.

Component 3: Resource management, information tools and equipment (USD 1,000,000)

This component will ensure greater resilience and sustainable GW resource use, with protection of low income and vulnerable user groups. Also, it will promote the development of more robust and climate change ready transboundary GW policies, along with more targeted investments in GW development, resulting in increased security and resilience of food production and supply, and livelihoods. This will be achieved through the availability of adequate collaborative resource management methods and tools, enabling information sharing, cooperation and mutual support across the GMS region. Pilots with information-based measures to align GW management with broader climate change resilience measures and surface water management will also be implemented.

Component 4: Regional cooperation, coordination and information exchange (USD 500,000)

This component will ensure that a regionally coherent policy for climate adaptation through sustainable GW resource management is developed, and that level playing field for all sectoral users in the region is achieved. Also, the project will seek efficiency gains in common approach and support tools. To do so, a regional cooperative network will be established to exchange information and collaborate in addressing further challenges from information to policy to practice.

Component 5: Capacity building and training (USD 850,000)

Through this component, internal capacity in the GMS region to develop climate change adaptation policy and practical resilience enhancing interventions will be enhanced, to use state-of-the-art tools and work with Communities of Practice, stakeholders and vulnerable groups. A GW community-of-practice will be created and equipped with knowledge and skills to ensure technical and policy capabilities.

ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

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

Countries/Region: **Cambodia, Lao PDR, Myanmar, Thailand, Vietnam**
Project Title: **Groundwater resources in Greater Mekong Sub-region: Collaborative management to increase resilience**
Thematic focal area: **Transboundary water management**
Implementing Entity: **UNESCO**
Executing Entities: **Country agencies, CCOP, IWMI, IGRAC**
AF Project ID: **ASI/MIE/Water/2015/1**
IE Project ID:
Requested Financing from Adaptation Fund (US Dollars): **4,542,250**
Reviewer and contact person: **Daouda Ndiaye**
Co-reviewer(s): **Mikko Ollikainen**
IE Contact Person(s): **Ramasamy Jayakumar**

Review Criteria	Questions	Comments on January 22, 2016	Comments on February 10, 2016
Country Eligibility	1. Are all of the participating countries party to the Kyoto Protocol?	Yes.	
	2. Are all of the participating countries developing countries particularly vulnerable to the adverse effects of climate change?	Yes. The Greater Mekong Subregion (GMS – Cambodia, Lao PDR, Thailand, Myanmar and Vietnam), with a total population of about 240 million people, is experiencing flooding and heavy monsoon rains and also (prolonged) dry season. With its important population, groundwater use in the region is increasing as drilling and pump costs have become more affordable and will continue to do so in coming years. However, groundwater resources of the GMS have not been investigated in detail, and only limited information about groundwater resource volumes, use, sustainability and quality is available.	

Project Eligibility	1. Have the designated government authorities for the Adaptation Fund from each of the participating countries endorsed the project/programme?	Yes.	
	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?	Yes.	
	3. Have the project/programme objectives, components and financing been clearly explained?	Yes.	
	4. Has the project/programme been justified in terms of how: - it supports concrete adaptation actions? - it builds added value through the regional approach? - it promotes new and innovative solutions to climate change adaptation? - it is cost-effective? - it is consistent 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?	The project, although demonstrating innovation and relevance to the adaptation issue it aims at tackling, lacks the “concreteness” aspect which is part of the mandate of the Adaptation Fund. Most of the activities of the project relate to research, capacity building, creation and dissemination of information through regional networks, development of policies at the regional level and training. Although the proposal states that it will “develop and implement targeted vulnerability reduction measures involving groundwater in close cooperation with agricultural users (such as enhanced aquifer recharge, groundwater quality improvement, etc.)”, such activities are not reflected in the revised document and expected outputs.	Partially addressed. At the concept stage, the proposal should be more specific on the pilots that will be carried out, providing details on the concrete activities on the ground and clarifying what “information-based measures” are. Also, the concept document should provide relevant information on the existing climate monitoring systems in the Great Mekong Subregion, and explain how they would be used to complement the ground water monitoring systems. Lastly, despite the regional engagement, policies and cooperation, national and sub-national levels should be also explored.

	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.	In the concept document, please explain how groundwater user organizations will be part of the implementation arrangements of the project.
Resource Availability	6. Is the requested project / programme funding within the funding windows of the pilot programme for regional projects/programmes?	Yes.	
	7. 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	8. Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?	Yes.	

Technical Summary	The project seeks to bridge the information gap about the resource potentials and vulnerabilities of groundwater systems of the GMS, through detailed hydrogeological and geophysical investigations. It will share an expanding knowledge and expertise base for sustainable use of groundwater resources for increased climate change resilience in the Greater Mekong Subregion. The initial technical review found that the project proposal had not demonstrated the concreteness of the proposed activities. Most of the activities of the project related to research, capacity building, creation and dissemination of information through regional networks, development of policies at the regional level and training. Although the proposal stated that it would “develop and implement targeted vulnerability reduction

	measures involving groundwater in close cooperation with agricultural users (such as enhanced aquifer recharge, groundwater quality improvement, etc.)", such activities were not reflected in the revised document and expected outputs. The proponents were then requested to demonstrate the concreteness of the project expected outputs. The revised proposal has partially addressed the comments made by the technical review and it is expected that the concept document will help clarify the remaining concerns. The following observations are made: a) At the concept stage, the proposal should be more specific on the pilots that will be carried out, providing details on the concrete activities on the ground and clarifying what "information-based measures" are; b) Also, the concept document should provide more information on the existing climate monitoring systems in the Great Mekong Subregion, and explain how they would be used to complement the ground water monitoring systems that will be developed through the project; c) In addition to the regional engagement, policies and cooperation at national and sub-national levels should be also explored; d) In the concept document, please explain how groundwater user organizations will be part of the implementation arrangements of the project.
Date:	10 February 2016.

ADAPTATION FUND

PRE-CONCEPT FOR A REGIONAL PROJECT/PROGRAMME

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme:	Groundwater resources in Greater Mekong Sub-region: Collaborative management to increase resilience
Countries:	Cambodia, Lao PDR, Myanmar, Thailand, Vietnam
Thematic Focal Area:	Transboundary water management
Type of Implementing Entity:	MIE
Implementing Entity:	UNESCO
Executing Entities:	National Agencies, CCOP, IWMI, IGRAC
Amount of Financing Requested:	US$ 4,542,250

Project / Programme Background and Context:

Groundwater in the Greater Mekong Sub-region: The countries of the Greater Mekong Sub-region (GMS – Cambodia, Lao PDR, Thailand, Myanmar and Vietnam) have abundant surface water resources that includes some of the largest rivers in Asia: the Mekong discharges around 475 km³ annually, and the Ayeyarwady around 400 km³. All GMS countries are vulnerable to the adverse effects of climate variability and climate change; flooding and heavy monsoon rains are common but the region also experiences a (prolonged) dry season with pronounced and frequent water scarcity. Even though surface water is abundant, major shortfalls occur spatially (particularly in lowlands and plains) and temporally (during the dry season). These structural water shortages are normally met with supply from groundwater (GW). The GMS countries have a total population of about 240 million people; a considerable number are low-income groups and urban/rural communities that depend on easily accessible, reliable, good quality and low-cost GW for their domestic use and agrarian-based livelihoods. GW use is increasing as drilling and pumping costs have become more affordable and will continue to do so in coming years for a variety of reasons that include meeting Sustainable Development Goals, adapting to climate change, achieving food security and livelihood enhancement. The long terms impacts from increased GW use on domestic, irrigation and industrial supply security and resource sustainability in general remain unclear.

Climate variability creates a more uncertain dimension for water availability and to address this GW is being more heavily relied upon as a coping strategy since it is better buffered to climate shocks than surface water. For example, the current El Niño-related drought in Thailand leads to emergency measures involving the drilling of 900 wells for irrigating parched rice fields with unknown longer term consequences.

The expansion of irrigation, land use changes (deforestation) in the highland areas, increase of domestic and industrial use in expanding cities of the GMS may result in significant depletion of GW resources in future, leading to reduced water availability, higher pumping costs, saltwater intrusion in coastal areas, and loss of ecosystem services. These effects will be exacerbated by the impacts of climate change, further increasing demand and potentially reducing recharge throughout the GMS. The full impacts of climate change on GW availability are likely to be complex and require further investigation.

The absence of a sizeable community and cooperative network of GW experts in the GMS severely hampers addressing these issues, in particular in Myanmar, Lao PDR and in Cambodia, where local capacity in the technical and non-technical aspects of groundwater management are very limited. Regional cooperation in the ASEAN Economic Community offers an opportunity to tackle these challenges. Specifically, the project aims to enhance and utilize the resilience potential of improved and regionally coordinated GW management and demonstrate that it can provide effective tools and capacities to reduce vulnerability.

Knowledge/information gaps: There is limited information and knowledge on GW resources of the GMS, in particular the kind of insight required to deal with pressing issues, such as:

- Extent and/or characteristics of shallow and deeper aquifer systems, including GW reserves in aquifer systems in the GMS, existing and potential water quality threats.
- Current GW abstraction for various uses; future demand scenarios for irrigation, urban/rural water supply.
- Relationships between recharge in highland (upstream) areas and resource potential in lowland (downstream) areas. This includes several important transboundary systems. Climate change and land use changes will affect these delicate balances in supply and demand.
- Sustainability (in view of increasing abstraction) and vulnerability of riparian GW resources to climate change induced changes in precipitation and changes in river flow regimes (natural or anthropogenic).

To better understand the GW resources in the GMS, their vulnerabilities and resilience potential, detailed hydrogeological and geophysical investigations are required. GW monitoring networks are absent but urgently needed to monitor and track the resource status and trends, and for developing and using regional GW information systems and flow models. These regional GW models and information tools will help manage resources and support the introduction of resilience measures.

Project / Programme Objectives:

Overall Goal/Objective: Establish a regional knowledge network for sustainable use of groundwater resources as an adaptation response to protect people, livelihoods and ecosystems in the GMS.

Specific objectives are:

- Prepare an updated GW shared aquifer inventory for the GMS countries, resource management concepts and tools, and a monitoring network for GW systems.
- Understand GW recharge processes and formulate recommendations for protection and long-term sustainable management.
- Increase participation of stakeholders by implementing principles of GW governance through 1) dialogues with GW users to assess GW use scenarios for different sectors (agriculture, industry, rural and urban domestic water supply) and 2) develop and provide appropriate information to ensure sustainable use by different user groups (agriculture, industry, domestic water supply).
- Develop and implement targeted GW vulnerability reduction measures, GW quality improvement, identification and protection of strategic GW reserves, etc.
- Capacity building and raising standards for GW practitioners across the GMS countries and initiating regional water cooperation (diplomacy).
- High level agreement on climate resilience through strategic planning for GW.

Project / Programme Components and Financing:

Project Components	Expected Outcomes	Expected Outputs	Country	Amount (US$)
1. Resource assessment and monitoring	Harmonised regional GW resource inventory supporting regional GMS approach to address challenges of climate change and resilience; information-based policy to manage resources and further develop new GW based resilience strategies and practical interventions.	Updated and harmonised regional GW resources and shared aquifer inventory; GW vulnerability and resilience potential assessment; common GW systems monitoring network, with community of experts and on-line information systems.	Lao PDR, Cambodia, Thailand, Myanmar, Vietnam	1,000,000

2. Priority use and stakeholders	Increased participation by GW users in different sectors who are aware of resource management issues and have access to information and guidelines that support more sustainable use region-wide.	Dialogues with GW users to assess GW use scenarios for different sectors and to develop and provide custom-made practical guidelines to attain sustainable use.	Lao PDR, Cambodia, Thailand, Myanmar, Vietnam	500,000
3. Resource management, information tools and equipment	Greater resilience and sustainable GW resource use, with protection of low income and vulnerable user groups. Transboundary GW policies more robust and climate change ready.	Adequate collaborative resource management methods and tools made available, enabling information sharing, cooperation and mutual support across the GMS region. Information-based measures to align GW management with broader climate change resilience measures and surface water management.	Lao PDR, Cambodia, Thailand, Myanmar, Vietnam	1,000,000
4. Regional cooperation, coordination and information exchange.	A regionally coherent policy for climate adaptation through sustainable GW resource management; level playing field for all sectoral users in the region, efficiency gains in common approach and support tools.	A regional cooperative network is established to exchange information and collaborate in addressing further challenges from information to policy to practice.	Lao PDR, Cambodia, Thailand, Myanmar, Vietnam	500,000
5. Capacity building and training	Internal capacity in the GMS region to develop CCA policy and practical resilience enhancing interventions, to use state-of-the-art tools and work with CoP, stakeholders and vulnerable groups.	A GW community-of-practice created and equipped with the knowledge and skills to ensure technical and policy capabilities. Expert groups can tackle acute problems, GMS cooperation.	Lao PDR, Cambodia, Thailand, Myanmar, Vietnam	850,000
6. Project/Programme Execution cost				365,000
7. Total Project/Programme Cost				4,215,000
8. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)				327,250
Amount of Financing Requested				**4,542,250**

Project Duration: *(In years and months):* 4 YEARS (48 MONTHS)

PART II: PROJECT / PROGRAMME JUSTIFICATION

Climate resilience and added value of regional approach, GMS transboundary collaboration: By introducing and stimulating robust methods for resource assessment and collaborative principles for sustainable GW use, valuable water resources can be more effectively allocated for strategic and emergency purposes, thereby enhancing resilience in water supply and food production without creating undue ecosystem impacts. Climate resilience is based on the full suite of options, including limited surface water and GW, and overall use efficiency is stimulated.

Groundwater resource sustainability assessment: To increase resilience and reduce vulnerability requires assessment of sustainable GW extraction rates under various current and future land use conditions; to develop with users “low vulnerability” land use and identify solutions to overcome high vulnerability cases, and also to assess impacts of the current and likely future climate change conditions on GW resources; to

create awareness of their potential depletion and develop fall-back options and water use efficiency measures that have a direct impact on the ground.

Innovative solutions to climate change adaptation (CCA); a regional approach and cost-effectiveness: The development of GW management information systems for the region will provide opportunities to introduce innovative ICT-supported data collection, information sharing and training. The programme connects to national priorities for CCA, as included in respective national CCA policy documents.

Learning and knowledge management to capture and disseminate lessons learned and suitable resilience practices: Learning, knowledge development and sharing of expertise are key elements of the program; the more advanced groups in Thailand, Vietnam will contribute to this process by helping their less advanced colleagues in Lao PDR, Myanmar and Cambodia in a dedicated community of practice (CoP).

Vulnerable groups and sustainability, sharing regional data and experience: Project preparation will include dedicated efforts to design the interaction process with stakeholders in such a way that vulnerable groups and women are prioritised. By focusing on GW conservation/sustainable use, access to water supply for households and smallholders will improve.

Positive environmental and social impacts, a balanced intervention with sustainable results: The program will mitigate environmental impacts of drought on food production, on domestic water supply constraints and importantly on environmental services provided by GW dependent ecosystems. It will also mitigate social impacts on access to low-cost domestic water supply and on rural communities' access to irrigation water for self-reliance in food production. The funding requested is allocated in a balanced way for 1) technical studies and deepening of the knowledge base, 2) dissemination and interaction with stakeholders and 3) human resources development and creation of a regional GMS community of experts.

The project will have positive environmental and social impacts: it will stimulate sustainable use of valuable natural resources and increase vulnerability awareness; it will support approaches to ensure equitable access to water for food production, domestic use and ecosystems. It will enable conservation of scarce water resources for low-income groups. By following a regional approach an international level playing field is supported as well.

Capacity building to form a GMS community of experts and address societal needs: Sustainability aspects are highly dependent on the human resources capacity dimension. With a strong focus on human resources development a new generation of better skilled and equipped GW experts will engage with pertinent challenges of the coming decades. Sustainability is also enhanced by closely linking GW resource studies to societal needs. A regional CoP will be fostered, building upon efforts previously undertaken by the project partners. This CoP will meet and share issues annually. The opportunities for regional cooperation are being strengthened by the establishment of the ASEAN Economic Community.

PART III: IMPLEMENTATION ARRANGEMENTS

Beneficiaries and stakeholders - NIEs

1. Government of Cambodia, Ministry of Water Resources and Meteorology and Ministry of Mines and Energy deal with groundwater issues in Cambodia.
2. Government of Lao PDR, Ministry of Natural Resources and Environment (MoNRE), The Natural Resources and Environment Institute (NREI) has an executive role in groundwater management.
3. Government of Myanmar, Ministry of Agriculture and Irrigation and within the Ministry of Water Resources Utilization Department (WRUD) has the role of implementing agency.
4. Government of Thailand, Ministry of Natural Resources and Environment; Within the Ministry the Department of Groundwater Resources has the responsibilities in planning, assessment, resource conservation, and regulations.
5. Government of Vietnam, Ministry of Natural Resources and Environment (MoNRE) as the coordinating Ministry for water resources management, is implementing river basin water resources management plans on a national scale that include GW. the National Center for Water Resources Planning and

Investigation (NAWAPI), has an executive role.
6. Universities and research institutions in the GMS contributing to capacity building on GW.

The collaboration will be supported by:
UNESCO: will provide all technical backstopping, facilitation with member States and processes with the Adaptation Fund.
Coordinating Committee for Geosciences Programmes (in East and Southeast Asia)(CCOP): will provide technical expertise and support local coordination and implementation along with the national partners.
International Water Management Institute (IWMI): has been at the forefront of research aimed at exploring opportunities for greater GW development for poverty alleviation improving GW governance across SE Asia. IWMI would be one of the implementing partners.
International Groundwater Resources Assessment Centre (IGRAC): is UNESCO's and WMO's GW expertise and resources centre that facilitates and promotes information and knowledge sharing required for sustainable development, management and governance of GW.

The project proposal preparation process and workshop are intended to assess the need/possibility to engage additional technical assistance partners (MRC, Ministries of Women's Development or similar), national partners for implementation on a local level, and essential stakeholder organisations.

Step-by-step implementation strategy

- Organise an executive project team consisting of national experts from the GMS countries, and experts from the supporting Technical Assistance partners (CCOP, IWMI, IGRAC). As MIE, UNESCO will convene a project Steering Committee.
- Develop a common view and understanding of the role that improved GW management shall play in strengthening climate resilience in multiple sectors; identify additional opportunities through transboundary collaboration; sharing information, expertise and collaborative policies for climate resilience.
- Resource assessment: common methodology to be adopted and approach to data collection/sharing; agree on protocols for sharing available data on transboundary aquifers.
- Compile various maps / information services and products available from countries/organisations and further demarcate the recharge and extraction zones and consider transboundary issues.
- Identify data gaps and need for new data; collaborative monitoring approach, initiate base-level monitoring.
- Common approach for GW resources management information system, basic functions and operations, training expert users, dissemination to end-users in the five countries.
- Raise stakeholder and public awareness on GW vulnerability through development of tailored information for sectoral users and multi-media awareness for urban and rural populations.
- Build capacity of local GW management professionals, planners and policy makers in the pertinent national government organisations.
- Consult stakeholders and develop a process of ongoing engagement with the specific actors with and interest in GW from government, donors, NGOs and the private sect

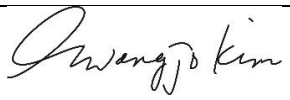
These activities collectively serve to create the environment needed to achieve positive change on the ground throughout the GMS by reducing vulnerability and increasing adaptive capacity to the impacts of climate change, including climate variability. Clear indicators to track and demonstrate these outcomes will be developed at an early project stage and monitored by the Project Steering Committee and activities adjusted as needed.

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

A. Record of endorsement on behalf of the government:

Cambodia: Mr. Tin Ponlok, Secretary General, NCSD/Ministry of Environment	Date*: 10 November 2015*
Lao PDR: Mr. Syamphone Sengchandala Department of Disaster Management and Climate Change (DDMCC), Ministry of Natural Resources and Environment	Date*: 23 December 2015*
Myanmar: H.E U Win Tun, Union Minister, Ministry of Environmental Conservation and Forestry and Chairman National Environment Conservation Committee (NECC)	Date*: 16 December 2015*
Thailand: Mr. Kasemsun Chinnavaso, Permanent Secretary, Ministry of Natural Resources and Environment	Date*: 18 December 2015*
Viet Nam: Mr. Tran Hong Ha, Deputy Minister Ministry of Natural Resources and Environment	Date*: 12 November 2015*

B. Implementing Entity certification

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 (Lao PDR and Vietnam) 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.	
Name and Signature  Implementing Entity Coordinator: **GWANG-JO KIM** DIRECTOR UNESCO BANGKOK	
Date: **7 January 2016**	Tel. and email:+66-23918474 gj.kim@unesco.org
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Tel. and Email: +66-2-3910577 X 163 ; r.jayakumar@unesco.org	

KINGDOM OF CAMBODIA
Nation Religion King

Ministry of Environment
N° :..... MoE

Letter of Endorsement by Government

10 November 2015

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

Subject: **Endorsement for Groundwater resources in the Greater Mekong Subregion; collaborative resource management to increase resilience**

In my capacity as designated authority for the Adaptation Fund in Cambodia, I confirm that the above regional project proposal is in accordance with the Royal Government of Cambodia national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Cambodia.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by UNESCO and executed by relevant country agencies, namely the Ministry of Water Resources and Meteorology and the Ministry of Mines and Energy with technical support and coordination from Coordinating Committee for Geosciences Programme (in East and Southeast Asia)-CCOP, International Water Management Institute (IWMI), and International Groundwater Resources Assessment Centre (IGRAC).

Sincerely,

Tin Ponlok
Secretary General,
NCSD/Ministry of Environment

N° 48, Samdech Preah Sihanouk Blvd., Tonle Bassac, Chamkarmom, Phnom Penh, CAMBODIA, Phone: 023 213 908/023 220 369, Fax: 023 212 540

LAO PEOPLE'S DEMOCRATIC REPUBLIC
PEACE INDEPENDENCE DEMOCRACY UNITY AND PROSPERITY

Ministry of Natural Resources and Environment (MONRE)
Department of Disaster Management and Climate Change (DDMCC)
Tel/Fax: +856-21-254350

Vientiane Capital,..23....December 2015

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

Subject: **Endorsement for Groundwater resources in the Greater Mekong Subregion; collaborative resource management to increase resilience**

In my capacity as designated authority for the Adaptation Fund in Lao PDR, I confirm that the above regional project proposal is in accordance with the government's national and sub-regional priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the Mekong Region.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by UNESCO and executed by Natural Resources and Environment Institute with technical support and coordination from Coordinating Committee for Geosciences Programme (in East and Southeast Asia)-CCOP, International Water Management Institute (IWMI), International Groundwater Resources Assessment Centre (IGRAC).

Yours sincerely,

Mr.Syamphone SENGCHANDALA
Designated Authority for the Adaptation Fund of Lao PDR

THE REPUBLIC OF THE UNION OF MYANMAR

MINISTRY OF ENVIRONMENTAL CONSERVATION AND FORESTRY

Ref No. 6(1)/01(I)/(3720 / 2015)

Date 16th of December, 2015

To

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

Subject: **Endorsement for Groundwater Resources in the Greater Mekong Sub Region: Collaborative Resource Management to Increase Resilience Proposal**

In my capacity as designated authority for the Adaptation Fund in the Republic of the Union of Myanmar, I confirm that the above national project 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 country.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by the Ministry of Agriculture and Irrigation and executed by Water Resources Utilization Department (WRUD) of Myanmar's Ministry of Agriculture and Irrigation.

Sincerely,

Win Tun
Union Minister
Ministry of Environmental Conservation and Forestry
Chairman of the Environmental Conservation Committee
Building No. 28
Nay Pyi Taw, Myanmar

No. 0702/ 3720

Ministry of Natural Resources and Environment
92 Soi Phohol Yothin 7, Phohol Yothin Road,
Sam San Nai, Phayathai, Bangkok 10400 Thailand

18 December B.E.2558 (2015)

To: the Adaptation Fund Board,

c/o Adaptation Fund Board Secretariat

Subject: Endorsement for Groundwater Resources in the Greater Mekong Subregion; Collaborative Resource Management to Increase Resilience

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

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by UNESCO and executed by Department of Groundwater Resources with technical support and coordination from Coordinating Committee for Geosciences Programme in East and Southeast Asia (CCOP) International Water Management Institute (IWMI), International Groundwater Resources Assessment Center (IGRAC).

Yours sincerely,

(Kasemsun Chinnavaso Ph.D.)
Permanent Secretary
Ministry of Natural Resources and Environment

1818 H Street NW Washington DC 20433 USA
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

SOCIALIST REPUBLIC OF VIET NAM
MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT

Letter of Endorsement by Government

November 12th, 2015

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

Subject: Support for Groundwater resources in the Greater Mekong Subregion; collaborative resource management to increase resilience.

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

Accordingly, I am pleased to endorse the above project/programe proposal with support from the Adaptation Fund. If approved, the project will be implemented by UNESCO and executed by National Centre for Water Resources Planning and Investigation Ministry of Natural Resources and Environment, Government of Viet Nam.

Sincerely,

Tran Hong Ha
Vice Minister
Minister of Natural Resources and Environment

Address: 10 Ton That Thuyet street, South Tu Liem district, Ha Noi, Viet Nam
Tel: +84 4 37956868, Fax: +84 4 38359221, E-mail: icd-monre@monre.gov.vn, Website: http://www.monre.gov.vn

ADAPTATION FUND

PRE-CONCEPT FOR A REGIONAL PROJECT/PROGRAMME

PART I: PROJECT/PROGRAMME

Groundwater resources in Greater Mekong Sub-region: Collaborative management to increase resilience	
Countries:	Cambodia, Lao PDR, Myanmar, Thailand, Vietnam
Thematic Focal Area:	Transboundary water management
Type of Implementing Entity:	MIE
Implementing Entity:	UNESCO
Executing Entities:	National Agencies, CCOP, IWMI, IGRAC
Amount of Financing Requested:	US$ 4,542,250

Project / Programme Background and Context:

Groundwater resources in the Greater Mekong Sub-region: The countries of the Greater Mekong Sub-region (GMS) – Cambodia, Lao PDR, Thailand, Myanmar and Vietnam) have abundant surface water resources that includes some of the largest rivers in Asia: the Mekong discharges around 475 km³ annually, and the Ayeyarwady around 400 km³. All GMS countries are vulnerable to the adverse effects of climate variability and climate change; flooding and heavy monsoon rains are common but the region also experiences a (prolonged) dry season with pronounced and frequent water scarcity. Even though surface water is abundant, major shortfalls occur spatially (particularly in lowlands and plains) and temporally (during the dry season). These structural water shortages are normally met with supply from groundwater (GW). The GMS countries have a total population of about 240 million people; a considerable number are low- income groups and urban/rural communities that depend on easily accessible, reliable, good quality and low-cost GW for their domestic use and agrarian-based livelihoods. GW use is increasing as drilling and pumping costs have become more affordable and will continue to do so in coming years for a variety of reasons that include achieving the SDGs, adapting to climate change, increased pressures to meet food security and livelihood enhancement. The long terms impacts from increased GW use on the security of domestic, irrigation and industrial supplies, and resource sustainability in general remain unclear. In socio-economically important areas across the region (.e.g. upper Mekong Delta, Myanmar Dry Zone) severe depletion is already taking place.

Climate variability creates a more uncertain dimension for water availability and to address this GW is being more heavily relied upon as a coping strategy since it is better buffered to climate shocks than surface water. For example, the current El Niño-related drought in Thailand has triggered unprecedentedly high levels of pumping including emergency measures involving the drilling of 900 wells for irrigating parched rice fields to avert short-term disaster with unknown longer term consequences (i.e. rapidly exhausting finite GW resources).

The expansion of irrigation, land use changes (deforestation) in the highland areas and agricultural intensification more generally, increase of domestic and industrial use in expanding cities of the GMS may result in significant depletion or contamination of GW resources in future, leading to reduced water availability, higher pumping costs, saltwater intrusion in coastal areas, and loss of ecosystem services. These effects will be exacerbated by the impacts of climate change, further increasing demand and potentially reducing recharge throughout the GMS. The full impacts of climate change on GW availability are likely to be complex and require further investigation.

The absence of a sizeable community and cooperative network of GW experts in the GMS severely hampers addressing these issues, in particular in Myanmar, Lao PDR and in Cambodia, where local capacity in GW management are very limited, whereas Thailand and Vietnam are considerably more advanced. Regional cooperation in the ASEAN Economic Community offers an opportunity to tackle these challenges. Specifically, the project aims to enhance and utilize the resilience potential of improved and regionally coordinated GW management and demonstrate in targeted pilot areas that it can provide effective tools and capacities to reduce vulnerability.

Knowledge/information gaps: There is limited information and knowledge on the GW resources of the GMS, in particular the kind of insight required to deal with pressing issues, such as:

- Extent and/or characteristics of shallow and deeper aquifer systems, including GW reserves in aquifer systems in the GMS, existing and potential water quality threats.
- Relationships between recharge in highland (upstream) areas and resource potential in lowland (downstream) areas. This includes several important transboundary systems requiring cooperation for resources shared between two or sometimes three countries. Climate change and land use changes will affect these delicate balances in supply and demand.
- Sustainability (in view of increasing abstraction) and vulnerability of riparian GW resources to climate change induced changes in precipitation and changes in river flow regimes (natural or anthropogenic).
- Current GW abstraction for various uses; future demand scenarios for irrigation, urban/rural water supply, cost/benefit aspects of GW use for the industry, water supply and agricultural sectors.

Among policy-makers, in particular, there is limited realization of the extent, economic costs/benefits, and sustainability issues by which GW contributes to food production, health (domestic use), livelihoods and broader economic development. Individual farmers understand this, but they are not well-positioned to address the wider implications of unsustainable use and GW depletion. Hence, regionally, current practices are often not sustainable and cannot be relied upon to contribute to increased longer-term resilience. In this programme we will demonstrate that knowledge based and collaborative GW management and use practices, both at local level but also regionally, can overcome these constraints, and that responsible GW use, across sectors and borders, can contribute significantly to increased resilience. To implement policies and plans that enable governments to manage the GMS GW resources better into the future, improved understanding of these resources, their vulnerabilities and resilience potential, detailed hydrogeological and geophysical investigations (supply) and sectoral GW use inventories (demand) are urgently needed. GW monitoring networks are absent in most countries but are required to monitor and track the resource status and trends, and for developing and using regional GW information systems and flow models. These regional GW models and information tools will help manage resources and form the basis for the implementation of resilience measures in a strategic number of pilots, covering a cross-section of different GW typologies and use sectors.

Project / Programme Objectives:

Overall Goal/Objective: Develop and implement targeted GW vulnerability reduction measures (VRM) for sustainable use of GW resources as an adaptation response to protect people, food production, health, livelihoods and ecosystems in the GMS. Improve the regional capabilities and information base to introduce and regionally apply the VRM to support the SDGs.

Specific objectives are:

- Prepare an updated GW shared aquifer inventory for the GMS countries, resource management concepts and tools, and a monitoring network for GW systems.
- Develop regionally comparable assessments of GW resource volumes and quality issues, including identification and measures for the protection of strategic GW reserves to buffer against uncertainties in future climate and demand.
- Understand GW recharge processes in relation to land use change and formulate recommendations for protection and long-term sustainable management.
- Increase participation of stakeholders by implementing principles of GW governance through: 1) dialogues with GW users to assess GW use scenarios for different sectors (agriculture, industry, rural and urban domestic water supply); and 2) develop and provide appropriate information to ensure sustainable use by different user groups (agriculture, industry, domestic water supply).
- Together with stakeholders, ensure that more responsible GW use leads to effective and regionally valid Vulnerability Reduction Measures, and demonstrate these in several pilots. Together with stakeholders, develop end demonstrate that information-based and more responsible GW use leads to effective and regionally valid VRM. Disseminate and demonstrate across the region, that these GW-based measures contribute to climate resilience and improved livelihoods.

- Capacity building and raising standards for GW practitioners across the GMS countries and initiating regional water cooperation (diplomacy).
- Establish a regional knowledge network and develop high level agreements on climate resilience through strategic planning for GW.

Project / Programme Components and Financing:

Project Components	Expected Outcomes	Expected Outputs	Country	mount (US$)
1. Resource assessment and monitoring	Harmonised regional GW resource inventory supporting regional GMS approach to address challenges of climate change and resilience; information-based policy to better manage resources and further develop new GW based resilience strategies and practical interventions.	Updated regional GW resources and shared aquifer inventory and agreed technical protocols for assessments; GW vulnerability and resilience potential assessment; Identification of pilot regions; common regional GW systems monitoring network, with standardized protocols and on-line information systems.	Lao PDR, Cambodia, Thailand, Myanmar, Vietnam	1,000,000

2. Priority use and stakeholders	Increased participation by the wider stakeholder community, who are aware of resource management issues and have access to tailored information and guidelines that support more sustainable use region-wide.	Dialogues with GW policy makers, practitioners and users to assess GW use scenarios for different sectors and to develop and provide custom- made practical guidelines to attain sustainable use. Stakeholders engaged in the pilots to demonstrate VRM.	Lao PDR, Cambodia, Thailand, Myanmar, Vietnam	500,000
3. Resource management, information tools and equipment	Greater resilience and sustainable GW resource use, with protection of low income and vulnerable user groups. Transboundary GW policies more robust and climate change ready. More targeted investments in GW development, resulting in increased security and resilience of food production and supply, and livelihoods.	Adequate collaborative resource management methods and tools made available, enabling information sharing, cooperation and mutual support across the GMS region. Pilots with information-based measures to align GW management with broader climate change resilience measures and surface water management.	Lao PDR, Cambodia, Thailand, Myanmar, Vietnam	1,000,000
4. Regional cooperation, coordination and information exchange.	A regionally coherent policy for climate adaptation through sustainable GW resource management; level playing field for all sectoral users in the region, efficiency gains in common approach and support tools.	A regional cooperative network is established to exchange information and collaborate in addressing further challenges from information to policy to practice.	Lao PDR, Cambodia, Thailand, Myanmar, Vietnam	500,000
5. Capacity building and training	Internal capacity in the GMS region to develop CCA policy and practical resilience enhancing interventions, to use state-of-the-art tools and work with CoP, stakeholders and vulnerable groups.	A GW community-of-practice created and equipped with knowledge and skills to ensure technical and policy capabilities. Expert groups can tackle acute problems, GMS cooperation.	Lao PDR, Cambodia, Thailand, Myanmar, Vietnam	850,000
6. Project/Programme Execution cost				365,000
Total Project/Programme Cost				4,215,000
8. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)				327,250
Amount of Financing Requested				**4,542,250**

Project Duration: *(In years and months):* 4 YEARS (48 MONTHS)

PART II: PROJECT / PROGRAMME JUSTIFICATION

Climate resilience and added value of regional approach, GMS transboundary collaboration: By introducing and stimulating robust methods for resource assessment and collaborative principles for sustainable GW use, valuable water resources can be more effectively allocated for strategic and emergency purposes, thereby enhancing resilience in water supply and food production without creating undue ecosystem impacts. Climate resilience is based on the full suite of options, including limited surface water and GW, and overall use efficiency is stimulated.

Groundwater resource sustainability assessment: To increase resilience and reduce vulnerability requires assessment of sustainable GW extraction rates under various current and future land use conditions; to

develop with users “low vulnerability” land use and identify solutions to overcome high vulnerability cases, and also to assess impacts of the current and likely future climate change conditions on GW resources; to create awareness of their potential depletion and develop fall-back options and water use efficiency measures that have a direct impact on the ground.

Innovative solutions to climate change adaptation (CCA); a regional approach and cost-effectiveness: The development of GW management information systems for the region will provide opportunities to introduce innovative ICT-supported data collection, information sharing and training. The programme connects to national priorities for CCA, as included in respective national CCA policy documents.

Learning and knowledge management to capture and disseminate lessons learned and suitable resilience practices: Learning, knowledge development and sharing of expertise are key elements of the program; the more advanced groups in Thailand, Vietnam will contribute to this process by helping their less advanced colleagues in Lao PDR, Myanmar and Cambodia in a dedicated community of practice (CoP).

A focus on vulnerable groups and sustainability, sharing regional data and experience: At least three pilot studies will be identified and designed. These will include dedicated efforts to design the interaction process with stakeholders in such a way that vulnerable groups and women are prioritised. By focusing on GW conservation/sustainable use, access to water supply for households and smallholders will improve. The results from these regional (preferably transboundary pilots) will be shared across the GMS countries.

Positive environmental and social impacts, a balanced intervention with sustainable results: The program will mitigate environmental impacts of drought on food production, on domestic water supply constraints and importantly on environmental services provided by GW dependent ecosystems. It will also mitigate social impacts on access to low-cost domestic water supply and on rural communities’ access to irrigation water for self-reliance in food production. The funding requested is allocated in a balanced way for 1) technical studies and deepening of the knowledge base, 2) dissemination and interaction with stakeholders and 3) human resources development and creation of a regional GMS community of experts.

The project will have positive environmental and social impacts: it will stimulate sustainable use of valuable natural resources and increase vulnerability awareness; it will support approaches to ensure equitable access to water for food production, domestic use and ecosystems. It will enable conservation of scarce water resources for low-income groups. Concrete results will emerge from the pilots. By following a regional approach an international level playing field is supported as well.

Capacity building to form a GMS community of experts and address societal needs: Sustainability aspects are highly dependent on the human resources capacity dimension. With a strong focus on human resources development a new generation of better skilled and equipped GW experts will engage with pertinent challenges of the coming decades. Sustainability is also enhanced by closely linking GW resource studies to societal needs. A regional CoP will be fostered, building upon efforts previously undertaken by the project partners. This CoP will meet and share issues annually. The opportunities for regional cooperation are being greatly strengthened by the establishment of the ASEAN Economic Community, including the development of strategic action plans for water resource management in the region.

PART III: IMPLEMENTATION ARRANGEMENTS

Beneficiaries and stakeholders - NIEs

1. Government of Cambodia, Ministry of Water Resources and Meteorology and Ministry of Mines and Energy deal with GW issues in Cambodia.
2. Government of Lao PDR, Ministry of Natural Resources and Environment (MoNRE), The Natural Resources and Environment Institute (NREI) has an executive role in GW management.
3. Government of Myanmar, Ministry of Agriculture and Irrigation and within the Ministry of Water Resources Utilization Department (WRUD) has the role of implementing agency.
4. Government of Thailand, Ministry of Natural Resources and Environment; Within the Ministry the Department of Groundwater Resources has the responsibilities in planning, assessment, resource conservation, and regulations.
5. Government of Vietnam, Ministry of Natural Resources and Environment (MoNRE) as

the coordinating Ministry for water resources management, is implementing river basin water resources management plans on a national scale that include GW. The National Center for Water Resources Planning and Investigation (NAWAPI), has an executive role.

6. Universities and research institutions in the GMS contributing to capacity building on GW.

The collaboration will be supported by:
UNESCO: will provide all technical backstopping, facilitation with member States and processes with the Adaptation Fund.
Coordinating Committee for Geosciences Programmes (in East and Southeast Asia, CCOP): will provide technical expertise and support local coordination and implementation along with the national partners.
International Water Management Institute (IWMI): has been active in research aimed at facilitating opportunities for greater GW development for poverty alleviation and generally improving GW governance across SE Asia and more broadly. IWMI would be one of the implementing partners.
International Groundwater Resources Assessment Centre (IGRAC): is UNESCO's and WMO's GW expertise and resources centre that facilitates and promotes information and knowledge sharing required for sustainable development, management and governance of GW.

The project proposal preparation process and workshop are intended to assess the need/possibility to engage additional technical assistance partners (MRC, Ministries of Women's Development or similar), national partners for implementation on a local level, and essential stakeholder organisations.

Step-by-step implementation strategy

- Organise an executive project team consisting of national experts from the GMS countries, and experts from the supporting Technical Assistance partners (CCOP, IWMI, IGRAC). As MIE, UNESCO will convene a project Steering Committee.
- Develop a common view and understanding of the role that improved GW management shall play in strengthening climate resilience in multiple sectors; identify additional opportunities through transboundary collaboration; sharing information, expertise and collaborative policies for climate resilience.
- Resource assessment: common methodology to be adopted and approach to data collection/sharing; agree on protocols for sharing available data on transboundary aquifers.
- Compile various maps / information services and products available from countries/organisations and further demarcate the recharge and extraction zones and consider transboundary issues; identification of at least three suitable pilot areas.
- Identify data gaps and need for new data; collaborative monitoring approach, initiate base-level monitoring.
- Common approach for GW resources management information system, basic functions and operations, training expert users, dissemination to end-users in the five countries.
- In pilots: raise stakeholder and public awareness on GW vulnerability through development of tailored information for sectoral users and multi-media awareness for urban and rural populations.
- Engage stakeholders and develop specific vulnerability reduction measures and ensure that there is support and interest in the resilience potential of GW from government, donors, NGOs and the private sector.
- Build capacity of local GW management professionals, planners and policy makers in the pertinent national government organisations.

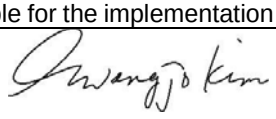
These activities collectively serve to create the environment needed to achieve positive change on the ground throughout the GMS by reducing vulnerability and increasing adaptive capacity to the impacts of climate change. Clear indicators to track and demonstrate outcomes will be developed at an early project stage, monitored and activities adjusted as needed by the Project Steering Committee, that would consist of representatives from national designated climate change entities and the government entities responsible for (ground)water policies.

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

A. Record of endorsement on behalf of the government:

Cambodia: Mr. Tin Ponlok, Secretary General, NCSD/Ministry of Environment	Date*: 10 November 2015*
Lao PDR: Mr. Syamphone Sengchandala Department of Disaster Management and Climate Change (DDMCC), Ministry of Natural Resources and Environment	Date*: 23 December 2015*
Myanmar: H.E U Win Tun, Union Minister, Ministry of Environmental Conservation and Forestry and Chairman National Environment Conservation Committee (NECC)	Date*: 16 December 2015*
Thailand: Mr. Kasemsun Chinnavaso, Permanent Secretary, Ministry of Natural Resources and Environment	Date*: 18 December 2015*
Viet Nam: Mr. Tran Hong Ha, Deputy Minister Ministry of Natural Resources and Environment	Date*: 12 November 2015*

B. Implementing Entity certification

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 (Lao PDR and Vietnam) 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.	
Name and Signature  Implementing Entity Coordinator: **GWANG-JO KIM** DIRECTOR UNESCO BANGKOK	
Date: **7 January 2016**	Tel. and email:+66-
Project Contact Person: **RAMASAMY JAYAKUMAR**	
Tel. and Email: +66-2-3910577 X 163 ; r.jayakumar@unesco.org	