



## ADAPTATION FUND

AFB/PPRC.21/35  
26 September 2017

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Adaptation Fund Board  
Project and Programme Review Committee  
Twenty-First Meeting  
Bonn, Germany, 10-11 October 2017

Agenda Item 7 h)

### **PROPOSAL FOR THAILAND AND VIETNAM**

## 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. In its twenty-seventh meeting the Board decided to:
- (a) Continue consideration of regional project and programme proposals under the pilot programme, while reminding the implementing entities that the amount set aside for the pilot programme is US\$ 30 million;*
  - (b) Request the secretariat to prepare for consideration by the Project and Programme Review Committee at its nineteenth meeting, a proposal for prioritization among*

*regional project/programme proposals, including for awarding project formulation grants, and for establishment of a pipeline; and*

- (c) *Consider the matter of the pilot programme for regional projects and programmes at its twenty-eighth meeting.*

*(Decision B.27/5)*

9. The proposal requested in (b) above was presented to the nineteenth meeting of the PPRC as document AFB/PPRC.19/5. The Board subsequently decided:

- a) *With regard to the pilot programme approved by decision B.25/28:*

- (i) *To prioritize the four projects and 10 project formulation grants as follows:*

1. *If the proposals recommended to be funded in a given meeting of the PPRC do not exceed the available slots under the pilot programme, all those proposals would be submitted to the Board for funding;*

2. *If the proposals recommended to be funded in a given meeting of the PPRC do exceed the available slots under the pilot programme, the proposals to be funded under the pilot programme would be prioritized so that the total number of projects and project formulation grants (PFGs) under the programme maximizes the total diversity of projects/PFGs. This would be done using a three-tier prioritization system: so that the proposals in relatively less funded sectors would be prioritized as the first level of prioritization. If there are more than one proposal in the same sector: the proposals in relatively less funded regions are prioritized as the second level of prioritization. If there are more than one proposal in the same region, the proposals submitted by relatively less represented implementing entity would be prioritized as the third level of prioritization;*

- (ii) *To request the secretariat to report on the progress and experiences of the pilot programme to the PPRC at its twenty-third meeting; and*

- b) *With regard to financing regional proposals beyond the pilot programme referred to above:*

(i) *To continue considering regional proposals for funding, within the two categories originally described in document AFB/B.25/6/Rev.2: ones requesting up to US\$ 14 million, and others requesting up to US\$ 5 million, subject to review of the regional programme;*

(ii) *To establish two pipelines for technically cleared regional proposals: one for proposals up to US\$ 14 million and the other for proposals up to US\$ 5 million, and place any technically cleared regional proposals, in those pipelines, in the order described in decision B.17/19 (their date of recommendation by the PPRC, their submission date, their lower “net” cost); and*

(iii) *To fund projects from the two pipelines, using funds available for the respective types of implementing entities, so that the maximum number of or maximum total funding for projects and project formulation grants to be approved*

*each fiscal year will be outlined at the time of approving the annual work plan of the Board.*

*(Decision B.28/1)*

10. 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.
11. The following project concept document titled “Enhancing Climate Resilience in the Greater Mekong Sub-region through Ecosystem-based Adaptation in the context of South-South cooperation” was submitted by the United Nations Environment Programme (UNEP), which is a Multilateral Implementing Entity of the Adaptation Fund.
12. This is the second submission of the regional project proposal. It was first submitted to the twenty-eighth Board meeting, but was withdrawn by the proponent following the initial review of the secretariat.
13. The current resubmission of the project concept was received by the secretariat in time to be considered in the thirtieth Board meeting. The secretariat carried out a technical review of the project proposal, with the diary number ASI/MIE/Water/2016/1, and completed a review sheet.
14. In accordance with a request to the secretariat made by the Board in its 10th meeting, the secretariat shared this review sheet with UNEP, and offered it the opportunity of providing responses before the review sheet was sent to the PPRC.
15. The secretariat is submitting to the PPRC the summary and the initial technical review of the project, both prepared by the secretariat, along with the submission of the proposal in the following section. In accordance with decision B.25.15, the proposal is also submitted with changes between the initial submission and the revised version highlighted.

## **Project Summary**

Thailand and Vietnam – Enhancing Climate Resilience in the Greater Mekong Sub-region through Ecosystem-based Adaptation in the context of South-South cooperation

Implementing Entity: UNEP

Project/Programme Execution Cost: US\$ 612,903

Total Project/Programme Cost: US\$ 6,451,612

Implementing Fee: US\$ 548,388

Financing Requested: US\$ 7,000,000

### Project Background and Context:

The natural ecosystems of the Greater Mekong Sub-region (GMS) are of critical importance to the ~75 million people living within the region who rely upon natural resource-based livelihoods. Of the region's natural systems, the Mekong River is arguably the most essential to supporting rural livelihoods and maintaining the functionality of associated ecosystems. As the Mekong flows from its origin at the Lasagongma Spring in China through the GMS countries and into the South China Sea, it delivers numerous ecosystem goods and services to some of South-East Asia's poorest people. Although cultural, historical, socio-economic, geographic and environmental disparities exist among the GMS countries, the Mekong River serves as a transboundary resource and support system shared by millions of people across the region. Despite their regional importance, the ecosystems of the GMS face a multitude of anthropogenic pressures that threaten their capacity to provide goods and services for local communities.

The overall objective of the project would be to reduce vulnerability to climate change impacts in the Greater Mekong Sub-region (GMS) by applying ecosystem-based adaptation (EbA) approaches to climate change and integrating EbA measures into national adaptation plans (NAPs), national policy frameworks and regional cooperation strategies through South-South cooperation.

Component 1: Demonstration of climate change adaptation interventions, with a focus on drought and flood management, in vulnerable communities and different ecosystems (US\$ 5,150,000)

Dependence on shared transboundary water resources can expose people from varied socioecological contexts to a common set of climate change threats. In the GMS, people from different contexts who rely on the ecosystems of the GMS to support their livelihoods are united in their shared exposure to the region's primary climate threats; droughts and floods and the transboundary nature of river basin management. However, the way these threats manifest to impact livelihoods differs according to the specific context of the affected communities, and therefore, a one-size-fits-all approach to climate change adaptation is unlikely to be effective. In such a scenario, context-specific adaptation measures are appropriate and could be used to demonstrate drought and flood adaptation strategies to people from similar socio-ecological contexts across the GMS. The first component of the proposed project will increase the resilience of people in two areas vulnerable to droughts and/or floods in the GMS through the implementation of concrete climate change adaptation interventions. Monitoring programmes will be established to collect information on the cost-effectiveness of adaptation interventions in different socio-ecological contexts, and guidance on monitoring and evaluation systems will be prepared.

Component 2: Regional knowledge base on climate change adaptation expanded in the GMS (US\$ 751,612)

This component of the proposed project will expand the regional knowledge base on concrete adaptation solutions in the GMS. There are numerous policies, plans, strategies and frameworks that provide theoretical information on climate change adaptation in the GMS. However, these documents provide limited information on effective concrete adaptation interventions – particularly EbA – and how they should be implemented to build climate resilience across the region. Where knowledge about on-the-ground implementation does exist, it is generally project-specific and shared mainly within the implementing country. This deficiency of adaptation information, as well as inadequate knowledge sharing among GMS countries, impedes regional cooperation on transboundary water and river basin management and limits adaptation to shared climate impacts.

Component 3: Political cooperation on climate change adaptation (US\$ 550,000)

This component will focus on strengthening regional cooperation on climate change adaptation by sharing knowledge on the implementation of climate change adaptation interventions in response to climate change risks common to all the GMS countries. This will promote the harmonisation of regional and national plans through the inclusion of similar, best-practice climate change adaptation interventions.



## ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

ADAPTATION FUND

PROJECT/PROGRAMME CATEGORY: Regional Project Concept

Countries/Region: **Thailand and Viet Nam**  
 Project Title: **Enhancing Climate Resilience in the Greater Mekong Sub-region through Ecosystem-based Adaptation in the context of South-South cooperation**  
 Thematic Focal Area: **Transboundary water management** Executing Entities: **National Development and Reform Commission (NDRC) of China, supported by UNEP International Ecosystem Management Partnership (UNEP-IEMP), national partners**  
 Implementing Entity: **UNEP**  
 AF Project ID: **ASI/MIE/Water/2016/1**  
 IE Project ID: Requested Financing from Adaptation Fund (US Dollars): **\$7,000,000**  
 Reviewer and contact person: **Rawleston Moore Troni** Co-reviewer(s): **Daouda Ndiaye** IE Contact Person: **Jessica**

Review Criteria	Questions	Comments on 28 August 2017	Comments on 16 September 2017
Country Eligibility	1. Are all of the participating countries party to the Kyoto Protocol?	Yes.	
	2. Are all of the participating countries developing countries particularly vulnerable to the adverse effects of climate change?	Yes.	
Project Eligibility	1. Has the designated government authority for the Adaptation Fund endorsed the project/programme?	The designated authorities for Thailand (dated 1 August 2017) and Viet Nam (dated 26 July 2017) have issued an endorsement letter. The DNA for China on the AF website is Ms. Ding Ding, Director, Division of International Cooperation	<b>CAR 1:</b> Addressed. Although China is not among the countries requesting funding, the project will link up project



		<p>Department of Climate Change. The letter submitted from China Kuming Institute of Botany, Chinese Academy Sciences. Please submit the correct letter.</p> <p><b>CAR1:</b> Please submit the endorsement letter from the Designated Authority for China.</p>	<p>results together with the results of parallel adaptation investments in the Mekong Basin to dialogue within political cooperation mechanisms in the region, including the newly established Lancang Mekong. This is expected to strengthen cooperation on transboundary adaptation throughout the upper, middle and lower reaches of the Mekong basin.</p>
	<p>2. Does the regional project / programme support concrete adaptation actions to assist the participating countries in addressing the adverse effects of climate change and build in climate resilience, and do so providing added value through the regional approach, compared to implementing similar activities in each country individually?</p>	<p>The proposal has several merits, and if approved the project would help open a new type of regional cooperation involving countries both from the upper and lower reaches of the Greater Mekong Subregion (GMS) and making use of South-South cooperation opportunities. The proposal is also written clearly. The regional rationale is quite clear due to the fact that the project would tackle a major transboundary water body. However, it is not clear whether there would be regional activities per se that would address transboundary issues directly.</p>	

	<p>3. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations, while avoiding or mitigating negative impacts, in compliance with the Environmental and Social Policy of the Fund?</p>	<p>Yes.</p>	
	<p>4. Is the project / programme costeffective and does the regional approach support costeffectiveness?</p>	<p>Yes. However, while the proposal has been revised extensively from its previous version, the cost of the project has increased from US\$5.5 million to US\$7million. Please explain and justify the increase in the overall budget request, as there seems to be some overlap with components 2 and 3 in terms of the development of knowledge and its presentation. For example, output 2.3 and 3.2 seem a little duplicative and could be rationalized. Can an initial estimate be provided on the co-finance to be provided by CAS? <b>CR1</b></p> <p>Also, the budget under component 3 seems too high for the projected activities. Please consider reducing it or provide justification of such high costs. <b>CR2</b></p> <p>Lastly, to better assess the project's cost effectiveness, please provide output-based budget under the Project/Programme Components and Financing table. <b>CR3</b></p>	<p><b>CR1, CR2:</b> Addressed. China has been removed from the project as a participant, and there has been a rationalization of components 2 and 3, along with a satisfactory explanation of the increase in the budget. Most of the resources in the project are going to on the ground adaptation investments</p> <p><b>CR3</b> Addressed. An output based budget has been provided.</p>

	<p>5. Is the project / programme consistent with national or subnational sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments? If applicable, it is also possible to refer to regional plans and strategies where they exist.</p>	<p>Yes.</p>	
	<p>6. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund?</p>	<p>Yes. However, the fully-developed proposal should explain how the development of proposed activities in China, although some are co-financed by the Chinese Academy of Science, are in line with relevant technical standards in China.</p>	
	<p>7. Is there duplication of project / programme with other funding sources?</p>	<p>No.</p>	

	8. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	Yes.	
	9. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations?	Yes.	
	10. Is the requested financing justified on the basis of full cost of adaptation reasoning?	Yes.	
	11. Is the project / program aligned with AF's results framework?	Yes, broadly.	
	12. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	Yes.	

		<p>Contrary to the statement on p.21 that the three locations are united by the common climate change threats of floods and droughts, all three face very specific climate change impacts that do not occur in the other locations (e.g. saltwater intrusion in the Mekong delta). These specific conditions need to be taken into account in ESP risk identification and any subsequent management measures. <b>CR5</b></p> <p>Output 1.2. may include activities (e.g. floodplain and wetland development) that are incompatible with national and international protection status (e.g. Tram Chin is a Ramsar site). Compatibility and integration with specific protection and conservation regulations needs to be specifically demonstrated wherever this applies. <b>CR6</b></p> <p>Also, the project presents adaptation interventions that could be considered as unidentified sub-projects (USPs). These are worded in generic terms. There is currently no information to justify the USP approach, nor to appreciate the capacity to implement effectively a performant Environmental and Social Management Plan (ESMP) at the fully-developed project document stage. Prior to submission of the fully-developed project document, all activities should be identified to a point where ESP risks can be effectively and comprehensively identified.</p>	<p><b>CR5:</b> Sufficiently addressed at the concept stage</p> <p><b>CR6:</b> Sufficiently addressed at the concept stage</p>
	<p>14. Does the project promote new and innovative solutions to climate change adaptation, such as new approaches,</p>	<p>Yes. The approach towards Ecosystem-based Adaptation, the focus on the regional level, including Upper Reaches of GMS, and the South-South cooperation aspect are innovative.</p>	

	technologies and mechanisms?		
Resource Availability	1. Is the requested project / programme funding within the funding windows of the pilot programme for regional projects/programmes?	Yes. The funding request of US\$7,000,000 is within the large funding window of up to US\$ 14,000,000.	
	2. 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	3. Is the project/programme submitted through an eligible Multilateral or Regional Implementing Entity that has been accredited by the Board?	Yes.	

Implementation Arrangements	1. Is there adequate arrangement for project / programme management at the regional and national level, including coordination arrangements within countries and among them? Has the potential to partner with national institutions, and when possible, national implementing entities (NIEs), been considered, and included in the management arrangements?	n/a (Not applicable at the concept stage).	
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	2. Are there measures for financial and project/programme risk management?	n/a (Not applicable at the concept stage).	
	3. Are there measures in place for the management of environmental and social risks, in line with the Environmental and Social Policy of the Fund? Proponents are encouraged to refer to the Guidance document for Implementing Entities on compliance with the Adaptation Fund Environmental and Social Policy, for details.	n/a (Not applicable at the concept stage).	
	4. Is a budget on the Implementing Entity	n/a (Not applicable at the concept stage).	



	Management Fee use included?		
	5. Is an explanation and a breakdown of the execution costs included?	n/a (Not applicable at the concept stage).	
	6. Is a detailed budget including budget notes included?	n/a (Not applicable at the concept stage).	
	7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators?	n/a (Not applicable at the concept stage).	
	8. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function?	n/a (Not applicable at the concept stage).	
	9. Does the project/programme's results framework align with the AF's results framework? Does it include at least one core outcome indicator from the Fund's results framework?	n/a (Not applicable at the concept stage).	

	10. Is a disbursement schedule with timebound milestones included?	n/a (Not applicable at the concept stage).	
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<p><b>Technical Summary</b></p>	<p>The overall objective of the project would be to reduce vulnerability to climate change impacts in the Greater Mekong Sub-region (GMS) by applying ecosystem-based adaptation (EbA) approaches to climate change and integrating EbA measures into national adaptation plans (NAPs), national policy frameworks and regional cooperation strategies through South-South cooperation.</p> <p>This project expects three project outcomes that would serve to achieve this goal:</p> <ol style="list-style-type: none"> <li>1. Enhanced knowledge on risk and vulnerability as well as cost-effectiveness of EbA approaches and availability of feasible EbA technologies in the GMS;</li> <li>2. Increased climate change resilience of vulnerable communities and ecosystems in the GMS through demonstration of the EbA approaches;</li> <li>3. Improved enabling conditions on policy and capacity support for EbA actions in the GMS via South-South Cooperation and upstream and downstream dialogue.</li> </ol> <p>The initial technical review found that although the proposal had several merits and represented an interesting opportunity for regional collaboration in an important transboundary watershed, a few issues remained to be addressed. A few clarification requests and corrective action request were made.</p> <p>The final technical review finds that the updates which have been presented provide sufficient clarification of the outstanding issues. An output based budget has been provided, as well as a rationalization of the project activities.</p>
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Date:	<b>16 September 2017</b>
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ADAPTATION FUND

## REGIONAL PROJECT/PROGRAMME PROPOSAL

### PART I: PROJECT/PROGRAMME INFORMATION

<b>Title of Project/Programme:</b>	Mekong EbA South: Enhancing Climate Resilience in the Greater Mekong Sub-region through Ecosystembased Adaptation in the Context of South-South Cooperation
<b>Countries:</b>	<b>Thailand and Vietnam</b>
<b>Thematic Focal Area:</b>	Transboundary water management
<b>Type of Implementing Entity:</b>	Multilateral Implementing Entity
<b>Implementing Entity:</b>	United Nations Environment Programme (UN Environment)
<b>Executing Entities:</b>	UN Environment-International Ecosystem Management Partnership (UNEP-IEMP) <sup>1</sup> . Ministry of Natural Resources and Environment of Thailand. Ministry of Natural Resources and Environment of Vietnam.
<b>Amount of Financing Requested:</b>	<b>US\$ 7,000,000</b>

#### **Project Background and Context:**

*Provide brief information on the problem the proposed project/programme is aiming to solve, including both the regional and the country perspective. Outline the economic social, development and environmental context in which the project would operate in those countries.*

#### **Project Overview**

The natural ecosystems of the Greater Mekong Sub-region (GMS)<sup>2</sup> are of critical importance to the ~75 million people living within the region who rely upon natural resource-based livelihoods. Of the region's natural systems, the Mekong River<sup>3,4</sup> is arguably the most essential to supporting

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<sup>1</sup> UNEP-IEMP is a collaborating centre of UNEP and is hosted by the Institute of Geographic Sciences and Natural Resources Research (IGSNRR) in the Chinese Academy of Sciences. IGSNRR is a multidisciplinary research institute under the Chinese Academy of Sciences. The research conducted by the institute focusses on, amongst other topics, global change, water resources, ecosystem network observation and modelling, natural resources, human geography and regional development. IGSNRR is active in international and domestic cooperation, and has established cooperative arrangements with academic institutions in more than 50 countries, including Thailand and Vietnam.

<sup>2</sup> – consisting of the Yunnan Province and Guangxi Autonomous Region of China, Myanmar, Lao PDR, Thailand, Cambodia and Vietnam –

<sup>3</sup> , known as the Lancang river in China,

<sup>4</sup> and its tributaries

rural livelihoods and maintaining the functionality of associated ecosystems<sup>5</sup>. As the Mekong flows from its origin at the Lasagongma Spring in China through the GMS countries and into the South China Sea, it delivers numerous ecosystem goods and services<sup>6</sup> to some of South-East Asia's poorest people<sup>7</sup>. Although cultural, historical, socio-economic, geographic and environmental disparities exist among the GMS countries, the Mekong River serves as a transboundary resource and support system shared by millions of people across the region.

Despite their regional importance, the ecosystems of the GMS face a multitude of anthropogenic pressures that threaten their capacity to provide goods and services for local communities. For example, damming for hydropower generation and the extraction of water to irrigate ~10 million hectares<sup>7</sup> of rice paddies has led to substantial changes in the flow and ecosystem dynamics of the Mekong River and its tributaries<sup>8</sup>. Subsequently, sediment and nutrient transfer have been impeded, and the production of one of the world's largest and most diverse inland fisheries has decreased<sup>10</sup>. Additionally, the GMS has undergone extensive deforestation in past decades, which has reduced the supply of important ecosystem goods and services to poor communities. From 1973–2009, the GMS<sup>9</sup> lost approximately 33% of its forest cover, mainly because of extensive unsustainable logging and agricultural conversion<sup>10</sup>. Given anticipated increases in the demand for electricity, land and water in Asia, as well as the complexities associated with managing transboundary water resources, ecosystem degradation is expected to continue across the GMS into the future<sup>11</sup> to the detriment of the region's people.

The above-mentioned baseline problems in the GMS are exacerbated by a climate that has undergone considerable change in recent decades and is expected to continue changing throughout the 21<sup>st</sup> century. Since the 1960s, the mean annual temperature of South-East Asia has risen by ~0.14–0.20°C per decade<sup>12</sup> and rainfall patterns have become increasingly erratic. These changes in climate have been associated with an increased intensity and incidence of both floods and droughts<sup>13</sup>, leading to impacts on local communities such as: i) insufficient water for livelihoods activities; ii) reduced agricultural productivity; iii) soil erosion and landslides; iv) saltwater intrusion into agricultural lands; and v) the destruction of property and the loss of life. As temperature and rainfall patterns in South-East Asia continue to change in the future<sup>14</sup>, the livelihoods of people in the region will come under enhanced stress. Although the effects of climate change may differ spatially and temporally across the GMS, it is likely that communities reliant on ecosystems for their livelihoods will experience similar challenges in adapting to climate change.

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<sup>5</sup> like forests and mangroves

<sup>6</sup> including *inter alia*: i) food and nutrition; ii) fibre; iii) biomass; iv) medicines; v) fresh water; vi) regulation of air and water quality; vii) nutrient cycling; viii) regulation of natural hazards; and ix) recreation and tourism <sup>7</sup> Approximately 20% of the 326 million people in the GMS live below the poverty line.

<sup>7</sup> According to the Mekong River Commission.

<sup>8</sup> Dugan, P., Barlow, C., Agostinho, A., Baran, E., Cada, G., Chen, D., Cowx, I., Ferguson, J., Jutagate, T., MallenCooper, M., Marmulla, G., Nestler, J., Petrere, M., Welcomme, R., and Winemiller, K. (2010). Fish Migration, Dams, and Loss of Ecosystem Services in the Mekong Basin. *AMBIO: A Journal of the Human Environment* 39:344-348. <sup>10</sup> Dugan, P., Barlow, C., Agostinho, A., Baran, E., Cada, G., Chen, D., Cowx, I., Ferguson, J., Jutagate, T., MallenCooper, M., Marmulla, G., Nestler, J., Petrere, M., Welcomme, R., and Winemiller, K. (2010). Fish Migration, Dams, and Loss of Ecosystem Services in the Mekong Basin. *AMBIO: A Journal of the Human Environment* 39:344-348.

<sup>9</sup> excluding China

<sup>10</sup> WWF – 2013 – Ecosystems in the Greater Mekong: Past trends, current status, possible futures.

<sup>11</sup> WWF – 2013 – Ecosystems in the Greater Mekong: Past trends, current status, possible futures.

<sup>12</sup> WGI AR5 Chapter 2 / WGI AR5 Section 14.8.12/ WGI AR5 Section 2.6.1.

<sup>13</sup> China National Climate Centre – Beijing - 2015 – unpublished data.

<sup>14</sup> IPCC. 2007. *Climate Change 2007. Impacts, Adaptation and Vulnerability*. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge: Cambridge University Press.

Without appropriate adaptation interventions, it is likely that a large proportion of the GMS's population will remain extremely vulnerable to the interacting effects of climate change and ecosystem degradation. National<sup>15</sup> and regional<sup>16</sup> institutions in the GMS are aware of this threat. Accordingly, several regional and national adaptation plans and frameworks have been developed or are under development. The *Mekong Adaptation Strategy and Action Plan* (MASAP) is a regional climate change adaptation plan being developed by the Mekong River Commission (MRC) and due for completion in 2017– one of the primary transboundary water management institutions in the region – for the region of the GMS covering Cambodia, Lao PDR, Thailand, Vietnam. Additionally, the Lancang-Mekong Cooperation (LMC) mechanism – a relatively new, China-based transboundary water management body in the GMS – is developing the *Lancang-Mekong Environmental Cooperation Strategic Framework* which will include a focus on climate change adaptation and ecosystem management across the GMS. At a national level, most GMS countries have existing climate change adaptation plans and strategies<sup>17</sup> and/or are in the process of developing National Adaptation Plans (NAPs)<sup>18</sup>. It is, therefore, apparent that the countries of the GMS are committed to enhancing the climate resilience of their people.

The implementation of regional and national adaptation plans, frameworks and strategies is, however, insufficient. There are few examples of on-the-ground adaptation interventions – particularly ecosystem-based adaptation (EbA) – in the GMS. Subsequently, many people in the region remain vulnerable to the effects of climate change and environmental degradation. Additionally, where concrete implementation does exist, there is inadequate dissemination of knowledge and lessons-learned. This limited knowledge on how to implement climate change adaptation interventions, particularly EbA, and thereby put policies and plans into practice is a significant barrier to the further effective development and implementation of regional and national adaptation plans. Given the transboundary nature of many GMS natural ecosystems, as well as the common threat that climate change poses to a diverse group of people across the region, there is a need and opportunity for South-South cooperation among the countries of the GMS to share knowledge and technologies for adapting to climate change.

The **proposed AF project** will implement innovative, on-the-ground adaptation technologies and share implementation lessons across the GMS. Adaptation technologies will be demonstrated in the middle (in the Young Basin in Thailand) and lower (surrounding Tram Chim National Park in Vietnam) reaches of the Mekong River basin to build climate resilience and generate adaptation knowledge from diverse environmental and socio-economic contexts.

These adaptation technologies will complement existing or planned interventions taking place in the upper reaches (China and Myanmar) as well as ongoing LDCF<sup>19</sup> and AF projects in Cambodia and Lao PDR. The proposed project will increase the resilience of beneficiary communities to the effects of droughts and floods by implementing a suite of adaptation interventions<sup>20</sup> – with a focus on EbA – including *inter alia*: i) living check-dams; ii) integrated home gardening; iii) agroforestry; iv) forest regeneration; v) water distribution canals; vi)

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<sup>15</sup> For example, government institutions such as the Ministry of Natural Resources and Environment in Vietnam, and the Office of Natural Resources and Environmental Policy and Planning in Thailand

<sup>16</sup> such as the Lancang-Mekong Cooperation Mechanism, the Mekong River Commission and the Asian Development Bank Greater Mekong Sub-region

<sup>17</sup> For example, Vietnam has a National Climate Change Strategy and Mekong Delta Master Plan, and China has a National Adaptation Strategy.

<sup>18</sup> Thailand's NAP will be completed by the end of 2017.

<sup>19</sup> Least Developed Countries Fund

<sup>20</sup> Guided by regional and national adaptation and development plans.

NTFP-based and additional livelihood options; vii) climate-resilient crop varieties; and viii) natural resource-based community cooperatives. Additionally, knowledge-sharing and awareness-raising in local communities surrounding project beneficiaries will be accomplished through *inter alia*: i) knowledge-sharing days; ii) local field visits; iii) the dissemination of awareness-raising and training materials; iv) climate change centres at local schools<sup>21</sup>; v) grassroots adaptation sharing events; and vi) regional exchange visits. Comprehensive monitoring and evaluation, as well as small-scale research projects, will be conducted with local institutions to generate knowledge products<sup>24</sup> on context-specific lessons learned.

The knowledge generated at the country level will be shared regionally on ways to combat drought and flood risk—specifically EbA—across the GMS in the different ecosystems of the GMS. Scaling up such measures at a Basin scale could reduce the impacts of climate change in the given country and downstream in the Mekong River Basin. Discussions on a scaling up adaptation strategy will be promoted under Component 3 linking the project experience with the available scientific information on climate change risks and the political processes in the GMS. An assessment will be undertaken to inform future decisions on the cost-effectiveness of EbA in the GMS under different socioeconomic and environmental conditions. Additionally, relevant knowledge to EbA in the GMS will be collated to produce policy briefs to inform the development and implementation of future adaptation projects and strategies across the region. These knowledge products, as well as the results of monitoring and evaluation at implementation sites, will be made widely available through existing online information platforms related to the GMS and climate change adaptation<sup>22</sup>. Knowledge-sharing and project coordination across the GMS—including China, Cambodia, Lao PDR and Myanmar—will be achieved through participation in regional climate change adaptation forums. The knowledge gained through the proposed project will be used to strengthen regional coordination on climate change adaptation, and will be incorporated into future versions of regional and national adaptation plans across the GMS<sup>23</sup> through: i) continuous sharing of information to national and regional stakeholders; ii) participation in adaptation planning and policy workshops; and iii) the provision of policy briefs and papers.

The UN Environment-International Ecosystem Management Partnership (UNEP-IEMP) in Beijing, hosted by the Institute of Geographic Sciences and Natural Resources Research (IGSNRR) under the Chinese Academy of Sciences (CAS) will execute the knowledge-sharing and regional coordination aspects of the project. Coordinating the project from Beijing will provide strategic advantages to: i) facilitate the South-South exchange of knowledge between CAS and other GMS countries, particularly lessons learned from the Chinese Ecosystem Research Network<sup>24</sup>; and ii) strengthen engagement with the Lancang-Mekong Cooperation (LMC)<sup>28</sup> mechanism, also hosted in Beijing, and thereby promote regional coordination on climate change adaptation. Indeed, the China-ASEAN Environmental Cooperation Center (CAEC), which hosts the Lancang-Mekong

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<sup>21</sup> Such as the Som Sa Ard School in Kuchinarai District, Kalasin Province, Thailand (please see Section 5.) <sup>24</sup>

E.g. EbA implementation guidelines.

<sup>22</sup> Including platforms operated by: i) the MRC; ii) ADB-GMS; iii) Lancang-Mekong Cooperation Mechanism; and iv) other regional projects, such as EbA South.

<sup>23</sup> Such as the MASAP and NAPs.

<sup>24</sup> This includes EbA interventions in Nabanhe National Nature Reserve in the Yunnan Province of southwest China <sup>28</sup> Lancang-Mekong Cooperation (LMC) mechanism, initiated by China and officially launched in March 2016, is a sub-regional cooperation between China and the other five Mekong nations of Cambodia, Lao PDR, Myanmar, Thailand and Vietnam. The LMC has three pillars-- political and security issues; economic affairs and sustainable development; and social affairs and people-to-people exchanges. See more details in Section G.

Environmental Cooperation Center, has expressed their willingness to work with the proposed project and collaborate with the other GMS countries (see Annex IV). Engagement with Chinese institutions is a highlight of the proposed project. For decades, the robust cooperation on transboundary resources management in the region has been limited to the middle and lower Mekong countries (Cambodia, Lao PDR, Thailand and Vietnam), through institutions such as the Mekong River Commission. Engagement with Chinese institutions in this proposed project will, therefore, facilitate engagement between upstream- and downstream countries that will enhance regional cooperation on climate change adaptation and promote South-South knowledge exchange.

UN Environment's role will be Implementing Entity for the project. UNEP has implemented over 50 projects on climate change adaptation at global, regional and national levels. These projects develop innovative solutions for national governments and local communities to adapt to the predicted effects of climate change in an environmentally sound manner. This is achieved by: i) providing methods and tools to support decision making; ii) addressing barriers to implementation; iii) testing and demonstrating proposed solutions; and iv) enhancing climate resilience by restoring valuable ecosystems that are vulnerable to climate change. Investments into ecosystems, flood and coastal protection, water catchment and storage, and alternative livelihoods are aimed at helping people buffer extremes of droughts and floods, sea level rise and to adapt to projected climate change. The agency will draw upon this accumulated body of experience during the implementation of this AF project.

UN Environment's mission is to provide leadership and foster partnership in caring for the environment by inspiring, informing, and enabling nations and people to improve their quality of life without compromising that of future generations. UN Environment catalyzes and implements an environmental agenda integrated strategically with the goals of economic development and social wellbeing – in other words, an agenda for sustainable development. UN Environment is mandated to address climate change, as the first priority area of its 2018-2021 Medium Term Strategy (MTS). The MTS commits UN Environment to support vulnerable countries in transitioning from urgent and immediate adaptation responses to medium- and long-term national adaptation plans that integrate ecosystem-based approaches to adaptation. It also commits UN Environment to support scaling up, expanding and collecting more evidence on successful ecosystem-based adaptation that has taken into account gender-differentiations.

UNEP's Flagship Programme, Ecosystem-based Adaptation (EbA), represents a groundbreaking shift in focus in the realm of climate change adaptation. In 2011, this programme was commended at the 17th meeting of the Conference of the Parties to the UNFCCC (CoP17). It has also been endorsed by IUCN, the EC and GEF through the Operational Guidelines on "Ecosystem-Based Approaches to Adaptation" GEF/LDCF.SCCF.13/Inf.06 October 16, 2012. The EbA approach is multidisciplinary in nature. It involves managing ecosystems to enhance their resilience. In addition, it uses ecosystem services to promote climate change adaptation and disaster risk management. Furthermore, it provides a platform for engaging a broad range of stakeholders and sectors in the adaptation process. The adaptation interventions proposed in this AF project are well within the scope of UNEP's current work on climate change.

The LDCF project is consistent with UNEP's other work in the water sector. This work is mandated by the UNEP Governing Council and is based on the UNEP Water Policy and Strategy. It also builds on the achievements of the Environmentally-sound Management of Inland Waters Programme (EMINWA) and other programmes falling under the scope of Integrated Water Resources Management (IWRM). The majority of the infrastructure and restoration interventions

will be linked to and benefit from the Green Economy paradigm led by UNEP. The project will also benefit from ongoing work within UNEP towards analysing and documenting the ecological foundation of food security.

In Asia Pacific, UNEP operates through its Regional Office for Asia and the Pacific (ROAP) and works in 41 countries in the region. Close proximity to UNEP's Bangkok regional office and regular communication with the national implementing partners will enhance effective project delivery.



## Background context Geographical context

The Greater Mekong Sub-region (GMS) covers portions of southwest China – specifically the Yunnan and Guangxi provinces – and five countries of Southeast Asia, namely Cambodia, Lao PDR, Myanmar, Thailand and Vietnam (Figures 1 and 2). From its source in southwest China, the Mekong River flows south for ~4,800 km, dropping ~4,500 m to the Mekong Delta in Vietnam. With a mean annual discharge of 475 cubic kilometres, the Mekong ranks tenth among the world's rivers based on mean annual flow at the mouth<sup>29</sup> and drains a total catchment area of 795,000 km<sup>2</sup> into the South China Sea (Table 1). The GMS can be divided into two parts: i) the 'Upper Mekong Basin' in China – where the river is called Lancang Jiang – and Myanmar; and ii) the 'Lower Mekong Basin' from the border between Myanmar and Lao PDR to the South China Sea.

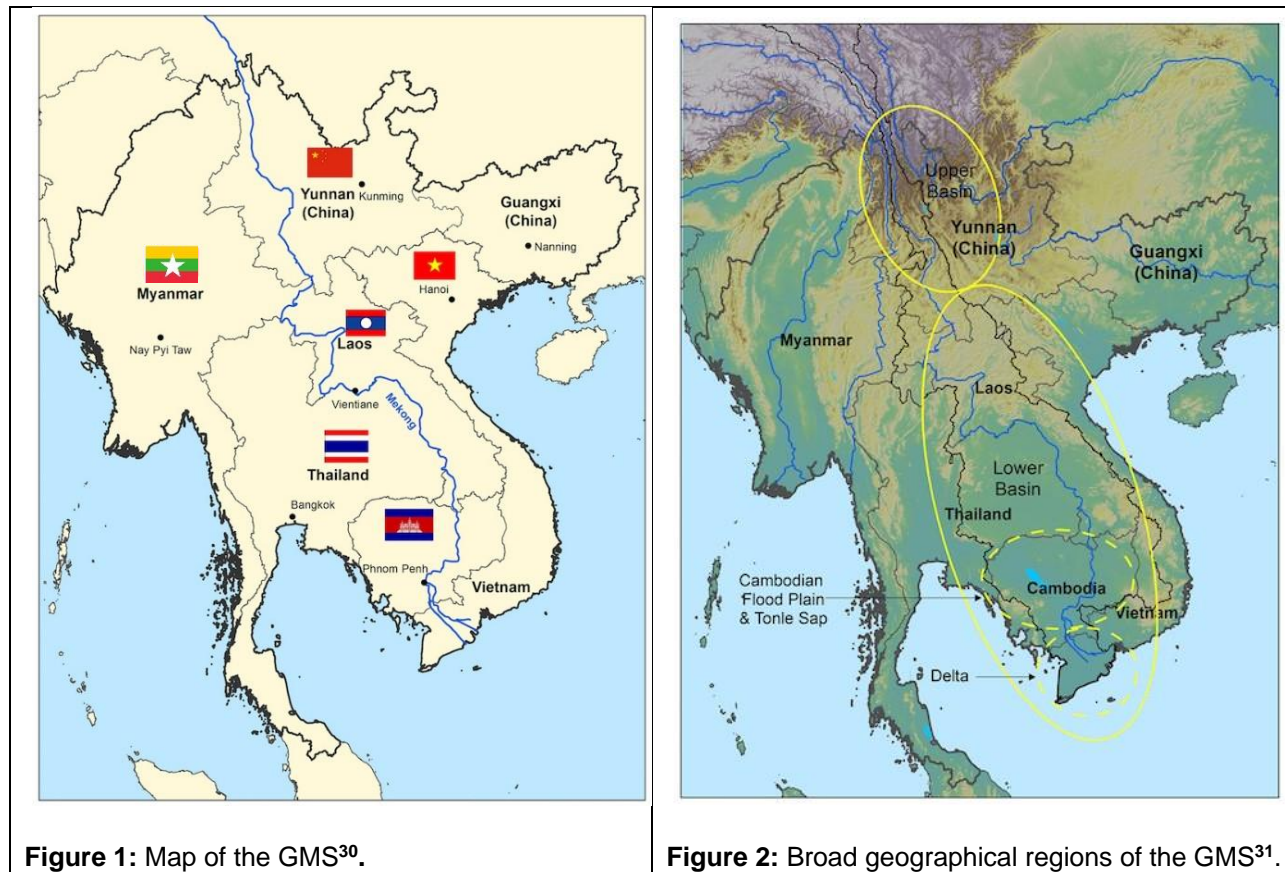


Figure 1: Map of the GMS<sup>30</sup>.

Figure 2: Broad geographical regions of the GMS<sup>31</sup>.

The Upper Basin makes up 24% of the total catchment area and contributes 15 – 20% of the water that flows into the Mekong River. The catchment in this region is steep and narrow,

<sup>29</sup> Mekong River Commission. 2005. Overview of the Hydrology of the Mekong Basin. Mekong River Commission, Vientiane. Available at: <http://www.mekonginfo.org/assets/midocs/0001968-inland-waters-overview-of-the-hydrologyof-the-mekong-basin.pdf>

<sup>30</sup> Source: [http://www.gms-eoc.org/uploads/map/archives/lores/GMS-Topography\\_28\\_Lo-Res\\_28.jpg](http://www.gms-eoc.org/uploads/map/archives/lores/GMS-Topography_28_Lo-Res_28.jpg)

<sup>31</sup> Mekong River Commission. 2005. Overview of the Hydrology of the Mekong Basin. Mekong River Commission, Vientiane. Available at: <http://www.mekonginfo.org/assets/midocs/0001968-inland-waters-overview-of-the-hydrologyof-the-mekong-basin.pdf>

resulting in extensive soil erosion. Consequently, the Upper Basin is responsible for ~50% of the sediment that enters the river<sup>25</sup>. As the river flows into the subtropical Simao and Xishuangbanna Prefectures of Yunnan, China, the topography changes, opening out into wider floodplains and the flow rate of the river decreases. From this point, the Lower Basin continues southwards, fed by several tributaries. These tributaries are separated into two groups, specifically: i) tributaries that drain the high rainfall regions of Lao PDR, contributing to major wet season flow; and ii) tributaries that drain the low relief regions of northeast Thailand. The final stretch of the river through Cambodia and Vietnam is relatively flat and water levels rather than flow volumes determine the movement of water across the landscape. Phnom Penh marks the beginning of the delta system of the Mekong River. In the delta, the mainstream of the river breaks up into multiple branches that eventually flow into the South China Sea. Agriculture in the delta is well developed and the population density is the highest found anywhere within the GMS.

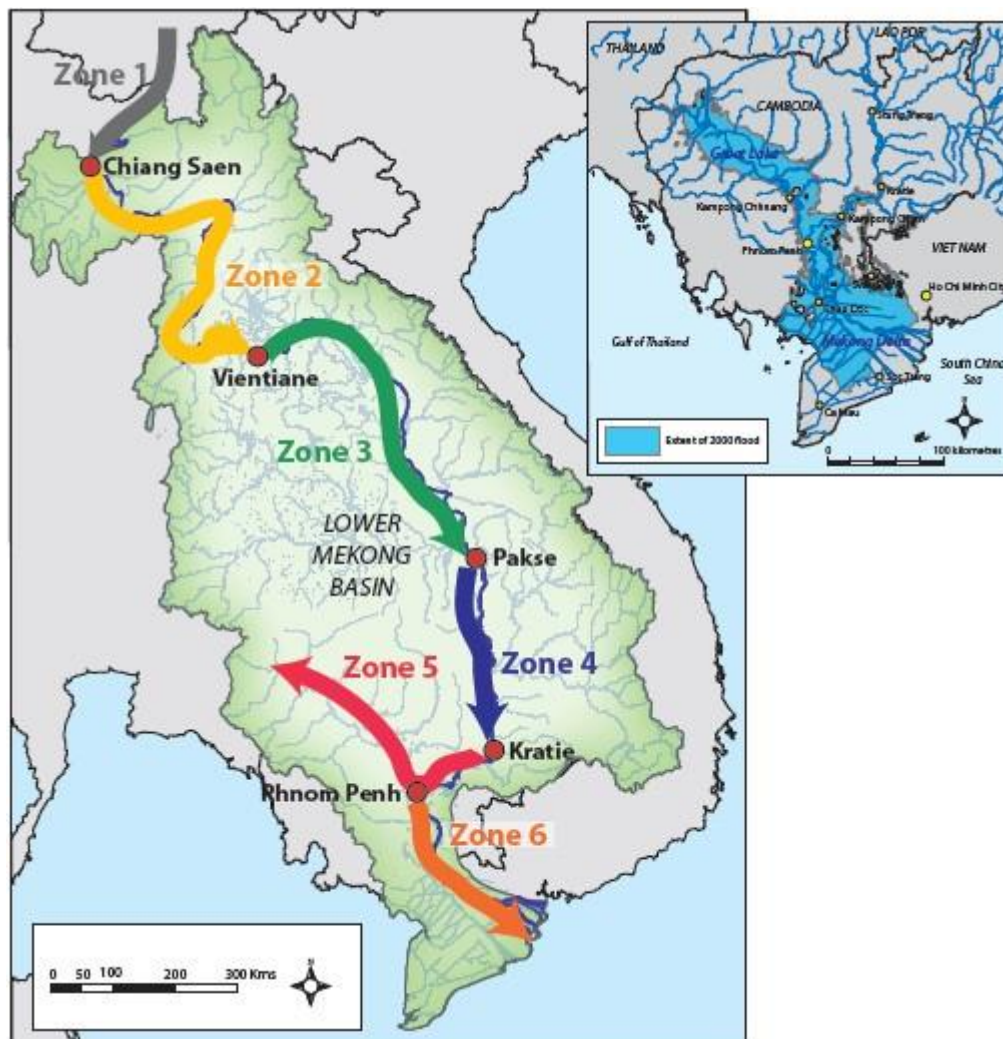
**Table 1:** Area of the Greater Mekong Sub-region countries, and their contribution within the Mekong River Basin Catchment<sup>26</sup>.

	Cambodia	China	Lao PDR	Myanmar	Thailand	Vietnam	Total
<b>Area (km<sup>2</sup>)</b>	181,354	619,501	229,878	669,252	514,055	328,385	2,542,425
<b>% of GMS Total Area</b>	7	24	9	26	20	13	100
<b>Catchment as a % of GMRB</b>	20	21	25	3	23	8	100
<b>Flow as % of GMRB</b>	18	16	35	2	18	11	100

The GMS is characterised by highly variable climatic and topographical features, dividing it into six smaller sub-catchments classified as hydro-geographic zones (Figure 3) based on the hydrology, physiography, land use and vegetation in each zone. The diversity of landscapes is largely attributed to the monsoon climate, a complex biophysical environment with an elevational gradient >5,500 meters and a long history of human interventions. This has led to the establishment of a highly diverse and heterogeneous patchwork of ecosystems and landuse mosaics, including: i) high-elevation pastures; ii) temperate and tropical forests; iii) rubber and oil palm plantations; iv) home gardens; v) diverse croplands; vi) mixed farming wetlands; vii) lakes; and viii) mangroves. Such diverse ecosystems, across a range of elevations, provide ecosystem goods and services to support the livelihoods of more than 75 million people.

<sup>25</sup> Mekong River Commission. 2005. Overview of the Hydrology of the Mekong Basin. Mekong River Commission, Vientiane. Available at: <http://www.mekonginfo.org/assets/midocs/0001968-inland-waters-overview-of-the-hydrology-ofthe-mekong-basin.pdf>

<sup>26</sup> Mekong River Commission. 2005. Overview of the Hydrology of the Mekong Basin. Mekong River Commission, Vientiane. Available at: <http://www.mekonginfo.org/assets/midocs/0001968-inland-waters-overview-of-the-hydrology-ofthe-mekong-basin.pdf>



27. Figure

3: Major hydrogeographic zones of the Mekong River in the Lower Mekong Basin

### Socio-economic context

Some of Asia's poorest countries are located within the GMS, but the region has experienced rapid growth and development over the last few decades. The various national economies of the sub-region have been growing at fast rates, although there is substantial variation between countries and sectors. Rising living standards, together with rapid population growth, are creating new transboundary challenges to the sub-region in terms of water and river basin management, livelihood options and regional/sub-national migration flows. There are currently major initiatives being implemented and planned throughout the GMS to promote further regional economic growth and employment. Such initiatives include the development of more roads, railways, dams (mainly for hydropower) and other infrastructure, particularly in areas previously dominated by natural resource- and agriculture-based livelihoods<sup>28</sup>.

<sup>27</sup> Mekong River Commission. 2005. Overview of the Hydrology of the Mekong Basin. Mekong River Commission, Vientiane. Available at: <http://www.mekonginfo.org/assets/midocs/0001968-inland-waters-overview-of-the-hydrologyof-the-mekong-basin.pdf>

<sup>28</sup> Source: [http://d2ouvy59p0dg6k.cloudfront.net/downloads/greater\\_mekong\\_ecosystems\\_report\\_020513.pdf](http://d2ouvy59p0dg6k.cloudfront.net/downloads/greater_mekong_ecosystems_report_020513.pdf)

Most of the GMS's rural population are dependent on subsistence agriculture for food and income generation. However, the agricultural sector in the sub-region is shifting from one that is traditionally subsistence-based to one that is more commercialised. Although such commercialisation is progressing at varying rates between the different countries of the GMS, the process is generally one of specialisation, intensification and increased agrochemical use because of mechanisation. As a result of commercialization, agricultural production has steadily increased in all GMS countries over the past 20 years<sup>29</sup>. For example, the production of commodities, such as rice, oil crops (soybean, groundnut, sesame, and sunflower) and coarse grains (maize, millet, and sorghum), has more than doubled<sup>30</sup>. Agricultural expansion in the GMS – combined with economic growth, population growth and rapid urbanisation – has, however, increased the demand for land, water, energy and food. This, accompanied by the overexploitation of natural resources, has led to: i) increased competition and costs for resources and land; and ii) a growing number of ecological constraints. Consequently, agricultural livelihoods and food security in the GMS, although currently on the rise, are expected to be threatened in the long-term<sup>38</sup>. Similarly, the amount of water required for food and energy production, as well as for domestic and industrial use, is increasing exponentially. The overexploitation and degradation of ground and surface water sources are, therefore, commonplace. Such transformations in the food-water-energy nexus create new and exacerbate old, livelihood challenges for agrarian communities throughout the GMS.

Subsistence livelihoods in the GMS are also threatened by environmental degradation resulting from regional development. Such degradation is negatively affecting terrestrial, freshwater, estuarine and marine ecosystems in the region. As a result, the supply of ecosystem goods and services to local communities reliant on them for livelihoods is compromised. The major ecosystem services on which rural communities throughout the GMS predominantly rely include:

- provisioning services (food, fibre, water);
- regulating services (carbon sequestration, waste decomposition, flood regulation, water supply and purification, sediment and nutrient retention, erosion control);
- supporting services (nutrient cycling, seed dispersal, biodiversity conservation, primary production); and
- cultural services (ecotourism, aesthetic value, recreation, education).

Major human-ecosystem interactions related to local livelihoods within the sub-region include:

- fisheries along the length of the Mekong River, especially downstream from China;
- aquaculture in the Mekong Delta;
- intensive rice production (paddy agriculture) in the lowlands;
- shifting cultivation in the uplands of the humid tropics;
- rice terraces and tea/coffee plantations in sub-tropics;
- rubber, cassava and palm oil plantations over large areas of the GMS; and
- agro-pastoral systems associated with the higher elevations of the upper basin.

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<sup>29</sup> R. M. Johnston et al. 2010. Rethinking Agriculture in the Greater Mekong Subregion. IWMI. Colombo, Sri Lanka.

<sup>30</sup> R. M. Johnston et al. 2010. Rethinking Agriculture in the Greater Mekong Subregion. IWMI. Colombo, Sri Lanka. <sup>38</sup> Rosegrant. et al. 2012. Water and Food Security in the Mekong Subregion: Outlook to 2030-2050. Proceedings of the International Conference on GMS 2020, Bangkok, Thailand, February.

## Environmental context

Rapid development within the GMS – although largely positive and reflecting political stabilisation and economic growth – is resulting in widespread environmental changes. These environmental changes negatively impact people who rely on ecosystem goods and services for their livelihoods. The major environmental changes in the GMS are further described below.

- The international demand (particularly from China) for agricultural products (including sugar, rice, coffee, rubber, cassava and fruit) from the GMS is transforming the traditionally subsistence-based agricultural sector to one that is commercial and export-orientated<sup>31</sup>. Across the GMS, agricultural land is expected to expand over the next 30–50 years, predominantly replacing natural forest. The negative effects of this agricultural intensification and expansion include: i) land degradation; ii) deforestation; iii) biodiversity losses; iv) habitat losses; v) water quality and quantity declines; and vi) the deterioration of aquatic ecosystems.
- Rapid deforestation, attributable to agricultural and civil development, is reducing the supply of ecosystem services and non-timber forest products (NTFPs) to communities. Between 1973 and 2009, the total forest cover within the GMS (excluding China) has declined by ~32%, with losses of 22% in Cambodia, 24% in Lao PDR and Myanmar, and 43% in Thailand and Vietnam.
- Poor land management and agricultural practices are resulting in: i) soil fertility declines; and ii) soil loss through erosion.
- Large-scale hydropower development and irrigation are threatening freshwater ecosystems within the GMS and the livelihoods dependent on them. Over 875,000 tonnes of freshwater fish are harvested in the Mekong Basin annually. This accounts for up to 25% of the global freshwater fish catch and provides livelihoods for at least 60 million people<sup>40</sup> while providing important contributions to regional food security and economies. In addition to supporting livelihoods, the Mekong River is second only to the Amazon River in terms of freshwater biodiversity. At least 1,100 freshwater species are found in the GMS including the last remaining populations of the Irrawaddy river dolphin, giant freshwater stingray and the Mekong giant catfish<sup>32</sup>.
- High levels of hunting and poaching, over-exploitation of natural resources and habitat loss have resulted in only ~5% of natural habitats within the GMS remaining in a healthy condition<sup>33</sup>. Consequently, the biodiversity supported within the sub-region, which includes over: i) 430 mammal species; ii) 800 reptile and amphibian species; iii) 1,200 bird species; and iv) 20,000 species of plants, is among the most threatened globally.

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<sup>31</sup> Source: [http://d2ouvy59p0dg6k.cloudfront.net/downloads/greater\\_mekong\\_ecosystems\\_report\\_020513.pdf](http://d2ouvy59p0dg6k.cloudfront.net/downloads/greater_mekong_ecosystems_report_020513.pdf)

<sup>40</sup>Source: <http://www.worldwildlife.org/places/greater-mekong>

<sup>32</sup> Source: <http://www.mrcmekong.org/assets/Publications/report-management-develop/Mek-Dev-No2-Mek-River-Biodiversityfisheries-in.pdf>

<sup>33</sup> Conservation International. 2007. Biodiversity hotspots. Arlington, USA.

## Climate change context Past and present climate change

The GMS is amongst the most climate-vulnerable regions of the world, with a wide range of climate change effects already documented<sup>34</sup>. Climate change is expected to exacerbate the impacts of existing threats to the region's inhabitants and its various ecosystems. The effects of climate change on the GMS include increased: i) temperatures; ii) rainfall variability; iii) frequency of extreme weather events – such as droughts and floods; and iv) saltwater intrusion related to sea-level rise (SLR). These climate change-related effects are discussed further below.

Across the GMS, mean annual temperatures have been increasing at a rate of 0.14°C to 0.20°C per decade since the 1960s, with average temperatures rising by between 0.5°C and 1.5°C from 1951 to 2000<sup>35</sup>. Such climate change-related temperature increases have resulted in the sub-region's highest average daytime temperatures for the month of April being recorded in Thailand in 2016<sup>45</sup>. Furthermore, increases in maximum and minimum daytime temperatures have resulted in more hot days and warm nights being recorded across the GMS since 1950<sup>36, 37</sup>.

Although temperature increases attributable to climate change are consistent across the GMS, the observed effects on rainfall are more complicated. The effects of climate change on rainfall patterns across the sub-region are highly variable because of the influence of the sub-region's numerous topographical and marine features. In general, the length of the sub-region's rainfall seasons has decreased, but the intensity of rainfall events – particularly in the middle and lower sections – as well as the amount of rain falling, have increased<sup>30</sup>. For the sub-region overall, annual total wet-day rainfall has increased by 22 mm per decade since the 1950s<sup>38, 49</sup>. An exception to this trend is the upper section of the GMS (Yunnan Province, China), which has experienced an 11 mm decrease in rainfall per decade, with high inter-annual rainfall variability and an increase in the frequency of prolonged droughts<sup>39</sup>. In terms of extreme rainfall events, while an increasing frequency has been reported in most of Southeast Asia, the opposite is true for the GMS. Between 1961 and 1998, the sub-region experienced a decrease in the number of

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<sup>34</sup> IPCC. 2007. Climate Change 2007. Impacts, Adaptation and Vulnerability. M.L. Parry, et al. Working Group II: 4<sup>th</sup> AR IPCC. Cambridge: Cambridge University Press.

<sup>35</sup> WWF. 2009. The Greater Mekong and climate change: biodiversity, ecosystem services and development at risk. <sup>45</sup> Thirumalai K, DiNezio PN, Okumura Y & Deser C. 2017. Extreme temperatures in Southeast Asia caused by El Nino and worsened by global warming. *Nature Communications*. 8: 15531. DOI: 10.1038/ncomms15531.

<sup>36</sup> WGI AR5 Chapter 2 / WGI AR5 Section 14.8.12/ WGI AR5 Section 2.6.1.

<sup>37</sup> Hijioka, Y., et al., 2014: Asia. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Barros, V.R., et al (eds.)]. Cambridge University Press, Cambridge, United Kingdom, pp. 1327-1370.

<sup>38</sup> Hijioka, Y., et al., 2014: Asia. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Barros, V.R., et al (eds.)]. Cambridge University Press, Cambridge, United Kingdom, pp. 1327-1370. <sup>49</sup> WGI AR5 Chapter 14 / WGI AR5 Sections 14.4.12, 14.8.12

<sup>39</sup> China National Climate Center – Beijing - 2015 – unpublished data.

extreme rainfall events per annum, however, the amount of rain falling during these events increased by 10 mm per decade during this period<sup>40,41</sup>.

Conversely to extreme rainfall events, the frequency of other extreme weather events has increased. Such extreme weather events include heat waves<sup>42</sup>, tropical cyclones<sup>43</sup> as well as unusually widespread monsoon floods, which have overwhelmed large areas of Thailand, Lao PDR, Cambodia, and Vietnam including extensive areas of the Mekong Delta.

In addition to the above-mentioned extreme weather events, climate change-related SLR and saltwater intrusion are threatening the sub-region's already climate-vulnerable coastal communities and ecosystems. SLR in the South China Sea was recorded at a rate of 5.5 mm per annum between 1993 and 2009<sup>44</sup>, which is higher than the global rate of 3 mm per annum over the last decade<sup>45</sup>. The coastal extent of the Mekong Delta is particularly at risk to the negative effects of SLR and salt water intrusion.

### **Past and current effects of climate change**

Climate change has and is exacerbating the impacts of existing threats on the region's numerous communities and ecosystems. Among the most prevalent effects of climate change in the GMS is the rapid melting of glaciers and permafrost that supply the source and upper sections of the sub-basin, caused by increasing temperatures. This is undoubtedly strengthening the supply of water to the upper parts of the basin in the short-term but will have negative effects on the availability of water within the basin in the long-term as glaciers, in particular, recede<sup>46</sup>. Similarly, warmer winters caused by increasing temperatures are resulting in a shorter dormant period of many alpine plant species<sup>47</sup>.

Droughts are also negatively affecting plant species which are endemic to the GMS through a decrease in water availability<sup>48</sup>, leading to a decline in floral diversity. Water shortages related to droughts are resulting in decreased agricultural yields, which threatens food security through the sub-region. Furthermore, the income generating capacity of water-dependant livelihood activities including freshwater fishing is reduced. Apart from declining incomes and livelihood options, the lack of water in the GMS is detrimental to human and ecosystem health, leading to major humanitarian disasters in the region. An example of such a disaster in the GMS is the recent

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<sup>40</sup> Manton, M. J., et al. 2001. Trends in extreme daily rainfall and temperature in Southeast Asia and the South Pacific: 1961-1998. *International Journal of Climatology* 21:269-284.

<sup>41</sup> WGI AR5 Chapter 14 / WGI AR5 Sections 14.4.12, 14.8.12

<sup>42</sup> IPCC. 2007. *Climate Change 2007. Impacts, Adaptation and Vulnerability*. M.L. Parry, et al. Working Group II: 4<sup>th</sup> AR IPCC. Cambridge: Cambridge University Press.

<sup>43</sup> Rosegrant, et al. 2012. *Water and Food Security in the Mekong Subregion: Outlook to 2030-2050*. Proceedings of the International Conference on GMS 2020, Bangkok, Thailand, February.

<sup>44</sup> Feng W, Zhong M & Xu H. 2012. Sea level variations in the South China Sea inferred from satellite gravity, altimetry, and oceanographic data. *Science China: Earth Sciences*. 55(10): 1696–1701.

<sup>45</sup> ADB. 2008. *GMS: Climate Makers or Climate Takers? Understanding and Responding to the Challenges of Climate Change*. Background Paper. GMS Development Dialogue. 21 May.).

<sup>46</sup> WGI AR5 Chapter 14 / WGI AR5 Sections 14.4.12, 14.8.12

<sup>47</sup> Yu H, E. Luedeling, and JC. Xu. 2010. Winter and spring warming result in delayed spring phenology on the Tibetan Plateau. *Proceedings of National Academy of Science* 107: 22151-22156.

<sup>48</sup> Qiu, J. 2010. China drought highlights future climate threats. *Nature* 463: 142-143.

drought in 2016/2017, which resulted from reduced rainfall attributable to El Niño and exacerbated by climate change. This drought is compounding transboundary water shortages along the Mekong River, hampering agricultural production across the GMS, which has threatened food security across the sub-region<sup>49</sup>. A decrease in the production of the region's main staple, rice, is particularly problematic and as a result, prices will rise, which will further impact the lives and livelihoods of the GMS's economically marginalised communities. Furthermore, economic growth in the sub-region, which is highly reliant on agriculture is declining. For example, economic growth in Vietnam dropped to 5.6% year-on-year (compared to 6.2% in 2015) because of the drought<sup>50</sup>. Apart from its effects on agricultural production in the sub-region, the drought along with saltwater intrusion has resulted in a lack of potable water, which has affected ~1 million people in central and southern Vietnam<sup>51</sup>.

Related to the ongoing drought in the GMS are the lowest recorded water levels in the lower Mekong River since 1926<sup>52</sup>. As a result, saltwater intrusion is occurring earlier and more extensively than usual. To date, saltwater intrusion has been recorded as far as 90 km inland, destroying at least 159,000 ha of rice paddies in the Mekong Delta, with a further 500,000 ha still at risk.

Climate change-related SLR is also threatening agricultural production in the coastal areas of the GMS. Densely populated parts of the Thai and Vietnamese coastlines are especially vulnerable to the effects of SLR. Between 1993 and 2010, rapid rates of SLR were recorded in the western tropical Pacific<sup>53</sup>. During this period, sea levels increased by 6 mm per year in the Mekong Delta<sup>54</sup>. This SLR has resulted in an increase in the frequency and intensity of storm surges (especially during the typhoon season) leading to the inundation of coastal agricultural land, as well as loss of life and property. Such coastal surges were experienced during Typhoon Linda (Vietnam, 1997) and Cyclone Nargis (Myanmar, 2008)<sup>55</sup>.

Another common climate change threat that is also associated with typhoons and cyclones in the GMS is flooding, which is attributable to an increase in the intensity of extreme rainfall events. Floods are responsible for soil erosion throughout the sub-region and landslides in the mountainous areas. Furthermore, floods are responsible for the loss of human life, the destruction of property and infrastructure, and for crop losses. The impacts of floods together with those of other previously mentioned climate change-related threats, including droughts, are expected to increase in frequency and intensity according to future climate change scenarios<sup>56</sup>.

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<sup>49</sup> Available at: <https://internationalwateranalysis.wordpress.com/>.

<sup>50</sup> Available at: <https://www.forbes.com/sites/timdaiss/2016/05/25/why-vietnam-is-running-dry-worst-drought-in-nearly100-years/#64bc9ba174b3>.

<sup>51</sup> Available at: [http://reliefweb.int/sites/reliefweb.int/files/resources/Vietnam%20Consolidated%20Report%20on%20Drought%202015-2016-Final\\_11%20Mar%202016.pdf](http://reliefweb.int/sites/reliefweb.int/files/resources/Vietnam%20Consolidated%20Report%20on%20Drought%202015-2016-Final_11%20Mar%202016.pdf)

<sup>52</sup> Available at: <https://internationalwateranalysis.wordpress.com/>.

<sup>53</sup> Rosegrant, et al. 2012. Water and Food Security in the Mekong Subregion: Outlook to 2030-2050. Proceedings of the International Conference on GMS 2020, Bangkok, Thailand, February.

<sup>54</sup> Ryvitski, J.P.M, et al. 2009. Sinking deltas due to human activities. Nature Geosciences. Published online: 20 September 2009, doi: 10.1038/ngeo629.

<sup>55</sup> ADB. 2012. GMS Atlas of the Environment 2nd Edition. Manila, Philippines.

<sup>56</sup> Hijjoka, Y., et al., 2014: Asia. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Barros, V.R., et al (eds.)]. Cambridge University Press, Cambridge, United Kingdom, pp. 1327-1370.



## Future climate change

Under future scenarios, climate change is expected to accelerate current warming trends, with the entire GMS becoming hotter under all current emission scenarios projected by the IPCC Representative Concentration Pathways (RCPs). Mean annual temperatures across the GMS are predicted to increase by between 1.6 and 2.5 °C by 2050<sup>57,58</sup>, and by 2 to 4 °C by the end of the century<sup>59,60</sup>.

In terms of average annual rainfall, climate change models generally project slight to moderate increases over most of the GMS of up to 13% by 2030 from the 1951–2000 average<sup>61</sup>. These increases will be predominantly attributable to an increase in the intensity of rainfall during the wet season, as well as during extreme rainfall events<sup>62</sup>. Such increases are expected in the upper sections of sub-basin, where average annual rainfall is predicted to rise by 5–25% over the next two decades and by up to 50% across the whole of the MRB by 2100. Such rainfall increases are expected to be exacerbated by the projected rise in extreme rainfall events associated with cyclones on the coasts of the South China Sea, Gulf of Thailand and the Andaman Sea. The Mekong Delta, however, is an exception to this, as it is expected to receive 15% less rainfall by the end of the century. Together with the projected rainfall variability during the wet seasons across the GMS, other impacts of climate change are likely to include: i) earlier springs; ii) longer dry and shorter wet seasons; iii) an increased risk of prolonged drought in the Mekong Delta; iv) SLR of up to 0.7 m by 2100 in South East Asia, compared with those recorded in 1990<sup>63</sup>; and iv) the northward shifting of bioclimatic zones, particularly within the mountainous areas of the GMS<sup>64</sup>. Such climate change-related impacts are expected to negatively affect the countries in the GMS, which are already vulnerable to climate change.

## Future effects of climate change

Worldwide, four of the 16 countries that are categorised as being 'extremely vulnerable' to climate change are found in the GMS (including Thailand and Vietnam)<sup>65</sup>. The predicted impacts of future climate change mentioned above will exacerbate the effects of existing threats resulting from *inter alia* land use change, habitat loss and environmental degradation on the region's numerous communities and ecosystems<sup>77</sup>. Additionally, the climate-resilience and adaptive capacity of the communities of the GMS dependent on local ecosystems for the supply of goods and services will be negatively affected by climate change<sup>66</sup>.

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<sup>57</sup> Available: <https://www.ipcc.ch/report/ar5/>

<sup>58</sup> Hijioka, Y., et al., 2014: Asia. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Barros, V.R., et al (eds.)]. Cambridge University Press, Cambridge, United Kingdom, pp. 1327-1370.

<sup>59</sup> WWF. 2009. The Greater Mekong and climate change: biodiversity, ecosystem services and development at risk.

<sup>60</sup> ADB. 2009. The Economics of Climate Change in Southeast Asia: A Regional Review. Manila..

<sup>61</sup> ADB. 2012. GMS Atlas of the Environment 2nd Edition. Manila, Philippines.

<sup>62</sup> ADB. 2012. GMS Atlas of the Environment 2nd Edition. Manila, Philippines.

<sup>63</sup> IPCC. 2007. Climate Change 2007. Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge: Cambridge University Press.

<sup>64</sup> Zomer, R.J.; Trabucco, A.; Wang, M.; Xu, J.C., 2016. Projected Climate Change Impact on Hydrology, Bioclimatic Conditions, and Terrestrial Ecosystems in the Asian Highlands. ICRAF Working Paper 222. World Agroforestry Centre East and Central Asia, Kunming, China. 56 pp.

<sup>65</sup> Maplecroft, Climate Change Vulnerability Index 2011. Available at: <https://maplecroft.com/about/news/ccvi.html>

<sup>77</sup> WWF. 2009. The Greater Mekong and Climate Change: Biodiversity, Ecosystem Services and Development at Risk. WWF Greaterer Mekong Programme.

<sup>66</sup> R. Edward Grumbine and Jianchu Xu. 2011. Mekong Hydropower Development. Science 332: 178-179.

Future climate change is expected to have negative impacts on agriculture in the GMS. Such impacts will include *inter alia*: i) declining yields as common crop varieties (particularly staples such as rice) will be pushed beyond their thermal limits; ii) crop losses resulting from droughts and flood damage; iii) the loss of arable land in low-lying areas because of SLR and salt water intrusion; iv) decreasing soil water content as a result of increased potential evapotranspiration, which will decrease agricultural production; and v) the spoilage of stored agricultural products (such as rice), attributable to increased fungal growth and insect activity<sup>67</sup>. These impacts will severely affect agriculturally-based livelihoods, food security, economies, trade, as well as regional and national political stability in the GMS<sup>68</sup>.

Flooding, which is necessary in paddy fields for successful rice production, is expected to increase in both frequency and intensity in the middle and upper GMS. This effect of climate change will, however, be detrimental rather than advantageous to rice production, as entire crops may be lost and infrastructure necessary to store produce and access markets may be damaged<sup>69</sup>. Maize, another grain cultivated in the sub-region, is predicted to suffer losses in production of 3–12% by 2050, because of increases in mean annual rainfall and temperature<sup>70</sup>.

In the lower parts of the sub-region, an increase in the frequency and duration of droughts are expected to result in major shortfalls in agricultural production, particularly paddy rice. Furthermore, water levels in the lower Mekong River are expected to decrease, which will lead to a loss of livelihoods reliant on them, as well as a decrease in potable and underground water supplies. Additionally, the various terrestrial and aquatic ecosystems reliant on water to function optimally will be placed under immense stress because of future climate change-related droughts.

The productivity of low-lying agricultural land – predominantly rice paddies – on the coast of the GMS is predicted to decrease because of the combined climate change impacts of saltwater intrusion (related to SLR) and increasing temperatures (which will result in heat stress of rice plants)<sup>71</sup>. The loss of agricultural land caused by the impacts of climate change is expected to be particularly widespread in the Mekong Delta floodplain. Paddy rice production in Vietnam will be especially hard hit by such agricultural land losses in the future, which will force farmers to seek alternative livelihoods such as those reliant on goods supplied by local ecosystems.

Climate change is expected to severely impact the functioning of terrestrial ecosystems, which will include decreases in biodiversity and the supply of goods and services. Such impacts will predominantly result from the spatial shifting of bioclimatic conditions across the GMS by 2050, which will initiate a period of prolonged biophysical and biological perturbation<sup>72</sup>. Even the most conservative estimates indicate that by as early as 2050, most of the sub-region may experience

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<sup>67</sup> Available at: <http://www.extension.umn.edu/agriculture/small-grains/harvest/management-of-stored-grain-withaeration/>

<sup>68</sup> Sivakumar, M. V. K., H. P. Das, and O. Brunini. 2005. Impacts of present and future climate variability and change on agriculture and forestry in the arid and semi-arid tropics. *Climatic Change* 70: 31–72.

<sup>69</sup> TTK & SEA START RC. 2009. *Water and Climate Change in the Lower Mekong Basin: Diagnosis and recommendations for adaptation*. Water and Development Research Group, Helsinki University of Technology (TKK), and Southeast Asia START Regional Center (SEA START RC), Chulalongkorn University. Water & Development Publications, Helsinki University of Technology, Espoo, Finland.

<sup>70</sup> USAID. 2013. *Mekong Adaptation and Resilience to Climate Change*. Mekong ARCC Task 2 Synthesis Report. Bangkok, Thailand.

<sup>71</sup> Source: <http://www.sciencemag.org/news/2016/04/mekong-mega-drought-erodes-food-security>

<sup>72</sup> Felkner, J., et al. 2009. Impact of Climate Change on Rice Production in Thailand. *American Economic Review*. 99. pp. 205-210.

novel climatic conditions attributable to climate change<sup>73</sup>. These climate change related impacts are expected to directly influence biodiversity across the GMS by causing shifts in species distributions, which will have knock-on effects on ecosystem structure, composition and functioning<sup>86,87</sup>. Although some species will be able to adapt to the effects of climate change without dispersing, many will not, resulting in high rates of extinction, particularly of rare and endemic species that are specific to certain habitats<sup>74,75,76</sup>. Furthermore, these negative impacts will disrupt the viability and effectiveness of the many protected areas and conservation efforts across the GMS.

Climate change is also expected to affect aquatic ecosystems in the GMS. Fish migration routes, spawning and feeding grounds, and fishing seasons are all likely to change, with impacts on fishing communities being uncertain. Rising seas, more severe storms and saltwater intrusion in the deltas will negatively impact the GMS's aquaculture industry, which is reliant on fish species with limited saline tolerance, such as catfish in the Mekong Delta<sup>77</sup>. A recent survey of the impacts of climate change on freshwater fisheries in 130 countries concluded that Cambodia and Vietnam are among the most vulnerable because of their heavy dependence on the sector, high exposure to climate risks and limited adaptive capacity<sup>78</sup>.

### **Project / Programme Objectives:**

*List the main objectives of the project/programme.*

The overall objective of the proposed project is to reduce vulnerability to climate change in the Greater Mekong Sub-region (GMS).

This objective will be achieved through three complementary outcomes:

1. Climate change adaptation interventions, particularly EbA, implemented by vulnerable communities in the GMS to manage climate change impacts, particularly droughts and floods.
2. Enhanced knowledge and awareness of adaptation measures, including EbA, to shared climate change impacts in different ecosystems to promote regional cooperation, planning and implementation of adaptation in the GMS.

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<sup>73</sup> Mora C, et al. 2013. The projected timing of climate departure from recent variability. *Nature* 502(7470):183–187. <sup>86</sup> Williams, J.W., S.T. Jackson, and J.E. Kutzbach, 2007: Projected distributions of novel and disappearing climates by 2100 AD. *Proceedings of the National Academy of Sciences of the United States of America* 104: 5738-5742. <sup>87</sup>Zomer, R.J.; Trabucco, A.; Wang, M.; Xu, J.C., 2016. Projected Climate Change Impact on Hydrology, Bioclimatic Conditions, and Terrestrial Ecosystems in the Asian Highlands. ICRAF Working Paper 222. World Agroforestry Centre East and Central Asia, Kunming, China. 56 pp.

<sup>74</sup> Stork, N.E., J. Balston, G.D. Farquhar, P.J. Franks, J.A.M. Holtum, and M.J. Liddell. 2007. Tropical rainforest canopies and climate change. *Austral Ecology*. 32: 105–112.

<sup>75</sup> Malcolm, J.R. C. Liu, R.P. Neilson, L. Hansen, and L. Hannah. 2006. Global warming and extinctions of endemic species from biodiversity hotspots. *Conservation Biology*. 20: 538-548.

<sup>76</sup> Such species include *inter alia*: including the Asian elephant, tiger, douc langur, gaur, banteng, Eld's deer, serow, clouded leopard, pygmy loris, imperial pheasant and Edwards's pheasant.

<sup>77</sup> WWF. 2009. The Greater Mekong and climate change: biodiversity, ecosystem services and development at risk.

<sup>78</sup> Allison, E.H., A.L. Perry, M-C. Badjeck, W.N. Adger, K. Brown, D. Conway, A.S. Halls, G.M. Pilling, J.D. Reynolds, N.L. Andrew and N.K. Dulvy. 2009. Vulnerability of national economies to the impacts of climate change on fisheries. *Fish and Fisheries*. Blackwell Publishing Ltd. DOI: 10.1111/j. 1467-2979.2008.00310.x.

- Strengthened regional cooperation on climate change adaptation, particularly in response to floods and droughts, in the GMS.

### Project / Programme Components and Financing:

Fill in the table presenting the relationships among project components, outcomes, outputs and countries in which activities would be executed, and the corresponding budgets.

Project Components	Expected Outcomes	Expected Outputs	Countries	Amount (US\$)
<b>Component 1:</b> Demonstration of climate change adaptation interventions, with a focus on drought and flood management, in vulnerable communities and different ecosystems.	<b>Outcome 1:</b> Climate change adaptation interventions implemented by vulnerable communities in the GMS to manage climate change impacts, particularly droughts and floods.	<i>Output 1.1:</i> A suite of climate change adaptation interventions, including EbA, implemented at Young River Basin in Thailand.	Thailand	2,400,000
		<i>Output 1.2:</i> A suite of climate change adaptation interventions, including EbA, implemented in communities living around Tram Chim National Park in Vietnam.	Vietnam	2,400,000
		<i>Output 1.3:</i> Monitoring programme established to collect information on the cost-effectiveness of project interventions in different socio-ecological contexts in the GMS.	Thailand and Vietnam	300,000
			GMS-wide	50,000

		<i>Output 1.4:</i> Guidelines for the design and implementation of EbA monitoring and evaluation systems, including simplified methods for collecting comparable information in different socio-ecological contexts.		
<b>Component 1 Total</b>				5,150,000
<b>Component 2:</b> Regional knowledge base on climate change adaptation	<b>Outcome 2:</b> Enhanced knowledge and awareness of adaptation measures,	Output 2.1: GMS-specific cost-effectiveness analysis of climate change adaptation interventions that reduce the impact of floods and droughts.	GMS-wide	150,000
expanded in the GMS.	including EbA, to shared climate change impacts in different ecosystems to promote regional cooperation, planning and implementation of adaptation in the GMS.	Output 2.2: Policy briefs – and paper for the LancangMekong Cooperation Outlook Report series – developed on: i) good practice in managing shared climate changes impacts in the GMS; ii) integrating climate change adaptation into transboundary water and river basin management; and iii) cost-effectiveness of EbA for reducing vulnerability to climate change.	GMS-wide	151,612
		Output 2.3: Knowledge on EbA that has been generated and collated through the project shared on the main regional knowledge platforms and presented at regional adaptation forums.	GMS-wide	150,000
		Output 2.4: National level knowledge-sharing strategy implemented in Thailand and Vietnam.	Thailand and Vietnam	300,000
<b>Component 2 Total</b>				751,612
<b>Component 3:</b>		Output 3.1:	GMS-wide	250,000

Political cooperation on climate change adaptation.	<b>Outcome 3:</b> Strengthened regional cooperation on climate change adaptation, particularly in response to floods and droughts, in the GMS.	Recommendations for regional cooperation on the scaling up of climate change adaptation interventions – based on the results of the project – developed and presented at: i) Lancang-Mekong policy dialogues; ii) MRC regional stakeholder forum on MASAP; iii) Thailand NAP stakeholder forum; and iv) Vietnam National Climate Change Strategy stakeholder forum.		
		Output 3.2: Exchange visits for practitioners, policymakers and planners to project intervention sites to exchange knowledge, encourage relationshipbuilding and promote regional cooperation on climate change adaptation.	GMS-wide	300,000
<b>Component 3 Tot II</b>				<b>550,000</b>
6. Project Execution cost (9.5%)				612,903
7. Total Project Cost				6,451,612
8. Project Cycle Management Fee charged by the Implementing Entity (8.5%)				548,388
Amount of Financing Requested				7,000,000

### Projected Calendar:

*Indicate the dates of the following milestones for the proposed project/programme*

Milestones	Expected Dates
Start of Project/Programme Implementation	July 2018
Mid-term Review (if planned)	July 2020
Project/Programme Closing	August 2022
Terminal Evaluation	March 2022

## PART II: PROJECT/PROGRAMME JUSTIFICATION

### A. Project Components

*Describe the project / programme components, particularly focusing on the concrete adaptation activities, how these activities would contribute to climate resilience, and how they would build added value through the regional approach, compared to implementing similar activities in each country individually. For the case of a programme, show how the combination of individual projects would contribute to the overall increase in resilience.*

**Component 1:** Demonstration of climate change adaptation interventions, with a focus on drought and flood management, in vulnerable communities and different ecosystems.

Dependence on shared transboundary water resources can expose people from varied socioecological<sup>79</sup> contexts to a common set of climate change threats. In the GMS, people from different contexts who rely on the ecosystems of the GMS to support their livelihoods are united in their shared exposure to the region's primary climate threats; droughts and floods and the transboundary nature of river basin management. However, the way these threats manifest to impact livelihoods differs according to the specific context of the affected communities, and therefore, a one-size-fits-all approach to climate change adaptation is unlikely to be effective. In such a scenario, context-specific adaptation measures are appropriate and could be used to demonstrate drought and flood adaptation strategies to people from similar socio-ecological contexts across the GMS.

The first component of the proposed project will increase the resilience of people in **two areas** vulnerable to droughts and/or floods in the GMS through the implementation of concrete climate change adaptation interventions. Monitoring programmes will be established to collect information on the cost-effectiveness of adaptation interventions in different socio-ecological contexts, and guidance on monitoring and evaluation systems will be prepared.

**Outcome 1:** Climate change adaptation interventions implemented by vulnerable communities in the GMS to manage climate change impacts, particularly droughts and floods.

Concrete adaptation interventions – with a focus on EbA – will be implemented in middle (Thailand) and lower (Vietnam) reaches of the Mekong River. **These adaptation technologies will complement existing or planned interventions taking place in the upper reaches (China and Myanmar) as well as ongoing LDCF<sup>80</sup> and AF projects in Cambodia and Lao PDR.** These locations represent a diverse array of socio-ecological contexts but are united by the common climate change threats of floods and droughts.

The specific countries for the implementation of adaptation interventions were selected during the preparation phase of this concept note through extensive stakeholder consultation. Thailand and Vietnam were selected as they are non-Least Developed Countries and therefore do not receive support for adaptation from the Least Developed Countries Fund, as well as other major bilateral funding mechanisms.

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<sup>79</sup> Including different economic, administrative, political and environmental contexts.

<sup>80</sup> Least Developed Countries Fund

Specific sites have also been chosen in each of the target countries through stakeholder consultation during the concept development phase. The sites are: i) Young River Basin in Thailand; and ii) communities living around Tram Chim National Park in Vietnam. The criteria used to select these sites were as follows:

- Representativeness of key vulnerable ecosystems in the GMS.
- Evidence of climate change impacts on people’s livelihoods.
- Evidence of climate change impacts on biodiversity, including endangered species.
- Potential linkages to transboundary context.
- Presence of good practices harmonising biodiversity conservation and livelihoods.

A brief description of the sites is presented in Table 2.

**Table 2:** Sites for the implementation of climate change interventions.

Location	Critical ecosystem	Climate change impacts	Impacts on livelihoods
Young River Basin - Roi-et and Kalasin provinces in northeast Thailand.	Tropical paddy field	Increased droughts and flash flood frequency.	Reduced agricultural production. Damage to property.
Tram Chim National Park - Mekong Delta in southern Vietnam.	Wetland	Increased drought frequency. Sea level rise - salinity intrusion.	Loss of habitat for fisheries. Reduced agricultural production.

*Output 1.1:* A suite of climate change adaptation interventions, including EbA, implemented at Young River Basin in Thailand.

Recently, the Young River Basin has experienced periods of extended drought in the upstream catchment, as well as severe floods during the monsoon months in the lower reaches. These climate impacts have negatively affected many of the ~10,000 people living in the proposed project areas, most of whom rely on rainfed rice farming to sustain their livelihoods. The proposed project will be implemented in the Sainawang (upper reaches of the basin) and Sriwilai (lower reaches of the basin) sub-districts. Villages in the Sainawang sub-district (Kalasin Province) face severe water shortages related to extended droughts and infrastructural inadequacies that reduce food security and income generation. In the Sriwilai sub-district (Roi-et Province), communities are exposed to annual flooding and drought events that result in the loss of human lives, reduce agricultural production and damage private property. In the cases of both Sainawang and Sriwilai sub-districts, communities will likely remain vulnerable to the impacts of climate change if adaptation measures are not implemented.

Through the proposed project, a suite of concrete adaptation interventions will be implemented in the Young River Basin to increase the resilience of communities vulnerable to droughts and floods. While there will be a focus on EbA interventions, additional and alternative measures will be considered where appropriate.

Indicative activities to be implemented under Output 1.1. will include the following:



- 1.1.1. Facilitate community capacity building, awareness raising, stakeholder involvement, and local knowledge input through consultation processes prior to the implementation of adaptation interventions.
- 1.1.2. Produce implementation protocols and plans to provide detailed technical guidance on implementing a suite of concrete adaptation interventions at the Young River Basin.
- 1.1.3. Implement the adaptation protocols with full stakeholder participation.

The suite of concrete adaptation interventions to be implemented in the Young River Basin may include *inter alia*:

- living check dams to slow flood waters during the monsoon and store water during periods of drought;
- alterations to existing dykes, levees and canals to increase the availability of water during dry seasons and periods;
- river/canal bank stabilisation through multi-use tree planting and forest rehabilitation;
- multi-use home gardens to diversify food and income generation;
- river bed enhancement to remove excess sediment and reduce local flooding;
- water-spreading weirs to reduce the intensity of floods;
- sediment ponds to reduce upstream flow velocity and downstream sedimentation; and
- agroforestry.

*Output 1.2:* A suite of climate change adaptation interventions, including EbA, implemented in communities living around Tram Chim National Park in Vietnam.

The communities<sup>81</sup> living around Tram Chim National Park – a protected area of ecological importance in the Mekong Delta in Vietnam’s Đồng Tháp Province – are vulnerable to erratic drought and flood cycles that impact their agriculture- and natural resource-based livelihoods. The ecosystems within the national park are, likewise, vulnerable, experiencing anthropogenic changes in water flow dynamics which have altered ecological processes and threatened ecosystem function. Of the ~50,000 people living around the park, approximately 15,000 are under the national poverty line and rely heavily on temporary employment in agriculture and the use of natural resources. During drought and/or flooding events, agricultural production around Tram Chim is reduced, food security is threatened and farmers cannot afford to employ temporary workers. Consequently, the unemployed members of the community resort to the exploitation of natural resources within the national park to sustain their livelihoods. While six sustainable resource user groups were previously developed in communities surrounding Tram Chim, recent climate-induced hydrological changes in the park have resulted in officials banning the use of resources. Subsequently, poor people have resorted to the illegal and unsustainable use of the park’s natural resources<sup>82</sup> during periods of resource scarcity. In doing so, the already threatened ecosystems of the park have been negatively impacted, reducing their capacity to provide goods and services to the community’s most vulnerable people. This creates a feedback loop whereby those people most reliant on natural resources to sustain them through droughts and/or floods are negatively impacted by their own maladaptive activities.

A suite of concrete adaptation interventions will be implemented to increase the resilience of those people living around Tram Chim National Park that are most vulnerable to droughts and floods. Like in the Young River Basin, there will be a focus on EbA interventions, but additional and alternative measures will be considered where appropriate.

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<sup>81</sup> Divided into five communes and one town.

<sup>82</sup> especially fish, fuelwood and natural vegetables such as wild spinach, lotus and waterlilies.

Indicative activities to be implemented under Output 1.2. will include the following:

- 1.2.1. Facilitate community capacity building, awareness raising, stakeholder involvement, and local knowledge input through consultation processes prior to the implementation of adaptation interventions.
- 1.2.2. Produce implementation protocols and plans to provide detailed technical guidance on implementing a suite of concrete adaptation interventions around Tram Chim National Park.
- 1.2.3. Implement the adaptation protocols with full stakeholder participation.

The suite of concrete adaptation interventions to be implemented around Tram Chim National Park may include *inter alia*:

- additional livelihood activities such as beekeeping, mushroom farming on water hyacinth and handicraft production using water hyacinth stems;
- multi-use home gardens to diversify food and income generation;
- river/canal bank stabilisation through multi-use tree planting and forest rehabilitation;
- floodplain and wetland development;
- water-spreading weirs (an extension of living check dams); and
- the development of water and resource management plans in and around Tram Chim National Park.

*Output 1.3:* Monitoring programme established to collect information on the cost-effectiveness of project interventions in different socio-ecological contexts in the GMS.

Comprehensive monitoring programmes will be designed and executed at each demonstration site to collect information on the cost-effectiveness of concrete adaptation interventions implemented through the project. Local institutions involved in the monitoring programme will generate information that will be used for the knowledge sharing and dialogue activities with other countries in the GMS through regional activities in Components 2 and 3.

The information collected through the monitoring programmes will be used to expand the regional knowledge base on climate change adaptation in the GMS. Specifically, the accumulated information will contribute the development of adaptation plans and policy briefs in outcome 2. Additionally, the programmes will serve as an example of how to integrate M&E plans into adaptation projects and generate transferable knowledge and lessons learned (Output 1.4).

The execution of the project monitoring and knowledge development and sharing by UNEP-International Ecosystem Management Partnership (UNEP-IEMP) will build on the success of the EbA South project<sup>83</sup> (funded by the Special Climate Change Fund – see Section G).

Indicative activities to be implemented under Output 1.3. will include the following:

- 1.3.1 Design a monitoring and evaluation (M&E) plan for each demonstration site that is context-specific but also allows for comparison among sites.
- 1.3.2 Implement the M&E plans to monitor the results, and collect information on the costeffectiveness, of concrete adaptation technologies in different socio-ecological contexts. This information will be used to inform a cost-effectiveness analysis under Output 2.1.

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<sup>83</sup> Enhancing Capacity, Knowledge and Technology Support to build Climate Resilience of Vulnerable Developing Countries

*Output 1.4:* Guidelines for the design and implementation of EbA monitoring and evaluation systems, including simplified methods for collecting comparable information in different socioecological contexts.

M&E activities form an essential part of project implementation strategies. Effective M&E systems can allow project practitioners to assess the progress of a project and identify potential barriers preventing the achievement of project objectives. In doing so, M&E can support adaptive management. Additionally, M&E can help generate best practices and lessons learned that may be applicable to other adaptation projects. The effectiveness of M&E systems for interproject knowledge-sharing is, however, undermined if the systems are too complicated, too project-specific and/or are designed without a focus on generating broadly-relevant data and information.

The proposed project will involve the development of guidelines for the design and implementation of M&E systems for climate change adaptation (including EbA) projects across the GMS. The guidelines on cost-effective, comparable and simplified M&E systems will be developed using the lesson learned through implementing the M&E plans developed in Output 1.3. Additionally, M&E plans of other adaptation projects will be reviewed to identify design features that encourage the generation of knowledge applicable to different socio-ecological contexts across a transboundary and shared natural resource like the Mekong River.

Indicative activities to be implemented under Output 1.4. will include the following:

- 1.4.1 Collate and evaluate lessons learned from the implementation of M&E plans at each project demonstration site.
- 1.4.2 Review M&E plans from other adaptation projects to identify design features that encourage cost-effective, simplified and comparable M&E systems.
- 1.4.3 Develop guidelines for the design and implementation of M&E systems for climate change adaptation (including EbA) projects in the GMS.

**Component 2:** Regional knowledge base on climate change adaptation expanded in the GMS.

There are numerous policies, plans, strategies and frameworks that provide theoretical information on climate change adaptation in the GMS (see Section II:E). However, these documents provide limited information on effective concrete adaptation interventions – particularly EbA – and how they should be implemented to build climate resilience across the region. Where knowledge about on-the-ground implementation does exist, it is generally projectspecific and shared mainly within the implementing country. This deficiency of adaptation information, as well as inadequate knowledge sharing among GMS countries, impedes regional cooperation on transboundary water and river basin management and limits adaptation to shared climate impacts.

This component of the proposed project will expand the regional knowledge base on concrete adaptation solutions in the GMS.

**Outcome 2:** Enhanced knowledge and awareness of adaptation measures, including EbA, to shared climate change impacts (droughts and floods) in different ecosystems to promote regional cooperation, planning and implementation of adaptation in the GMS.

Adaptation knowledge products will be prepared and transferred within and among GMS countries. They will focus on the implementation of concrete adaptation interventions that are effective in building resilience to climate impacts such as floods and droughts across various socio-ecological contexts. The knowledge products generated by the proposed project will be shared via existing knowledge platforms and forums across the GMS, as well as through knowledge-sharing events at the project demonstration sites.

*Output 2.1:* GMS-specific cost-effectiveness analysis of climate change adaptation interventions that reduce the impact of floods and droughts.

An analysis will be performed to determine the environmental and socioeconomic cost-effectiveness of climate change adaptation interventions – especially EbA – that reduce the impacts of floods and droughts in the GMS. The analysis will be conducted using several sources of information. Firstly, data and information generated through the monitoring programmes at the project demonstration sites will be used to provide examples of comparable on-the-ground adaptation interventions in different socioecological contexts across the GMS. Secondly, a comprehensive literature review of concrete adaptation interventions implemented through other projects in the GMS will be undertaken. Lastly, consultations and interviews with stakeholders involved in past and/or ongoing adaptation projects in the GMS will be conducted to gather first-hand knowledge on the cost-effectiveness of various adaptation measures. The cost-effectiveness analysis will be shared across the GMS to allow for strengthened regional cooperation on adapting to the shared impacts of floods and droughts (see below).

Indicative activities to be implemented under Output 2.1. will include the following:

- 2.1.1 Collate information on cost-effectiveness generated through M&E plans at project demonstration sites (Output 1.3).
- 2.1.2. Undertake a comprehensive literature review on the cost-effectiveness of different climate change adaptation interventions in the GMS.
- 2.1.3. Conduct interviews and consultations with stakeholders involved in climate change adaptation projects in the GMS on the cost-effectiveness of different climate change adaptation interventions.
- 2.1.4. Develop a cost-effectiveness analysis of climate change adaptations interventions that reduce the impacts of floods and droughts. The results of the analysis will be used in the generation of a policy brief (Output 2.2).

*Output 2.2:* Policy briefs – **and paper for the Lancang-Mekong Cooperation Outlook Report series** – developed on: i) good practice in managing shared climate change impacts in the GMS; ii) integrating climate change adaptation into transboundary water management; and iii) costeffectiveness of EbA for reducing vulnerability to climate change.

Countries in the GMS are at various stages of developing and revising national climate change adaptation plans and transboundary water and river basin management strategies. Additionally, regional bodies (Mekong River Commission and Lancang-Mekong Cooperation (LMC) mechanism) are in the process of developing cooperative adaptation plans across the GMS. To strengthen national and regional coordination during the development and revision of these plans and strategies, policy briefs will be developed to communicate the: i) shared climate issues in the GMS; ii) national and regional policy options to overcome these issues; and iii) recommended best policy options. The briefs will be generated using: i) knowledge and lessons learned from the demonstration sites of the proposed project; ii) collated information from other projects, programmes and strategies in the GMS; and iii) the results of the cost-effectiveness analysis

(Output 2.1.). The policy briefs will be shared with relevant stakeholders across the GMS (Output 2.3.).

In addition to policy briefs, a paper on climate change adaptation strategies for the GMS – with a focus on EbA – will be developed for inclusion in the LMC mechanism Environmental Outlook Report series. The LMC mechanism is an emerging instrument working across all six countries of the GMS on topics that include transboundary water management and climate change adaptation. The LMC mechanism is, therefore, well positioned for fostering coordination on adapting to shared climate impacts relating to transboundary water resources across the countries of the GMS. Every four or five years, the LMC plans to produce an Environmental Outlook Report series to communicate the progress and results of LMC activities across the GMS. The paper produced for this series by the proposed project will make use of information generated through the project demonstration sites (Output 1.3), as well as other knowledge products (Outputs 1.4., 2.1., 2.2. and 3.1.) that include information from other relevant projects.

Indicative activities to be implemented under Output 2.2. will include the following:

2.2.1. Identify policy barriers to climate change adaptation, upscaling and mainstreaming in the GMS, with a focus on policies relating to transboundary water and river basin management.

2.2.2. Develop one policy brief on good practice in managing shared climate change impacts (drought and floods) in the GMS.

2.2.3 Develop one policy brief on integrating climate change adaptation into transboundary water management.

2.2.4 Develop one policy brief on the cost-effectiveness of EbA for reducing vulnerability to climate change in the GMS.

2.2.5 Develop an original paper on climate change adaptation in the GMS with special reference to: i) concrete adaptation strategies – including EbA – for shared climate impacts like droughts and floods; ii) integrating climate change adaptation into transboundary water and river basin management; and iii) regional coordination on adapting to climate change.

*Output 2.3:* Knowledge on EbA that has been generated and collated through the project shared on the main regional knowledge platforms and presented at regional adaptation forums.

The knowledge products generated above (Outputs 1.4, 2.1 and 2.2) will be shared on several existing and relevant platforms, such as the ADB GMS CEP data portal<sup>84</sup> and the MRC data portal<sup>85</sup>. Additionally, the products will be shared on the Lancang-Mekong Information Sharing Platforms that are currently under development. Furthermore, generated and collated knowledge will be presented at three regional adaptation forums, such as the: i) CGIAR-WLE Greater Mekong Forum<sup>86</sup>; ii) Sida regional workshop; and iii) Asia Pacific Adaptation Network. By using existing regional platforms and forums, the best practices and lessons generated through the proposed project would not only benefit project countries but would also be shared with the other **four** GMS countries. This GMS-wide knowledge sharing approach would help achieve coordination on climate change adaptation at a regional level.

Indicative activities to be implemented under Output 2.3. will include the following:

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<sup>84</sup> <http://portal.gms-eoc.org/>

<sup>85</sup> <http://portal.mrcmekong.org/index>

<sup>86</sup> <https://wle-mekong.cgiar.org/>

- 2.3.1. Share M&E guidelines (Output 1.4), the cost-effectiveness analysis (Output 2.1) and policy briefs (Output 2.2) on three regional knowledge platforms.
- 2.3.2. Present M&E guidelines (Output 1.4), the cost-effectiveness analysis (Output 2.1) and policy briefs (Output 2.2) at three regional forums.

*Output 2.4:* National level knowledge-sharing strategy implemented in Thailand and Vietnam.

National-level knowledge-sharing strategies will be designed and executed in Thailand and Vietnam to share the best practices and lessons learned from project interventions between project beneficiaries and surrounding communities. This knowledge sharing will contribute to the autonomous upscaling and replication of project interventions beyond demonstration sites, thereby enhancing the climate resilience of non-beneficiary communities.

Indicative activities to be implemented under Output 2.4. will include the following:

- 2.4.1. Design knowledge-sharing strategies in Thailand and Vietnam that are locally appropriate and enhance the local transfer of applicable adaptation knowledge. Strategies may include: i) exchange visits; ii) awareness raising at temples and schools; iii) the establishment of climate change adaptation learning centres; and iv) awareness raising using media such as posters, radio and television.
- 2.4.2. Implement the knowledge-sharing strategies in communities surrounding the project demonstration sites in Thailand and Vietnam.

**Component 3:** Political cooperation on climate change adaptation.

This component will focus on strengthening regional cooperation on climate change adaptation by sharing knowledge on the implementation of climate change adaptation interventions in response to climate change risks common to all the GMS countries. This will promote the harmonisation of regional and national plans through the inclusion of similar, best-practice climate change adaptation interventions.

**Outcome 3:** Strengthened regional cooperation on climate change adaptation, particularly in response to floods and droughts, in the GMS.

Regional cooperation on climate change adaptation in the GMS will be strengthened through several knowledge-sharing and relationship-building activities at national and regional levels. Activities under this component will encourage a coordinated approach to adapting to floods and droughts in the GMS, with a particular focus on scaling up EbA into transboundary water and river basin management in the region. To strengthen cooperation at the desired regional scale, activities under Outcome 3 will use existing national and regional institutions, committees and mechanisms as conduits for sharing the knowledge with, and building relationships between, relevant stakeholders across the GMS.

*Output 3.1:* Recommendations for regional cooperation on the implementation of climate change adaptation interventions – based on the results of the project – developed and presented at: i) Lancang-Mekong policy dialogues; ii) MRC regional stakeholder forum on MASAP; iii) Thailand NAP stakeholder forum; and iv) Vietnam National Climate Change Strategy stakeholder forum.

Recommendations for regional cooperation on the scaling up of climate change adaptation interventions with a focus on transboundary water and river basin management will be developed. These will be based on the experience gained from the proposed project, as well as lessons learned from other adaptation and transboundary resource management projects in the GMS<sup>87</sup> and elsewhere<sup>88</sup>. The recommendations on regional cooperation will be shared with stakeholders at the primary national and regional climate change adaptation policy dialogues and forums across the GMS. The targeted stakeholders will include representatives from the countries involved directly in the proposed project, as well as from China, Cambodia, Lao PDR and Myanmar.

Indicative activities to be implemented under Output 3.1. will include the following:

- 3.1.1. Develop a set of recommendations on regional cooperation on implementing climate change adaptation interventions using information generated through: i) the proposed project; and ii) a review of past and ongoing projects on regional climate change adaptation and transboundary and river basin water management within and beyond the GMS.
- 3.1.2. Present the set of recommendations at primary national and regional climate change adaptation dialogues and forums, including: i) Lancang-Mekong policy dialogues; ii) the MRC regional stakeholder forum on MASAP; iii) the Thailand NAP stakeholder forum; and iv) the Vietnam National Climate Change Strategy stakeholder forum.

**Output 3.2:** Exchange visits for practitioners, policy-makers and planners to project intervention sites to exchange knowledge, encourage relationship-building and promote regional cooperation on climate change adaptation.

Intra- and inter-country exchange visits to project demonstration sites will be conducted by representatives from each project country. Participants may include representatives of: i) national government institutions; ii) country offices of regional institutions like the MRC and ADB; iii) national project teams; and iv) national research institutions. The exchange visits will allow for the exchange of ideas and knowledge between participants from different backgrounds and contexts. They will also highlight the importance of transboundary resources and shared climate impacts in the GMS. In doing so, the exchange visits will encourage relationship-building between high-level stakeholders from different countries in the GMS and, therefore, contribute to regional cooperation on climate change adaptation.

Indicative activities to be implemented under Output 3.2. will include the following:

- 3.2.1 Organise and conduct multiple exchange visits to each demonstration site of the proposed project. Exchange visits should involve *inter alia*: i) site visits; ii) formal and informal community consultations; iii) knowledge-sharing events; and iv) presentations by local project teams.
- 3.2.2 Generate reports which will include information and feedback on each of the exchange visits.

## **B. Innovativeness**

*Describe how the project /programme would promote new and innovative solutions to climate change adaptation, such as new approaches, technologies and mechanisms.*

The design of the proposed project incorporates innovative solutions which are centred around the concrete implementation of climate change adaptation interventions in the GMS. These interventions focus on drought and flood management and implications for transboundary river

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<sup>87</sup> For example, ADB GMS CEP works on the management of terrestrial transboundary natural resource areas.

<sup>88</sup> For example, GIZ is implementing a transboundary water management project in southern Africa.

basin management, and the regional dissemination of the resulting knowledge and lessons learned. Implementation of adaptation interventions, most notably EbA, is limited within the subregion and will be carried out in **two** vulnerable communities located in and around several different ecosystems in middle (Thailand) and lower (Vietnam) Mekong River. Coordinating the regional activities of the proposed project through UNEP-IEMP in Beijing will promote the exchange of innovative adaptation interventions (including EbA) from the CAS to other GMS countries and enable mainstreaming of project results into the LMC, a newly established political cooperation process led by China. Knowledge exchange, intra-country dialogue and political cooperation will reduce the possibility of uncoordinated responses to climate change between upstream and downstream countries. For decades, the robust cooperation on transboundary resources management in the region has been limited to the middle and lower Mekong countries (Cambodia, Lao PDR, Thailand and Vietnam), through institutions such as the Mekong River Commission. Engagement with Chinese institutions in this proposed project will, therefore, facilitate engagement between upstream- and downstream countries that will enhance regional cooperation on climate change adaptation and promote South-South knowledge exchange. The project will be among the first collaborative initiatives that connect Chinese institutions with regional and international partners in the GMS through the parallel implementation of adaptation interventions, knowledge exchange and policy development. As a result, South-South cooperation, a relatively new concept involving EbA, will be promoted in the sub-region.

Under Outcome 1 of the proposed project, the implementation of the above-mentioned climate change adaptation interventions will be carried out with a particular focus on drought and flood management, a common challenge across the GMS. Instead of using a one-size-fits-all approach to the management of these climate change-related threats, the project's interventions will be context specific (with regards to community and ecosystems). Furthermore, adaptation measures will be based on local knowledge and technologies available at each of the demonstration sites. These adaptation measures can then be used to advise drought and flood management in communities from similar socio-ecological contexts throughout the GMS.

During the proposed project's implementation period, an innovative monitoring programme (including a M&E plan) will be established under Output 1.3. This monitoring programme will collect information on the cost-effectiveness and monitor the results of the project's interventions across various socio-economic contexts. The information collected by the programme will then be used to develop guidelines which can advise the integration of M&E plans into future adaptation projects in the sub-region, as well as generate transferable knowledge and lessons learned (Output 1.4).

Output 2.3 includes the sharing of EbA knowledge – a relatively new concept in the region – and lessons learned generated during the project (Outputs 1.4., 2.1. and 2.2.) on regional knowledge platforms and adaptation forums. By sharing such knowledge on regional platforms and forums, the proposed project would benefit not only the selected countries but also those that were not directly involved with the project. This would, in turn, promote coordination and cooperation on climate change adaptation and transboundary water and river basin management across the GMS.

Under Output 2.4 of the proposed project, novel national-level knowledge-sharing strategies will be developed and implemented in Thailand and Vietnam. These strategies (including inter alia exchange visits and awareness raising via media) will ensure the transfer of best practices and lessons learned from project adaptation measures between beneficiary and neighbouring communities. Consequently, the autonomous upscaling and replication of measures beyond



demonstration sites will be promoted, which will strengthen the climate-resilience and adaptive capacity of non-target communities.

Approaches to strengthening transboundary cooperation are outlined by Outputs 3.1 and 3.2. Under Output 3.1, recommendations for the regional implementation of adaptation measures – particularly EbA – focusing on transboundary water and river basin management will be developed based on knowledge from the proposed as well as from past projects in the GMS.

Recommendations will then be shared with stakeholders from across the GMS at national and regional adaptation dialogues and forums – such as the Thailand NAP stakeholder forum and Lancang-Mekong policy dialogues. Utilising emerging national and regional climate change adaptation planning mechanisms to mainstream EbA represents an innovative aspect of the proposed project.

The regional exchange of knowledge generated by the proposed project will also be carried out under Output 3.2. This Output includes intra- and inter-country exchange visits by stakeholders from the GMS countries to project demonstration sites. The exchange visits will promote the exchange of innovative ideas, knowledge and skills between participants from different socioecological contexts.

### **C. Economic, social and environmental benefits**

*Describe how the project / programme would provide economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project / programme would avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy of the Adaptation Fund.*

Through on-the-ground climate change interventions in Thailand and Vietnam, the proposed project will directly benefit ~60,000 people from vulnerable communities in the GMS. Direct beneficiaries include ~10,000 in Thailand and ~50,000 in Vietnam. Indirect beneficiaries of the project include communities surrounding the implementation sites that will benefit from awareness-raising and knowledge-sharing, as well as communities upstream and downstream of intervention sites that will benefit from an improved supply of ecosystem goods and systems. The specific economic, social and environmental benefits expected from the project are presented below.

#### *Economic Benefits:*

Climate change threatens the natural resource-based livelihoods of ~75 million people in the GMS, which are vital for economic stability in the region. Increasing temperatures, erratic rainfall and increasing frequency of extreme weather events are expected to negatively impact agricultural yields, reduce the availability of fresh water, and threaten biodiversity and ecosystem services. Rural communities – making up nearly 67% of the GMS population – are particularly vulnerable because of their dependence on rain-fed agriculture and other climate-sensitive natural resources such as fishing and non-timber forest products. By implementing climate change adaptation interventions within vulnerable communities and ecosystems at demonstration sites, both the livelihoods of these vulnerable groups and the viability of the ecosystems they depend upon will be conserved and strengthened. Healthy ecosystems generate economic benefits by providing ecosystem goods and services to communities. For example, functioning ecosystems provide pollinators for food crops in agroforestry in Xishuangbanna and flood mitigation for communities around the wetland in the Mekong Delta. Furthermore, EbA has previously helped

communities in northeast Thailand adapt to climate change by improving agro-ecosystem health, thereby improving food security in the region. This is especially important for the proposed project's targeted communities in the demonstration sites, whose livelihoods are highly dependent on natural resources. EbA interventions have been shown to deliver favourable cost-benefit ratios compared with other adaptation approaches. A recent study by UN Environment<sup>89</sup> found that EbA interventions are not only less costly than other adaptation options, but also provide additional ecosystem benefits. The economic benefits of EbA are particularly important given the high poverty rate in the target communities. For example, the average poverty rate of the villagers at the Vietnam demonstration site is 17.2%, while 39-47% of income for landless households in these communities comes from fishing, aquaculture and other natural resources from the Tram Chim National Park.

Apart from improving the provision of ecosystem services, the project will build the technical capacity of local communities to plan climate change adaptation interventions and to exchange knowledge at a regional scale, promoting the adoption of climate-resilient livelihoods across vulnerable communities. Improved climate planning using EbA approaches ensures that investments in climate change adaptation that are urgently needed to safeguard the livelihoods of rural communities and the economic development of the GMS are economically and environmentally appropriate.

Further economic benefits in the short-term will be achieved through disaster risk reduction, by reducing damage to agricultural land and infrastructure by floods through the implementation of adaptation interventions. Furthermore, project activities will allow the various economic sectors to undertake medium- and long-term planning to reduce the negative impacts of climate change on land and water resources in the GMS.

### *Social benefits*

Outcome 1 of the proposed project will build the climate resilience of vulnerable communities in the GMS to the effects of droughts and floods. Activities under Outcome 1 will build the capacity of communities to plan and implement climate change adaptation interventions. The participatory approach to technical assessment – involving local stakeholder consultations and capacity building activities especially targeted at local administrative officials – will increase the technical capacity of local stakeholders, providing valuable human resources for future climate change adaptation activities beyond the lifespan of the project. Such activities will include a focus on gender sensitivity and social inclusiveness in EbA. Adaptation interventions and planning will incorporate gender-specific indigenous knowledge on local ecosystem services such as the use of NTFPs at the demonstration sites. Furthermore, women and vulnerable groups will be prioritised as key beneficiaries in demonstration activities to ensure that benefits accruing from on-the-ground activities are directly accessible. Specific training activities provided to local communities will target both women and vulnerable groups to improve living conditions, promote skills development and diversify livelihood opportunities. The incorporation of traditional knowledge shared by women, elderly and indigenous groups will directly benefit the project by identifying and prioritising EbA measures while increasing the value of those groups in society and contributing to social unity. Local accomplishments in terms of social inclusivity at the demonstration sites will be used as a model for further regional and national strategies.

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<sup>89</sup> UNEP/SPREP 2012. A comparative analysis of ecosystem-based adaptation and engineering options for Lami

Activities under Outcome 2 of the proposed project will provide opportunities for stakeholders to exchange knowledge on adaptation interventions based on successful practices and evidence generated from interventions at the demonstration sites, facilitating the expansion of projects and generating benefits at a larger scale. Additionally, a regional approach to transboundary water management will improve relationships between neighbouring countries as well as communities, and promote the sharing of resources and knowledge across the GMS.

Town, Fiji: Synthesis Report.

### *Environmental benefits*

In addition to building the climate resilience of vulnerable communities and ecosystems, EbA interventions implemented under Outcome 1 will provide multiple environmental benefits, including *inter alia*: i) carbon sequestration; ii) biodiversity conservation; iii) flood and drought mitigation; iv) improved agricultural production; v) increased water availability and quality; vi) increase soil nutrient contents; and vii) reduced environmental degradation. Furthermore, adaptation activities at the demonstration sites will provide opportunities to test and evaluate adaptation approaches to demonstrate knowledge of best practices. This will facilitate the upscaling of project interventions and increase the environmental benefits on a broader scale.

By providing recommendations on climate change adaptation to regional and institutions under Outcome 3, the proposed project will help guide policy dialogues and improve the regional planning and management of transboundary water catchments. This will result in regional environmental benefits including *inter alia* increased water quality and availability.

### **D. Cost-effectiveness**

*Describe or provide an analysis of the cost-effectiveness of the proposed project / programme and explain how the regional approach would support cost-effectiveness.*

There has been a limited focus on determining the cost-effectiveness of climate change adaptation interventions, including EbA, across the GMS as a whole. As a result, there is limited baseline information that can be used for comparative analyses of adaptation approaches which are sustainable and replicable across the entire GMS. Consequently, key outputs of the proposed AF project (1.3 and 2.1) will focus on the establishment of a monitoring programme to collect information on the cost-effectiveness of adaptation interventions in different socioeconomic contexts in the GMS. The information collected will be compared with that of other potential adaptation approaches with the objective of identifying the most cost-effective interventions to improve the climate-resilience of communities and ecosystems in the GMS.

The proposed project's activities under Component 1 will promote the concrete implementation of climate change adaptation interventions, with a particular focus on drought and flood management, which are common throughout the GMS. Such interventions, including EbA, will be based on local knowledge and can be implemented by communities using locally available materials. Furthermore, the interventions can be upscaled and replicated by communities facing common climate change threats (including floods and droughts) throughout the GMS, through knowledge sharing. A growing body of scientific literature suggests that EbA measures are cost-effective compared to the implementation of hard infrastructure. For example, an economic analysis on the use of EbA interventions and hard infrastructure in the Tha Di basin in Thailand

found that the cost of living check dams (one of the possible EbA interventions mentioned in Outcome 1) was ~2.5% of the total cost of constructing a concrete weir (THB50,000 and 2,000,000 respectively). Although the lifespan of the living check dam is ~10 years – compared to several decades for a concrete weir – the EbA intervention is clearly the most cost-effective option in the long-term. Additionally, living check dams are accepted socially and can be built in less than two weeks by community members, while concrete weirs have a low social acceptance and require the expertise of engineers for construction. A further example of the cost-effectiveness of the EbA approach also emerged from an economic analysis undertaken in Lami, Fiji. This analysis included assessments of the costs and benefits of three approaches to watershed management, namely: i) EbA measures only; ii) hard infrastructure interventions only; and iii) a hybrid approach applying both EbA measures and hard infrastructure interventions. The analysis demonstrated that EbA watershed management options are at least twice as cost-effective as hard infrastructure engineering options, i.e. a benefit:cost ratio of US\$19.50:1 for EbA compared to US\$9:1 for hard infrastructure.

Under Component 2, the expansion and sharing of the regional knowledge base on climate change adaptation in the GMS will occur through existing platforms (including the ADB GMS CEP data portal and the MRC data portal) and on the Lancang-Mekong Information Sharing Platforms that are currently being developed. Furthermore, the knowledge generated and lessons learnt during the project will be shared at three regional adaptation forums, such as the:

i) CGIAR-WLE Greater Mekong Forum; ii) Sida regional workshop; and iii) Asian Pacific Adaptation Network. Knowledge expansion and sharing via pre-existing regional platforms and forums will alleviate the need of the proposed project to invest in alternatives. Nationally, best practices and lessons learnt from project interventions will be shared between project beneficiaries and surrounding communities under knowledge-sharing strategies in Thailand and Vietnam. This knowledge sharing will contribute to the autonomous upscaling and replication of project interventions beyond demonstration sites, thereby enhancing the climate resilience of non-beneficiary communities, further demonstrating the cost-effectiveness of the proposed project.

## **E. Consistency with regional/national strategies**

*Describe how the project / programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist. If applicable, please refer to relevant regional plans and strategies where they exist.*

### **Regional level**

Relevant policy and strategic documents of the three main regional bodies related to Mekong transboundary management have been reviewed. These three bodies are: i) Lancang-Mekong Cooperation Mechanism<sup>90</sup>; ii) Mekong River Commission<sup>91</sup>; and iii) Greater Mekong Subregion

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<sup>90</sup> The Lancang-Mekong Cooperation (LMC) mechanism, initiated by China and officially launched in March 2016, is an emerging sub-regional cooperation that spans the entire Mekong and Lancang basin. The LMC mechanism has three pillars -- political and security issues; economic affairs and sustainable development; and social affairs and people-to-people exchanges. The Lancang-Mekong Environmental Cooperation under the LMC will promote cooperation of the Lancang-Mekong member countries' environmental protection, provide the platform on environmental laws and policy dialogues, and enhance the environmental management capacity, among others. Taking advantage of the cooperation, China is to further explore and practice South-South Environmental Cooperation with other countries to promote sustainable development of the Lancang-Mekong region.

<sup>91</sup> The MRC is an intergovernmental organisation for regional dialogue and cooperation in the Lower Mekong River Basin, established in 1995 based on the Mekong Agreement among Cambodia, Lao PDR, Thailand and Vietnam. The organisation serves as a regional platform for water diplomacy as well as a knowledge hub of water resources

Economic Cooperation Program<sup>106</sup>. The relevance and consistency of the proposed project with these regional strategies is presented below:

**Table 3:** Consistency with regional policies, plans and strategies on climate change

<b>REGIONAL</b>
<b>Sanya Declaration of the 1<sup>st</sup> Lancang-Mekong Cooperation Leaders' Meeting (2016)<sup>92</sup></b>
<p>The First Lancang-Mekong Cooperation (LMC) leaders' meeting was held in March 2016 in Sanya City, Hainan Province of China, to discuss future cooperation under the theme "shared river, shared future" and to exchange views on promoting the LMC mechanism, strengthening all-round cooperation at the sub-regional level and advancing regional integration.</p> <p>The proposed project components are aligned with the following measures agreed at the meeting:</p> <ol style="list-style-type: none"> <li>1. Promote high-level exchanges, dialogue and cooperation to enhance trust and understanding in the sub-region with a view to strengthening sustainable security.</li> <li>4. Enhance cooperation against uncommon security threats, including terrorism, transnational crimes, and natural disasters; promote cooperation in addressing climate change impacts, humanitarian assistance, ensuring food, water and energy security.</li> <li>10. Enhance cooperation among LMC countries in sustainable water resources management and utilization through activities such as the establishment of a center in China for Lancang-Mekong water resources cooperation to serve as a platform for LMC countries to strengthen comprehensive cooperation in technical exchanges, capacity building, drought and flood management, data and information sharing, conducting joint research and analysis related to Lancang-Mekong river resources.</li> <li>26. Encourage closer exchanges among government agencies, local provinces and districts, business associations and non-governmental organisations of our six countries to discuss and carry out relevant cooperation.</li> </ol>
<b>The Lancang-Mekong Environmental Cooperation Strategic Framework (2019-2023) (draft)</b>
<p>The framework is currently under preparation. Its main objectives are to define priority areas of Lancang-Mekong Environmental Cooperation, ensure necessary financial support and clarify key node and timeline arrangement. Under the support and joint efforts of related agencies, the framework will guide and serve the Lancang-Mekong Environmental Cooperation through an Action Plan which includes concrete projects. Aiming to be finalised by end of 2017, the latest draft framework (June 2017) has been reviewed to define the relevance to this proposed project.</p> <p>The proposed project components are aligned with the following (tentative) priority areas:</p> <ol style="list-style-type: none"> <li>1. Mainstreaming Environmental Policies.</li> <li>2. Environmental Capacity Building.</li> <li>3. Ecosystem Management and Biodiversity Conservation.</li> <li>4. Climate Change Adaptation and Mitigation.</li> <li>8. Management of Environmental Data and Information.</li> </ol>
<b>Mekong River Commission Basin Development Strategy 2016-2020</b>

management for the sustainable development of the region. China and Myanmar are Dialogue Partners to the MRC.  
<sup>106</sup> The Greater Mekong Subregion (GMS) is a program of subregional economic cooperation under the assistance from the Asian Development Bank (ADB) to enhance the six countries' economic relations, covering nine priority sectors: agriculture, energy, environment, human resource development, investment, telecommunications, tourism, transport infrastructure, and transport and trade facilitation. The GMS Core Environment Program is established in response to growing concern about the environmental impacts of rapid economic development with an aim to achieve an environmentally friendly and climate resilient GMS Program.

<sup>92</sup> Ref: [http://www.fmprc.gov.cn/mfa\\_eng/zxxx\\_662805/t1350039.shtml](http://www.fmprc.gov.cn/mfa_eng/zxxx_662805/t1350039.shtml)

The Strategy reflects the dynamic challenges encountered in the Lower Mekong Basin and takes a long-term view to deal with water security challenges, including flood, drought, climate change, hydropower, irrigation, fisheries, and industrial development. Specifically, it will address a number of basin-wide priorities, including among others, increasing cooperation with partners and stakeholders; reducing remaining knowledge gaps to minimise risks; optimising basin-wide sustainable development and cost and benefit sharing; strengthening the protection of mutually agreed environmental assets; strengthening basin-wide procedures and national implementation capacity, etc.<sup>9394</sup>

The proposed project components are aligned with:

- Priority 1: reduce remaining knowledge gaps to minimise risks.
- Priority 2: optimise basin-wide sustainable development and cost and benefit sharing.

- Priority 4: strengthen basin-wide procedures and national implementation capacity.
- Priority 6: enhance information management, communication and tools.
- Priority 7: increase cooperation with partners and stakeholders.

#### **Mekong River Commission Strategic Plan 2016-2020**

The Strategic Plan sets out how for the period 2016-2020 the MRC will deliver the role established by the 1995 Mekong Agreement, i.e. to promote and coordinate sustainable development and management of the Mekong's water and related natural resources.<sup>95</sup>

The proposed project components are aligned with:

- Outcome 1: increased common understanding and application of evidence-based knowledge by policy makers and project planners.
- Outcome 5: effective dialogue and cooperation between member countries and strategic engagement of regional partners and stakeholders on transboundary water management.
- Outcome 6: basin-wide monitoring, forecasting, impact assessment and dissemination of results strengthened for better decision-making by member countries.

#### **Mekong Adaptation Strategy and Action Plan (draft)**

Mekong Adaptation Strategy and Action Plan (MASAP) has been formulated as a regional adaptation strategy. It is setting a vision for the Lower Mekong Basin, aiming at strengthening the basin-wide resilience and ensuring sustainable development of the basin in line with the 1995 Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin. The MASAP sets out the strategic priorities and actions at basin level to address climate change risks on the basin and strengthen basin-wide resilience. Aiming to be finalised by end of 2017, the latest draft (June 2017) has been reviewed to define the relevance to this proposed project.

The proposed project components are aligned with all the seven strategic priorities for basin-wide adaptation to climate change:

1. Mainstream climate change into regional and national policies, programmes and plans;
2. Enhance regional and international cooperation and partnership on adaptation;
3. Enable implementation of transboundary and gender-sensitive adaptation options;
4. Support access to adaptation finance;
5. Enhance monitoring, data collection and sharing;
6. Strengthen capacity on development of climate change adaptation strategies and plans; and
7. Improve outreach of MRC products on climate change and adaptation.

#### **The Greater Mekong Subregion Economic Cooperation Program Strategic Framework 2012–2022<sup>96</sup>**

<sup>93</sup> Ref: <http://www.mrcmekong.org/assets/Publications/strategies-workprog/MRC-BDP-strategy-complete-final-.16.pdf>

<sup>95</sup> Ref: <http://www.mrcmekong.org/highlights/strategic-plan-2016-2020/>

<sup>96</sup> Ref: <https://www.greatermekong.org/sites/default/files/gms-ec-framework-2012-2022.pdf>

The 10-year strategic framework builds on the substantial progress the program has made, the likely future global and regional trends, the commitment that member countries have made in their national development plans to the promotion of regional integration, and the greater GMS integration within ASEAN and the Asia region. The vision and goals to guide the program include: (1) GMS countries envision a Mekong subregion that is more integrated, prosperous, and equitable. (2) The GMS Program will contribute to realising the potential of the subregion through (i) an enabling policy environment and effective infrastructure linkages that will facilitate cross-border trade, investment, tourism, and other forms of economic cooperation; and (ii) the development of human resources and skills competencies. (3) To ensure that this development process is equitable and sustainable, environmental and social interests will be fully respected in the formulation and implementation of the GMS Program.

The proposed project components are aligned with the sector/multi-sector priorities:

- Agriculture: Pillar 2: Promoting climate-friendly agriculture and natural resource management.
- Climate change adaptation and mitigation: GMS countries are also concerned about the potential negative impacts of climate change on food and energy security. Increasing weather variability is also likely to increase the vulnerability of ecosystem services and amplify impacts on dependent poor communities.

**The Greater Mekong Sub-region Economic Cooperation Program Joint Ministerial Statement, 4<sup>th</sup> Environment Ministers' Meeting (2015)<sup>97</sup>**

This formal gathering of ministers, organised in Nay Pyi Taw, Myanmar, in January 2015, aimed to build a shared understanding among government and non-government environment leaders on key natural capital issues and solutions. It provided a platform for Ministers to give directions and discuss approaches for addressing environmental challenges faced by the GMS. The Joint Ministerial Statement provides political support and direction for increasing investments in natural capital.

The proposed project components are aligned with the following paragraphs from the joint ministerial statement:

- Stating that the region and its people are highly vulnerable to climate change and increased risk of natural disasters. Concerted efforts are needed, including through regional cooperation, to mitigate these impacts and to promote sustainable development.
- Encouraging to effectively implement the Core Environment Program Phase II with a focus on the following two priorities:
  - safeguarding the sub-region's natural capital/resources and associated ecosystem services; and
  - working more efficiently and effectively with other GMS working groups, development partners and stakeholders to operationalize the Regional Investment Framework Implementation Plan.

## Country level

The proposed project is well-aligned with national strategies. The relevance and consistency of the proposed project with national strategies is presented below:

**Table 4:** Consistency with national policies, plans and strategies on climate change.

<b>NATIONAL</b>	
<b>Cambodia</b>	
Component 1 of the project is aligned with:	<p><b>Cambodia Climate Change Strategic Plan 2014-2023</b></p> <ul style="list-style-type: none"> <li>• Strategic objective 5. Improve capacities, knowledge and awareness of climate change responses.</li> </ul> <p><b>Climate Change Action Plan 2016-2018</b></p> <ul style="list-style-type: none"> <li>• Action 12: Launch and roll out of the national and sectoral M&amp;E system.</li> </ul>

<sup>97</sup> Ref: <http://www.gms-eoc.org/uploads/resources/559/attachment/7.Joint%20Ministerial%20Statement%20FINAL.pdf>

	<p><b>National Strategic Development Plan 2014-2018</b> The following are identified as needed:</p> <ul style="list-style-type: none"> <li>• data and data management mechanisms for analysing and supporting responses to climate change.</li> <li>• a knowledge management system for collection, analysis, and dissemination of data/knowledge, including knowledge of local communities on climate change.</li> </ul>
<p>Component 2 of the project is aligned with:</p>	<p><b>Cambodia Climate Change Strategic Plan 2014-2023</b></p> <ul style="list-style-type: none"> <li>• Strategic objective 1. Promote climate resilience through improving food, water and energy security.</li> <li>• Strategic objective 2. Reduce sectoral, regional, gender vulnerability and health risks to climate change impacts.</li> <li>• Strategic objective 3. Ensure climate resilience of critical ecosystems (Tonle Sap Lake, Mekong River, coastal ecosystems, highlands, etc.), biodiversity, protected areas and cultural heritage sites.</li> <li>• Strategic objective 5. Improve capacities, knowledge and awareness of climate change responses.</li> <li>• Strategic objective 7. Strengthen institutions and coordination frameworks for national climate change responses.</li> </ul> <p><b>Climate Change Action Plan 2016-2018</b></p> <ul style="list-style-type: none"> <li>• Action 8: Establishment of a knowledge management system on climate change and green growth.</li> <li>• Action 9: Integrate climate change and environmental issues into the curriculum at all levels.</li> <li>• Action 10: Engage and raise awareness on climate change and green growth/sustainable consumption and production.</li> <li>• Action 11: Promote and improve the adaptive capacity of communities to respond to climate change.</li> <li>• Action 12: Launch and roll out of the national and sectoral M&amp;E system.</li> <li>• Action 13: Capacity building of national institutions coordinating climate change response.</li> <li>• Action 14: Support to line ministries to climate mainstreaming into development planning and budgeting.</li> </ul> <p><b>Cambodia's First Nationally Determined Contribution (2015)</b> Cambodia's priority adaptation actions include:</p> <ul style="list-style-type: none"> <li>• Promoting and improving the adaptive capacity of communities, especially through community-based adaptation actions, and restoring the natural ecology system to respond to climate change.</li> <li>• Implementing management measures for protected areas to adapt to climate change.</li> <li>• Developing and rehabilitating the flood protection dykes for agricultural and urban development.</li> <li>• Increasing the use of mobile pumping stations and permanent stations in responding to mini-droughts, and promoting groundwater research in response to drought and climate risk.</li> <li>• Developing climate-proof agriculture systems for adapting to changes in water variability to enhance crop yields.</li> <li>• Developing crop varieties suitable to Agro-Ecological Zones (AEZ) and resilient to climate change.</li> <li>• Strengthening technical and institutional capacity to conduct climate change impact assessments, climate change projections, and mainstreaming of climate change into sector and sub-sector development plans.</li> </ul> <p><b>Second National Communication (SNC, 2015)</b></p> <ul style="list-style-type: none"> <li>• South-South cooperation, in addition to North-South cooperation, should be given due attention to ensure transfer of appropriate and least-cost technologies. The</li> </ul>



	<p>transfer of adaptation technologies to Cambodia is even more important than the transfer of mitigation technologies, given Cambodia's high vulnerability to the impacts of climate change.</p> <p><b>National Adaptation Programme of Action to Climate Change (NAPA, 2006)</b></p> <ul style="list-style-type: none"> <li>• 17 (out of totally 24) provinces surveyed on climatic hazards have suffered from both floods and droughts. Villagers have identified floods and droughts as the most severe climate hazards in all the 17 provinces surveyed. Water shortages are a common occurrence all year-round.</li> <li>• Current national policies and programmes do not integrate global policies on climate change, focusing mainly on post-disaster emergency relief.</li> <li>• Programmes for improving community capacity and enhancing community-based initiatives to cope with climate hazards and adapt to climate variability receives little attention. Furthermore, these programmes have limited geographical coverage of areas identified as vulnerable to climate hazards.</li> </ul> <p><b>National Strategic Development Plan 2014-2018</b> The following are identified as needed:</p> <ul style="list-style-type: none"> <li>• data and data management mechanisms for analysing and supporting responses to climate change.</li> <li>• a knowledge management system for collection, analysis, and dissemination of data/knowledge, including knowledge of local communities on climate change.</li> <li>• measures to control environment and ecosystems.</li> <li>• farmers' capacities in adapting to climate change in agriculture.</li> <li>• mitigation of impacts of climate change through the development of agroindustries.</li> <li>• technological and scientific capacity strengthening to assess vulnerabilities and hazard-prone areas in relation to climate change.</li> <li>• technical and institutional capacity strengthening to promote the mainstreaming of climate change responses into the policies, laws and plans at national and subnational level.</li> <li>• capacity strengthening of national and sub-national officials, particularly at the community levels, on disaster risk reduction, climate change adaptation, and hazard resilience.</li> <li>• coordination and enhancement of capacity and public awareness on climate change at national and local levels.</li> <li>• intensifying efforts to reduce the impact of climate change by strengthening the adaptation capacity and resiliency to climate change.</li> </ul>
<p>Component 3 of the project is aligned with:</p>	<p><b>Cambodia Climate Change Strategic Plan 2014-2023</b></p> <ul style="list-style-type: none"> <li>• Strategic objective 1. Promote climate resilience through improving food, water and energy security.</li> <li>• Strategic objective 2. Reduce sectoral, regional, gender vulnerability and health risks to climate change impacts.</li> <li>• Strategic objective 3. Ensure climate resilience of critical ecosystems (Tonle Sap Lake, Mekong River, coastal ecosystems, highlands, etc.), biodiversity, protected areas and cultural heritage sites.</li> <li>• Strategic objective 5. Improve capacities, knowledge and awareness of climate change responses.</li> <li>• Strategic objective 7. Strengthen institutions and coordination frameworks for national climate change responses.</li> <li>• Strategic objective 8. Strengthen collaboration and active participation in regional and global climate change processes.</li> </ul> <p><b>Climate Change Action Plan 2016-2018</b></p> <ul style="list-style-type: none"> <li>• Action 8: Establishment of a knowledge management system on climate change and green growth.</li> <li>• Action 9: Integrate climate change and environmental issues into the curriculum at</li> </ul>

	<p>all levels.</p> <ul style="list-style-type: none"> <li>• Action 10: Engage and raise awareness on climate change and green growth/sustainable consumption and production.</li> <li>• Action 11: Promote and improve the adaptive capacity of communities to respond to climate change.</li> <li>• Action 12: Launch and roll out of the national and sectoral M&amp;E system.</li> <li>• Action 13: Capacity building of national institutions coordinating climate change response.</li> <li>• Action 14: Support to line ministries to climate mainstreaming into development planning and budgeting.</li> </ul> <p><b>Cambodia’s First Nationally Determined Contribution (2015)</b> Cambodia’s priority adaptation actions include:</p> <ul style="list-style-type: none"> <li>• Strengthening technical and institutional capacity to conduct climate change impact assessments, climate change projections, and mainstreaming of climate change into sector and sub-sector development plans.</li> </ul> <p><b>Second National Communication (SNC, 2015)</b></p> <ul style="list-style-type: none"> <li>• South-South cooperation, in addition to North-South cooperation, should be given due attention to ensure transfer of appropriate and least-cost technologies. The transfer of adaptation technologies to Cambodia is even more important than the transfer of mitigation technologies, given Cambodia’s high vulnerability to the impacts of climate change.</li> <li>• The general integration of climate change risks into policy, plans and strategies at the national and sub-national levels needs strengthening.</li> </ul> <p><b>National Adaptation Programme of Action to Climate Change (NAPA, 2006)</b></p> <ul style="list-style-type: none"> <li>• 17 (out of totally 24) provinces surveyed on climatic hazards have suffered from both floods and droughts. Villagers have identified floods and droughts as the most severe climate hazards in all the 17 provinces surveyed. Water shortages are a common occurrence all year-round.</li> <li>• Current national policies and programmes do not integrate global policies on climate change, focusing mainly on post-disaster emergency relief. Programmes for improving community capacity and enhancing community-based initiatives to cope with climate hazards and adapt to climate variability receives little attention. Furthermore, these programmes have limited geographical coverage of areas identified as vulnerable to climate hazards. <b>National Strategic Development Plan 2014-2018</b> The following are identified as needed:</li> <li>• data and data management mechanisms for analysing and supporting responses to climate change.</li> <li>• a knowledge management system for collection, analysis, and dissemination of data/knowledge, including knowledge of local communities on climate change.</li> <li>• measures to control environment and ecosystems.</li> <li>• farmers’ capacities in adapting to climate change in agriculture.</li> <li>• mitigation of impacts of climate change through the development of agroindustries.</li> <li>• technological and scientific capacity strengthening to assess vulnerabilities and hazard-prone areas in relation to climate change.</li> <li>• technical and institutional capacity strengthening to promote the mainstreaming of climate change responses into the policies, laws and plans at national and subnational level.</li> <li>• capacity strengthening of national and sub-national officials, particularly at the community levels, on disaster risk reduction, climate change adaptation, and hazard resilience.</li> <li>• coordination and enhancement of capacity and public awareness on climate change at national and local levels.</li> <li>• intensifying efforts to reduce the impact of climate change by strengthening the</li> </ul>
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	<p>adaptation capacity and resiliency to climate change.</p> <ul style="list-style-type: none"> <li>• increasing the involvement in international cooperation in the water sector to ensure the sustainability and effectiveness of water resources use as well as to address negative impacts arising from floods, droughts and climate change.</li> <li>• Increasing the awareness and encouraging the implementation of river basin development and management plan with the cooperation of concerned ministries, stakeholders and beneficiaries, especially women.</li> </ul>
<b>China</b>	
Component 1 of the project is aligned with:	<p><b>National Strategy for Climate Change Adaptation (2013-2020)</b></p> <ul style="list-style-type: none"> <li>• To strengthen the effective protection of existing forest resources and other natural ecosystems.</li> <li>• To enhance water resource management.</li> </ul> <p><b>Second National Communication (SNC, 2012)</b></p> <ul style="list-style-type: none"> <li>• China will take effective policies and measures to enhance climate change adaptation capability by enhancing scientific research on climate change, observations and impact assessments.</li> </ul> <p><b>China's 13<sup>th</sup> Socio-Economic Development Plan (2016-2020)</b></p> <ul style="list-style-type: none"> <li>• To strengthen the systematic monitoring of climate change and the related scientific research.</li> <li>•</li> </ul>
Component 2 and 3 of the project is aligned with:	<p><b>National Strategy for Climate Change Adaptation (2013-2020)</b></p> <ul style="list-style-type: none"> <li>• To share climate change adaptation experience with other developing countries by capacity building and joint-research.</li> <li>• To conduct South-South Cooperation in terms of water resource management.</li> </ul> <p><b>Enhanced Actions on Climate Change: China's First Nationally Determined Contributions (NDC, 2015)</b></p> <ul style="list-style-type: none"> <li>• To share good experience and best practices on climate change.</li> <li>• To conduct climate change international dialogue and communication.</li> <li>• To strengthen relevant policy coordination, and to conduct concrete cooperation.</li> </ul> <p><b>China's 13<sup>th</sup> Socio-Economic Development Plan (2016-2020)</b></p> <ul style="list-style-type: none"> <li>• To enhance transboundary river governance and to promote cooperation with the involved neighbouring countries.</li> <li>• To strengthen bilateral or multilateral dialogue and concrete cooperation on climate change.</li> </ul>
<b>Lao PDR</b>	

<p>Component 2 and 3 of the project is aligned with:</p>	<p><b>Lao PDR's First Nationally Determined Contribution (2015)</b></p> <ul style="list-style-type: none"> <li>• Enhance cooperation, strong alliances and partnerships with national stakeholders and international partners to achieve national development goals.</li> <li>• Improve public awareness and understanding of various stakeholders about climate change, vulnerabilities and impacts in order to increase stakeholder willingness to take actions.</li> <li>• Promotion of climate change capacity in the water resource sector.</li> <li>• Manage watersheds and wetlands for climate change resilience. <b>Second National Communication (SNC, 2013)</b></li> <li>• The need of strengthening regional cooperation (such as Mekong sub-region) to enhance more practical, applicable and cost-effective technological transfers and knowledge exchange.</li> <li>• The need of more effective mainstreaming of the strategy with the sustainable social and economic development process of the country.</li> <li>• The need of developing technical capacities of relevant national personnel with regard to vulnerability and adaptation.</li> </ul> <p><b>National Adaptation Programme of Action (NAPA, 2009)</b></p> <ul style="list-style-type: none"> <li>• Priority 1: Strengthen the capacity of the national disaster management committees.</li> </ul>
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	<ul style="list-style-type: none"> <li>• Priority 5: Awareness raising on water and water resource management.</li> <li>• Priority 8: Strengthen institutional and human resource capacities related to water and water resource management.</li> </ul> <p><b>National Socio-Economic Development Plan (NSED, 2016-2020)</b></p> <ul style="list-style-type: none"> <li>• Create coordination mechanism between the government, private sector, international organisations and development partners to jointly contribute to meeting all the NSED's targets.</li> <li>• Outcome 3, Output 1: environmental protection and sustainable natural resources management.</li> <li>• Outcome 3, Output 2: prepare to cope with the disaster risks and impacts from climate change.</li> <li>• Outcome 3, Output 3: Reducing the instability of agricultural production caused by disaster impact.</li> </ul>
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**Myanmar**

<p>Component 1 of the project is aligned with:</p>	<p><b>National Adaptation Programme of Action (NAPA, 2012)</b></p> <ul style="list-style-type: none"> <li>• The first priority in agriculture sector: reduced climate change vulnerability of rural and subsistence farmers through locally relevant technologies, climate-resilient rice varieties, and ex/in-situ conservation of plant genetic resources.</li> </ul> <p><b>Initial National Communication (INC, 2012)</b></p> <ul style="list-style-type: none"> <li>• A need of identifying cost-effective technological and policy adaptation measures.</li> </ul>
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<p>Component 2 and 3 of the project is aligned with:</p>	<p><b>National Adaptation Programme of Action (NAPA, 2012)</b></p> <ul style="list-style-type: none"> <li>• The second priority of biodiversity sector: mainstreaming ecosystem-based climate change adaptation for buffering rural communities against climate change impacts into policy, planning and relevant projects. <b>Initial National Communication (INC, 2012)</b></li> <li>• Lack of training, information and experience on environmentally sound technologies information systems.</li> <li>• A need of integrating climate change concerns into national long-term socioeconomic and environmental planning.</li> </ul>
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**Thailand**

<p>Component 1 of the project is aligned with:</p>	<p><b>Climate Change Master Plan 2015-2050</b></p> <ul style="list-style-type: none"> <li>• Measure 1.1 (1) Water, flood and drought management: Integrated water management.</li> <li>• Measure 1.1 (2) Water, flood and drought management: Preparedness to deal with and to reduce damages from flood and drought.</li> <li>• Measure 1.1 (3) Water, flood and drought management: Flood and drought risk management</li> <li>• Measure 1.2 (1) Agriculture and food security: Natural disaster risk management.</li> <li>• Measure 1.2 (2) Agriculture and food security: Preparedness to deal with and to adapt to climate change.</li> <li>• Measure 1.2 (3) Agriculture and food security: Food security and maintenance.</li> <li>• Measure 1.5 (1) Natural resources management: Conservation and restoration of healthy natural resources and ecosystems.</li> <li>• Measure 1.5 (2) Natural resources management: Regulation and control on sustainable use of natural resources.</li> <li>• Measure 1.6 (1) Human settlement and security: Reduction of risk and damages from natural disasters.</li> <li>• Measure 1.6 (2) Human settlement and security: Preparedness and capacity of communities to adapt.</li> <li>• Measure 3.1 (1) Information, research and technology development: Development of information and research.</li> <li>• Measure 3.1 (2) Information, research and technology development: Development of technology.</li> <li>• Measure 3.3 (1) Awareness raising and capacity building on climate change:</li> </ul>
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	<p>Academic and research groups.</p> <ul style="list-style-type: none"> <li>• Measure 3.3 (3) Awareness raising and capacity building on climate change: Governmental officials and agencies.</li> </ul> <p><b>Thailand's First Nationally Determined Contribution (2015)</b> Thailand's prioritised adaptation efforts include:</p> <ul style="list-style-type: none"> <li>• Promote and strengthen Integrated Water Resources Management (IWRM) practices to achieve water security, effective water resource management to mitigate flood and drought.</li> <li>• Safeguard food security through the guidance of Sufficiency Economy Philosophy e.g. an application of the New Theory in agriculture and land management to promote appropriate resource allocation and economic diversification at the household level and sustainable management of community forests to promote food security at the community level, for instance.</li> <li>• Promote sustainable agriculture and Good Agricultural Practice.</li> <li>• Increase national forest cover to 40% through local community participation, including in particular headwater and mangrove forests to enhance adaptive capacities of the related ecosystem.</li> <li>• Safeguard biodiversity and restore ecological integrity in protected areas and important landscapes from the adverse impacts of climate change, with the emphasis on vulnerable ecosystems and red list species.</li> <li>• Strengthen disaster risk reduction and reduce population's vulnerability to climate risk and extreme weather events through enhanced awareness, coordination and adaptive capacity of local communities, especially in the disaster risk-prone areas.</li> </ul> <p><b>12<sup>th</sup> National Economic and Social Development Plan 2017-2021</b></p> <ul style="list-style-type: none"> <li>• Strategy 4, guideline 3.1.1 Conserve and restore forest resources for ecological balance.</li> <li>• Strategy 4, guideline 3.1.2 Conserve and sustainably utilise biodiversity.</li> <li>• Strategy 4, guideline 3.2.4 Improve efficiency of water storage and water distribution systems.</li> <li>• Strategy 4, guideline 3.4.2 Support agricultural production sector to become sustainable agriculture.</li> <li>• Strategy 4, guideline 3.4.5 Build knowledge, understanding, awareness, and participation of the public and different sectors to deal with climate change</li> <li>• Strategy 4, guideline 3.6.2 Build capacity in disaster preparedness.</li> </ul>
<p>Component 2 of the project is aligned with:</p>	<p><b>Climate Change Master Plan 2015-2050</b></p> <ul style="list-style-type: none"> <li>• Measure 3.1 (1) Information, research and technology development: Development of information and research.</li> <li>• Measure 3.1 (2) Information, research and technology development: Development of technology.</li> <li>• Measure 3.2 (1) Development of mechanisms to support climate change management: Mechanisms to support climate change adaptation.</li> <li>• Measure 3.2 (3) Development of mechanisms to support climate change management: Mechanisms to support related development sectors.</li> <li>• Measure 3.3 (1) Awareness raising and capacity building on climate change: Academic and research groups.</li> <li>• Measure 3.3 (3) Awareness raising and capacity building on climate change: Governmental officials and agencies.</li> </ul> <p><b>Thailand's First Nationally Determined Contribution (2015)</b></p> <ul style="list-style-type: none"> <li>• Thailand's prioritised adaptation efforts include: Build regional climate resilience by serving as a knowledge hub to foster regional cooperation and exchange experiences on adaptation.</li> </ul> <p><b>Second National Communication (SNC, 2011)</b></p> <ul style="list-style-type: none"> <li>• Needs identified include: developing climate change scenarios at the sub-regional level; developing socio-economic scenarios for use in vulnerability analyses;</li> </ul>

	<p>analysing climate change effects on major sectors such as agriculture and water; prioritising adaptation options within and across various sectors; developing regional information exchanges and communication.</p> <p><b>12<sup>th</sup> National Economic and Social Development Plan 2017-2021</b></p> <ul style="list-style-type: none"> <li>• Strategy 4, guideline 3.5.1 Enact and improve the laws related to climate change in order to support international agreements on climate change.</li> <li>• Strategy 4, guideline 3.5.4 Increase capacity on research and development related to science, technology and innovation to support climate change adaptation.</li> <li>• Strategy 4, guideline 3.4.5 Build knowledge, understanding, awareness, and participation of the public and different sectors to deal with climate change</li> <li>• Strategy 4, guideline 3.6.2 Build capacity in disaster preparedness.</li> </ul>
<p>Component 3 of the project is aligned with:</p>	<p><b>Climate Change Master Plan 2015-2050</b></p> <ul style="list-style-type: none"> <li>• Measure 3.2 (1) Development of mechanisms to support climate change management: Mechanisms to support climate change adaptation.</li> <li>• Measure 3.2 (3) Development of mechanisms to support climate change management: Mechanisms to support related development sectors.</li> <li>• Measure 3.3 (1) Awareness raising and capacity building on climate change: Academic and research groups.</li> <li>• Measure 3.3 (3) Awareness raising and capacity building on climate change: Governmental officials and agencies.</li> </ul> <p><b>Thailand's First Nationally Determined Contribution (2015)</b></p> <ul style="list-style-type: none"> <li>• Thailand's prioritised adaptation efforts include: Build regional climate resilience by serving as a knowledge hub to foster regional cooperation and exchange experiences on adaptation.</li> </ul> <p><b>Second National Communication (SNC, 2011)</b></p> <ul style="list-style-type: none"> <li>• Needs identified include: Develop regional information exchanges and communication.</li> </ul> <p><b>12<sup>th</sup> National Economic and Social Development Plan 2017-2021</b></p> <ul style="list-style-type: none"> <li>• Strategy 4, guideline 3.5.1 Enact and improve the laws related to climate change in order to support international agreements on climate change.</li> <li>• Strategy 4, guideline 3.5.4 Increase capacity on research and development related to science, technology and innovation to support climate change adaptation.</li> <li>• Strategy 4, guideline 3.4.5 Build knowledge, understanding, awareness, and participation of the public and different sectors to deal with climate change.</li> <li>• Strategy 4, guideline 3.6.2 Build capacity in disaster preparedness.</li> <li>• Strategy 4, guideline 3.8 Develop international cooperation on environment.</li> <li>• Strategy 10, guideline 3.6.1 Increase the roles and participation of Thailand in international organisations.</li> </ul>
<b>Vietnam</b>	
<p>Component 1 of the project is aligned with:</p>	<p><b>National Climate Change Strategy 2011-2020</b></p> <ul style="list-style-type: none"> <li>• Task 1.b/ Proactive disaster response and climate monitoring: Reduction of damage due to disaster risks.</li> <li>• Task 2.a/ Food and water resource security assurance: Food security.</li> <li>• Task 2.b/ Food and water resource security assurance: Water resource security.</li> <li>• Task 3. Suitable proactive response to sea level rise in vulnerable areas</li> <li>• Task 4. Protection and sustainable development of forests, increase of GHG absorption and biodiversity conservation.</li> <li>• Task 7.a/ Building of communities to effectively respond to climate change: Communities responding to climate change.</li> <li>• Task 7.c/ Building of communities to effectively respond to climate change: Raising awareness, intensifying education and training.</li> </ul> <p><b>Vietnam's First Nationally Determined Contribution (2015)</b></p> <ul style="list-style-type: none"> <li>• There is a need for international assistance as well as cooperation with other developing countries on: tools to assess climate change impacts, vulnerability,</li> </ul>

	<p>exposure and climate change adaptation measures; as well as to strengthen the capacity to adapt to climate change at national and local level.</p> <ul style="list-style-type: none"> <li>• Adaptation priority actions for the period 2021-2030 include: Implement ecosystem-based adaptation through the development of ecosystem services and biodiversity conservation, with a focus on the preservation of genetic resources, species at risk of extinction, and important ecosystems.</li> </ul> <p><b>Plan for Implementation of the Paris Agreement (2016)</b> Implementation of climate change adaptation activities 2016-2020 include:</p> <ul style="list-style-type: none"> <li>• Assessing the level of risk and vulnerability to climate change, identify the needs for climate change adaptation, loss and damage caused by climate change.</li> <li>• Developing and implementing effective projects to prevent and control natural disasters, respond to climate change in each sector.</li> <li>• Implementation of other activities to adapt to climate change to increase resilience, protect people's livelihoods and create the conditions for greater contributions in GHG emissions, including programs and projects underway or have been approved or are being developed in accordance with the priorities of the Government, Ministries, sectors and localities which have secured resources or can mobilize resources to implement.</li> </ul> <p><b>The Initial Biennial Updated Report (BUR, 2014)</b></p> <ul style="list-style-type: none"> <li>• The four criteria to evaluate and select priority adaptation technologies: (i) economic benefits; (ii) social benefits; (iii) environmental benefits and (iv) reduction of vulnerability to climate change.</li> </ul> <p><b>National Target Program to Respond to Climate Change (NTP-RCC, 2008)</b></p> <ul style="list-style-type: none"> <li>• Activity 2: identify measures to respond to climate change based on results of climate change results and vulnerability assessment for sector/areas and localities.</li> </ul> <p><b>Socio-Economic Development Plan 2016-2020</b></p> <ul style="list-style-type: none"> <li>• Strengthen management of natural resources, minerals and environmental protection.</li> <li>• Protect water sources, build infrastructure system to encourage the effective and thrifty use of water resources, ensure sufficient supply of water for production and consumption by businesses and citizens.</li> </ul>
<p>Component 2 of the project is aligned with:</p>	<p><b>National Climate Change Strategy 2011-2020</b></p> <ul style="list-style-type: none"> <li>• Task 6.a/ Increasing the decisive role of the State in climate change response: Adjusting, and integrating climate change issues into, strategies, master plans and plans.</li> <li>• Task 6.b/ Increasing the decisive role of the State in climate change response: Improving and strengthening institutions.</li> <li>• Task 7.c/ Building of communities to effectively respond to climate change: Raising awareness, intensifying education and training.</li> <li>• Task 8. Development of advanced sciences and technologies for climate change response.</li> <li>• Task 9. Promotion of international cooperation and integration to enhance the country's status in climate change issues.</li> </ul> <p><b>Vietnam's First Nationally Determined Contribution (2015)</b></p> <ul style="list-style-type: none"> <li>• There is a need for international assistance as well as cooperation with other developing countries on: tools to assess climate change impacts, vulnerability, exposure and climate change adaptation measures; as well as to strengthen the capacity to adapt to climate change at national and local level.</li> </ul> <p><b>Plan for Implementation of the Paris Agreement (2016)</b> Implementation of climate change adaptation activities 2016-2020 include:</p> <ul style="list-style-type: none"> <li>• Reviewing the existing database on adaptation to climate change, propose additional research and management, data sharing practices to update reports of national contribution to climate change adaptation.</li> </ul> <p><b>The Initial Biennial Updated Report (BUR, 2014)</b></p>



	<ul style="list-style-type: none"> <li>Capacity needs in the areas of (i) improving capacity and effectiveness of early</li> </ul>
	<p>warning and disaster prevention, and (ii) assessment of water resources, climate resource, climate change and climate change impacts. <b>Second National Communication (SNC, 2010)</b></p> <ul style="list-style-type: none"> <li>Capacity building needs in the areas of (i) assessment of vulnerability for ecosystems, economic and social impacts of climate change, and development of appropriate adaptation measure, and (ii) application of cost-benefit analysis to assess climate change response measures and solutions.</li> </ul> <p><b>Socio-Economic Development Plan 2016-2020</b></p> <ul style="list-style-type: none"> <li>Strengthen organisational structure, forces, operating mechanisms associated with the synchronous deployment of measures to protect and develop forests, especially coastal protection forests, watershed forests, and special-use forests.</li> </ul>

<p>Component 3 of the project is aligned with:</p>	<p><b>National Climate Change Strategy 2011-2020</b></p> <ul style="list-style-type: none"> <li>• Task 6.a/ Increasing the decisive role of the State in climate change response: Adjusting, and integrating climate change issues into, strategies, master plans and plans.</li> <li>• Task 6.b/ Increasing the decisive role of the State in climate change response: Improving and strengthening institutions.</li> <li>• Task 7.c/ Building of communities to effectively respond to climate change: Raising awareness, intensifying education and training.</li> <li>• Task 9. Promotion of international cooperation and integration to enhance the country's status in climate change issues.</li> <li>• Task 10. Diversification of financial resources and effective concentrated investment.</li> </ul> <p><b>Vietnam's First Nationally Determined Contribution (2015)</b></p> <ul style="list-style-type: none"> <li>• There is a need for international assistance as well as cooperation with other developing countries on: tools to assess climate change impacts, vulnerability, exposure and climate change adaptation measures; as well as to strengthen the capacity to adapt to climate change at national and local level.</li> <li>• Adaptation priority actions for the period 2021-2030 include: implement integrated water resources management in river basin systems; strengthen international cooperation in addressing transboundary water issues; and ensure water security.</li> </ul> <p><b>Plan for Implementation of the Paris Agreement (2016)</b></p> <p>Implementation of climate change adaptation activities 2016-2020 include:</p> <ul style="list-style-type: none"> <li>• Strengthening international cooperation and mobilize investment resources to effectively prevent and control natural disasters, respond to climate change, prevent flood in urban area, search and rescue; with special focus on completing projects to overcome drought, salinization, sea level rise in Central Region, Central Highlands and Mekong Delta, urgent projects against salinization, preserve fresh water for production and daily life of the people living in the Mekong Delta area.</li> </ul> <p><b>National Target Program to Respond to Climate Change (NTP-RCC, 2008)</b></p> <ul style="list-style-type: none"> <li>• Activity 4: strengthen the capacity of the organisation, institution and policy on climate change.</li> <li>• Activity 7: mainstreaming the NTP in strategies, plans, socio-economic development planning and other sectoral/local development plans. <b>Second National Communication (SNC, 2010)</b></li> <li>• Capacity building needs in the area of technology development and transfer where technical experts and professional need to be trained in order to facilitate the prompt and successful adoption of new technologies.</li> </ul> <p><b>Socio-Economic Development Plan 2016-2020</b></p> <ul style="list-style-type: none"> <li>• Strengthen organisational structure, forces, operating mechanisms associated with the synchronous deployment of measures to protect and develop forests, especially coastal protection forests, watershed forests, and special-use forests.</li> </ul>
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## F. Technical standards

*Describe how the project / programme meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.*

The proposed project is aligned with the requirements of the Environmental and Social Policy (ESP) of the Adaptation Fund (see Part II: L). The Adaptation Fund-accredited Implementing Agency, UNEP, together with the UNEP-IEMP and relevant national partners, will ensure that the project follows procedures outlined in the ESP. This includes the requirement that project activities funded by the Adaptation Fund reflect local circumstances and needs and draw upon national actors and capabilities.

The proposed project's activities have been validated by national project partners to ensure that they are in line with the relevant technical standards within each country. These project partners include *inter alia*:

- Ministry of Natural Resources and Environment (Thailand); and
- Ministry of Natural Resources and Environment (Vietnam).

Given the small scale of the project's interventions as well as their focus on environmental protection, Environmental Impact Assessments (EIAs) are not expected to be necessary for any of the planned interventions. In addition, the proposed project's activities are in line with national social norms, including gender equality and equal access.

## **G. Project duplication**

*Describe if there is duplication of project / programme with other funding sources, if any.*

With the GMS recognised as being highly vulnerable to the effects of climate change, particularly droughts and floods, the livelihoods of the ~75 million people reliant on the Mekong River and its associated ecosystems are at risk. Consequently, there are many past and ongoing climate change adaptation initiatives in the sub-region. Because of the large area covered by the GMS and its high number of vulnerable inhabitants, the reach and impact of past and previous initiatives have been limited. Most past and ongoing initiatives have focused on individual countries, particularly Least Developed Countries (including Cambodia, Myanmar and Lao PDR), while few have been implemented at a regional level. Furthermore, adaptation initiatives with a regional scope, have been primarily implemented across the Lower Mekong – Cambodia, Lao PDR, Thailand and Vietnam. Such regional climate change adaptation initiatives, especially those implementing concrete EbA interventions are uncommon throughout the GMS. Those that have been implemented in the past have mainly involved in research and policy-related dialogues, with limited emphasis on regional cooperation and knowledge sharing, particularly between China and other GMS countries.

The proposed project will focus on the concrete implementation of on-the-ground climate change adaptation interventions, with an emphasis on flood and drought management, in Thailand and Vietnam. Through these interventions and the knowledge generated from them, regional cooperation and transboundary water management will be enhanced. Additionally, this project will complement other national and regional initiatives within the GMS, incorporating input from and collaborating with a broad range of stakeholders. Brief outlines of the most relevant of these initiatives are provided below.

The CAS-funded **Responses and Adaptation of Asian Mountain Ecosystems to Global Change (RAAMEGC)** is planning to implement EbA interventions in and surrounding Nabanhe Nature Reserve in China. The communities living inside the Nabanhe National Nature Reserve – an ecologically important protected area in the Lancang/Upper Mekong River Basin in the

Yunnan Province of southwest China – are vulnerable to climate change-related events including floods, droughts, frost and cold temperatures. These climate change-related events negatively impact their livelihoods – such as rubber and tea production at low and high elevations respectively. Similarly, the ecosystems within the nature reserve are vulnerable, not only to climate-related events but also to the effects of agricultural intensification on local water resources. Such agricultural intensification, such as monoculture plantations (for example rubber) in the region, has resulted in: i) an altered hydrological regime – including the depletion of groundwater and degradation of watersheds; ii) increased habitat fragmentation; iii) declines in carbon stocks; and iv) reduced biodiversity. Additionally, in the last decade, frequent droughts have resulted in increases in the occurrence of powdery mildew disease of rubber trees and reduced local tea production. Consequently, the income generating potential of such agricultural practices is at risk. A suite of concrete adaptation interventions will be implemented through the project to increase the resilience of the communities in and around Nabanhe Nature Reserve that are vulnerable to floods, droughts and other climate change-related events. While there will be a focus on EbA interventions, additional and alternative measures will be considered where appropriate. As the RAAMEGC will be implementing interventions similar in nature and tackling the same major climate change impacts, the proposed project will include lessons learned and best practices from RAAMEGC in the knowledge products and dissemination mechanisms included under Component 2 and 3.

The **Mekong River Commission** (MRC) has generated a large variety of information on lower Mekong countries (Cambodia, Lao PDR, Thailand and Vietnam), which are signatories of the commission. The proposed project will build on the activities of the MRC, particularly those related to climate change adaptation, including the: i) ongoing assessment of climate change impacts on ecosystems; ii) design of the Mekong Adaptation Strategy and Action Plan; and iii) formulation of the Basin Development Strategy. The MRC implemented a climate change adaptation project at the Young River Basin between 2011 and 2015. This project installed climate early warning systems and established a climate change adaptation learning centre, but did not implement concrete on-the-ground EbA interventions related to droughts and floods. The proposed project, therefore, will use the knowledge produced and skills available from the previous project as a foundation which can be added to, especially in terms of the concrete implementation of EbA interventions.

To date, there has yet to be a climate change adaptation initiative implemented in or around Tram Chim National Park in Vietnam<sup>98</sup>. However, previous studies and projects conducted in the Park will be assessed for any relevant baseline information. Such initiatives include the **Mekong Wetlands Biodiversity Programme** (2004 to 2009, UNDP-IUCN-MRC, funded by the GEF) and a **wetland restoration project** undertaken by WWF (2007–2011 and 2013–2014). The main themes of these initiatives include: i) water and fire management; ii) sustainable use of ecosystem goods and services; iii) biodiversity monitoring; iv) habitat restoration; v) ecosystem rehabilitation; and vi) the conservation of the Sarus crane (*Antigone antigone*), which is listed as endangered by the IUCN Red List of Threatened Species<sup>TM99</sup>.

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<sup>98</sup> According to information gathered during consultations with local stakeholders in Vietnam, May 2017.

<sup>99</sup> BirdLife International. 2016. *Antigone antigone*. The IUCN Red List of Threatened Species 2016: eT22692064A93335364. <http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22692064A93335364.en>. Downloaded on 22 June 2017.

The Lancang-Mekong Environmental Cooperation Centre, established under the LMC mechanism aims to *inter alia*: i) promote sustainable development in the six GMS countries; ii) encourage cooperation with regards to environmental protection across the sub-region; iii) provide a platform for environmental policy development and dialogue between member countries; and iv) facilitate the transfer environmental technologies and information across the GMS. The centre has previously collaborated with UNEP, through UNEP-IEMP, in the implementation of several activities in the sub-region. These include the **Lancang-Mekong ecosystem management seminar** in China's Yunnan Province (May 2016) and the **High-level Workshop on Ecosystem Management Capacity Building for Lancang-Mekong Cooperation** in Beijing (September 2016). The proposed project's collaboration with the centre (facilitated by UNEP-IEMP) falls under Components 2 and 3, and will include the promotion of dialogue between the upper and lower Mekong countries.

The **South-South Capacity Building for Ecosystem Management in the Greater Mekong Sub-region** project funded by the Chinese Ministry of Environmental Protection (MEP) focuses on capacity building for ecosystem management across the GMS. This project's outputs include: i) the provision of tools to enhance the integration of an ecosystem-based approach into national policy planning; and ii) an assessment report on ecosystem management requirements for national development planning. This project was implemented from 2015 to 2016 by UNEPIEMP at sites including Nabanhe Nature Reserve and Tram Chim National Park. Knowledge and lessons learned (for example, gaps and opportunities in transboundary ecosystem management), as well as problems encountered regarding ecosystem services areas in the GMS, have been generated by this project. They will be used to advise planning and implementation of the proposed project, particularly at the demonstration site in Vietnam.

In terms of initiatives concerning EbA in the GMS, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is implementing EbA interventions in Thailand and Vietnam. Such initiatives include **Improved Management of Extreme Events through Ecosystem-based Adaptation in Watersheds Project** in Thailand and **Strategic Mainstreaming of Ecosystembased Adaptation and Integrated Coastal Management Programmes** in Vietnam. The proposed project has exchanged ideas and information with the GIZ regarding the vulnerability assessment, EbA implementation and the mainstreaming EbA into policy frameworks. Furthermore, the proposed project may have the capacity to implement the activities that the GIZ initiatives were unable to complete.

The World Bank's **Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project**<sup>100</sup> in Vietnam (US\$ 387 million, 2016–2022) aims to enhance tools for climate-smart planning and improve the climate resilience of land and water management practices. The proposed project plans to complement the work being done by the World Bank project both in Vietnam and across the GMS, and use the information generated by the project to advise its implementation.

The ADB's GMS Environment Operations Centre's Core Environment Programme implemented its **climate change adaptation initiative** from 2012 to 2016. This initiative focuses on: i) vulnerability assessments in key GMS transboundary landscapes; ii) the integration of EbA into transboundary landscape conservation strategies; iii) community-level pilot projects; and iv) knowledge exchange. The proposed project will build on the knowledge generated under this initiative, especially with regards to climate change adaptation.

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<sup>100</sup> Available at: <http://projects.worldbank.org/P153544/?lang=en&tab=overview>

The USAID's **Mekong Adaptation and Resilience to Climate Change (Mekong ARCC) Project** (2011–2016) identified various environmental, economic and social effects of climate change in the Lower Mekong Basin (LMB). Additionally, the project assisted vulnerable rural communities in ecologically sensitive areas in strengthening their adaptive capacity and resilience to climate change-related threats. Mekong ARCC has generated a vast amount of climate change information at both regional and national levels within the GMS. The proposed project will incorporate this information into its planning and implementation arrangements, and add to using knowledge generated and lessons learned.

Within the National Natural Science Foundation of China (NSFC) – UN Environment cooperation framework, a research project titled: **Water resources change and adaptive management in the Greater Mekong River drainage basin** (2016–2020, US\$ 600,000), has been launched. Under this project, a detailed assessment of the potential impacts of future climate change and socio-economic development on regional water resources is being conducted. The findings of this project will be used to determine how best to allocate water resources to maintain the health of various ecosystems in the GMS. This information will be used to advise the implementation of EbA interventions at the proposed project's demonstration sites.

The **Asia-Pacific Adaptation Network (APAN)**, which is part of UN Environment's Global Adaptation Network (GAN), is a regional programme for managing and applying knowledge regarding adaptation. APAN supports adaptation initiatives of governments and other organisations, with an emphasis on the management of knowledge and capacity building. Its mission is to assist in the building of resilient and sustainable social systems, ecosystems and economies in countries across the Asia-Pacific region under the conditions climate change. The proposed project will support APAN by strengthening the knowledge base and institutional capacity for climate change adaptation in the GMS.

UNESCO's proposed project in the GMS, **Groundwater Resources in the Greater Mekong Sub-region: Collaborative Management to Increase Resilience**<sup>101</sup> plans to develop and implement targeted groundwater vulnerability reduction measures (VRM). These VRMs will promote the sustainable use of groundwater resources as an adaptation response to increasing the resilience of people, food security, health, livelihoods and ecosystems in the GMS. Furthermore, the project aims to improve the regional capacity and information base regarding VRMs to support the sub-region's sustainable development goals (SDGs). The proposed project will explore the possibility of working alongside and complementing the work of the UNESCO project.

## **H. Learning and knowledge management**

*If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.*

The proposed project's substantial learning and knowledge management dimensions are integrated into several outputs of Component 2: Regional knowledge base on climate change adaptation expanded in the GMS.

Under Output 2.1, the proposed project will collect and assimilate information derived from a cost-effectiveness analysis of climate change adaptation interventions that reduce the impacts of floods

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<sup>101</sup> To be implemented in Cambodia, Lao PDR, Myanmar, Thailand and Vietnam.

and droughts and implications for transboundary river basin management. This information (including knowledge, best practices and lessons learned) will be generated through the implementation of adaptation interventions at project demonstration sites in Thailand and Vietnam. Furthermore, information will be obtained from a literature review on past and ongoing adaptation projects in the GMS, as well as through interviews and consultations with stakeholders who were involved in these projects.

Output 2.2 covers the development of three policy briefs using information generated by the project including: i) knowledge and lessons learned from the demonstration sites of the proposed project; ii) collated information from other projects, programmes and strategies in the GMS; and iii) the results of the cost-effectiveness analysis (Output 2.1.). In addition to policy briefs, a paper on climate change adaptation strategies for the GMS – with a focus on EbA – will be developed for inclusion in the LMC mechanism Environmental Outlook Report series. These policy briefs and paper will be shared with relevant stakeholders across the GMS (Output 2.3.).

Under Output 2.3, knowledge on EbA that has been generated and collated through the project will be shared on the main regional knowledge platforms, including the inter alia: i) ADB GMS CEP data portal; ii) MRC data portal; and iii) Lancang-Mekong Information Sharing Platforms (currently being developed). Furthermore, project knowledge will be presented at three regional adaptation forums, such as the CGIAR-WLE Greater Mekong Forum, the Sida regional workshop and the Asian Pacific Adaptation Network. Through the use of the regional platforms and forums mentioned above, the best practices of and lessons learned generated by the proposed project will not only assist beneficiary countries, but also the other countries within the GMS.

Output 2.4 covers the design and implementation of national level knowledge-sharing strategies in Thailand and Vietnam. Such strategies may include: i) exchange visits; ii) awareness raising at pagodas and schools; iii) the establishment of climate change adaptation learning centres; and iv) awareness raising using media such as posters, radio and television. Under these strategies, best practices and lessons learnt from project adaptation interventions will be shared between beneficiaries and surrounding communities. This knowledge sharing will contribute to the autonomous upscaling and replication of project interventions beyond demonstration sites, thereby enhancing the climate resilience of non-beneficiary communities.

Under Output 3.2, participants **from GMS countries** will be sent on exchange visits of the project demonstration sites. Participants may include representatives of: i) national government institutions; ii) country offices of regional institutions like the MRC and ADB; iii) national project teams; and iv) national research institutions. These visits will enhance knowledge sharing, encourage relationship building, will promote regional (South-South) cooperation on climate change adaptation, as well as highlight the importance of transboundary river basin management and shared climate impacts in the GMS.

## **I. Consultative process**

*Describe the consultative process, including the list of stakeholders consulted, undertaken during project / programme preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy of the Adaptation Fund.*

The first round of preliminary consultations with participating countries took place between March and July 2016. The purposes of the consultations were to: i) introduce the project overview; ii) receive preliminary comments and advice; iii) consult on the site selection for demonstration of

adaptation interventions; and iv) consult on the engagement of potential national, sub-national and local partners. The consultations consisted of: i) three formal meetings in Bangkok and Hanoi with representatives from focal agencies of the AF and potential national partners; ii) bilateral discussions with governmental agencies responsible for ecosystem management and climate change adaptation on the ground in China and Vietnam; and iii) field visits to the proposed demonstration sites in Vietnam. The agencies that took part in the consultation process included: i) the National Development and Reform Commission of China; ii) the Chinese Academy of Sciences and its institutes; iii) the Naban River Watershed Nature Reserve management unit in China; iv) the Office of Natural Resources and Environmental Policy and Planning, Ministry of Natural Resources and Environment of Thailand; v) the Department of Water Resources, Ministry of Natural Resources and Environment of Thailand; vi) the Department of Legal Affairs, Ministry of Natural Resources and Environment of Vietnam; vii) the Biodiversity Conservation Agency, Ministry of Natural Resources and Environment of Vietnam; and viii) GIZ teams involved in 'Strategic Mainstreaming of Ecosystembased Adaptation Project' and 'Integrated Coastal Management Programme' in Vietnam.

During the consultations, the participating countries expressed strong interest and support for the proposed project. Valuable comments were received and have been incorporated into this concept. These comments related to: i) project design; ii) the selection of demonstration sites; iii) ownership, benefits and capacity building opportunities for national partners; iv) relevant national policies; v) climate change adaptation and EbA activities within the country and the region; and vi) transboundary/upstream-downstream cooperation. Preliminary consultations and internal discussions with stakeholders from Vietnam were sufficient to select a demonstration site. However, further consultations were required to select a demonstration site in Thailand.

From September to October 2016, the second round of preliminary consultations was conducted with participating countries. The primary objective of the consultations was to collect information regarding climate change impacts observed by the local stakeholders. Additionally, initial discussions on concrete adaptation interventions to be implemented at the demonstration sites were conducted.

The focal point for the implementation of the proposed project in Thailand, the Department of Water Resources (DWR), led an in-country consultation process on site selection. Through this process, the Young River Basin in the Roi-et and Kalasin provinces was selected as an appropriate demonstration site. The sub-national agency under the DWR, the Water Resources Regional Office 4, has consulted with local stakeholders and collected information about the Young River Basin, including: i) general information; ii) climate change impacts in the area; iii) potential local project implementing partners; v) beneficiaries; and vi) potential on-the-ground climate change adaptation interventions to be implemented at the site. In October 2016, a formal meeting was subsequently conducted in Bangkok among the Office of Natural Resources and Environmental Policy and Planning, DWR, UN Environment and UNEP-IEMP to discuss next steps.

Moreover, in Vietnam, information about the selected demonstration sites was collected through informal consultations with local stakeholders conducted by local partners, including: i) staff of Tram Chim National Park in Vietnam; and ii) the Institute of Ecological Geography and Environment in Vietnam. The collected information included: i) climate change impacts on the local communities; and ii) proposed adaptation interventions. Additionally, general and specific



information about the sites on ecosystems, livelihoods, ecosystem services and management in Vietnam was extracted from the reports of the previous UNEP-IEMP's meetings at the sites<sup>102</sup>.

In December 2016, several consultations with the Chinese counterparts took place to discuss their engagement with the proposed project. It was found that China is in a good position to support the project. Those organisations consulted with include: i) the Kunming Institute of Botany; ii) the Chinese Ecosystem Research Network; iii) various institutes under the Chinese Academy of Sciences; and iv) the China-ASEAN Environmental Cooperation Center. It was confirmed that Chinese participation would be in the form of the provision of data and information available from the upper reach of the GMS.

A summary of the formal meetings in Thailand and Vietnam (in June and October 2016) is enclosed as Annex II.



**Figure 4:** Site visit to the Tram Chim National Park (March 2016).

In May 2017, a consultative mission was undertaken by representatives from UN Environment and UNEP–IEMP. The objective of the mission was to gather the information required to address the comments received from the AF on a previously submitted version of the concept note. Various meetings and consultations were conducted with community, national and regional stakeholders in Vietnam, Lao PDR and Thailand to gather the information required to revise the concept note. Additionally, field visits were undertaken to selected implementation sites in Vietnam and Thailand to identify potential on-the-ground implementation technologies for the project. In Vietnam, consultations were held with: i) various high-level government agencies; ii) managers of Tram Chim National Park; and iii) community members living around Tram Chim National Park. After consultations in Vietnam, a meeting was held with the Mekong River Commission (MRC) Secretariat in Lao PDR. In Thailand, meetings involved representatives from: i) the UN Environment Asia Pacific Regional Office; ii) the Climate Change Management and Coordination Division of the Office of Natural Resources and Environmental Policy and Planning; iii) the Department of Water Resources and the Water Resources Regional Office; iv) communities in the Young River Basin; v) the Core Environment Program (CEP) of the Asian Development Bank's Greater Mekong Sub-region (ADB GMS); vi) GIZ; vii) the EU; and viii) Sida. A mission report for the consultations in Lao PDR, Thailand and Vietnam in May 2017 is enclosed as Annex III.

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<sup>102</sup> These two meetings were 'Capacity Building and Consultative Meeting with Stakeholders on Tram Chim National Park' (18 March 2016 in Dong Thap province of Vietnam) and 'Ecosystem Management Capacity Building and Consultation Workshop on Protected Areas in Xishuangbanna Prefecture' (12 May 2016 in Yunnan province of China) under the project 'South-South Capacity Building for Ecosystem Management in the Greater Mekong Subregion' implemented by UNEP-IEMP.

All the information from consultations with local, national and regional stakeholders has been integrated into the concept note to ensure that the proposed project is a nationally- and regionally-driven effort.

## **J. Justification for funding request**

*Provide justification for funding requested, focusing on the full cost of adaptation reasoning.*

**Component 1:** Demonstration of climate change adaptation interventions, with a focus on drought and flood management, in vulnerable communities and different ecosystems.

Baseline scenario (without AF resources)

National governments and regional bodies in the GMS are aware of the threats that climate change poses to the people of the region. Accordingly, governments of countries like Thailand and Vietnam have developed or are developing comprehensive adaptation strategies<sup>103</sup> to guide efforts to enhance the climate resilience of their citizens. Likewise, regional cooperation mechanisms like the LMC and MRC are in the process of developing regional strategies for adaptation<sup>104</sup>. Although governments and regional bodies in the GMS have experience in developing these high-level, conceptual adaptation plans, they have less expertise in implementing concrete adaptation solutions across diverse socioecological contexts. Additionally, national governments in the GMS have limited experience in integrating regional climate and transboundary resource concerns into national adaptation strategies. With limited knowledge on implementing concrete interventions that address national and regional climate impacts, it is unlikely that governments will be able to transform national and regional strategies into effective on-the-ground adaptation actions. Therefore, people in the GMS who are vulnerable to the impacts of climate change are likely to remain vulnerable in the future.

Additionality (with AF resources)

AF resources will be used to implement concrete climate change adaptation interventions in the GMS. A suite of interventions – including EbA – will be demonstrated in communities to reduce their vulnerability to the impacts of floods and droughts. Through a comprehensive M&E system, the project will generate knowledge on the cost-effectiveness of different concrete interventions in diverse socioecological contexts. This knowledge will be shared within and among GMS countries, enabling national governments and regional bodies to integrate concrete adaptation knowledge that is nationally and regionally appropriate into their climate change strategies. This will facilitate the effective conversion of conceptual adaptation strategies into on-the-ground actions, increasing the resilience of vulnerable people across the GMS.

**Component 2:** Regional knowledge base on climate change adaptation expanded in the GMS and

**Component 3:** Political cooperation on climate change adaptation.

Baseline scenario (without AF resources)

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<sup>103</sup> A National Adaptation Plan (NAP) in Thailand and National Climate Change Strategy in Vietnam.

<sup>104</sup> The LCM is developing the Lancang-Mekong Environmental Cooperation Strategic Framework, and the MRC is developing the Mekong Adaptation Strategy and Action Plan (MASAP).

Millions of people in GMS countries are threatened by a shared suite of climate impacts. As rainfall becomes more variable, temperatures rise and the flow dynamics of the Mekong River are altered, droughts and floods will continue to increase in frequency and intensity across the region. These climate impacts threaten the natural resource-based livelihoods of people from diverse socioecological contexts in the GMS. With people from six unique countries unified in their exposure to climate impacts and shared reliance on a transboundary resource (i.e. the Mekong River), there is an opportunity for South-South cooperation on adaptation among the countries of the GMS. However, previous and ongoing projects, plans and strategies to adapt to climate change have been mostly unsuccessful in capitalising on this opportunity. Most adaptation initiatives in the GMS have been national efforts with limited regional buy-in, coordination or knowledge transfer. This limits the effectiveness of such initiatives as climate threats impacting important transboundary water resources are, fundamentally, regional problems which require regional adaptation solutions. If climate change adaptation approaches continue to be isolated to individual countries in the GMS, it is likely that people will remain vulnerable to climate change in the future.

#### Additionality (with AF resources)

Through the proposed project, AF resources will be used to expand the regional knowledge base on climate change adaptation. Knowledge and lessons-learned relevant to GMS countries will be generated by implementing and monitoring concrete adaptation interventions in different socioecological contexts across the region. Additionally, thorough reviews and assessments of past and ongoing adaptation initiatives will be undertaken to complement the on-the-ground generation of knowledge. To ensure that knowledge on concrete adaptation solutions and transboundary water management is shared effectively among GMS countries, the proposed project will integrate generated information into appropriate national and regional institutions, cooperation mechanisms, forums and knowledge platforms. Through these knowledge-sharing events, the proposed project will also encourage relationship-building between GMS countries and institutions. In doing so, the proposed project will encourage a cooperative approach to adaptation and transboundary water management in the region, which will enhance the effectiveness of future climate change adaptation initiatives across the GMS, including China.

### **K. Sustainability**

*Describe how the sustainability of the project / programme outcomes has been taken into account when designing the project / programme.*

Project sustainability will be achieved by: i) building the capacity of institutions and communities at the regional, national and local scales to integrate climate-resilient practices into policies and strategies; ii) engaging vulnerable communities to ensure buy-in and the implementation of project interventions; iii) using a participatory approach to build capacity and strengthen the regional knowledge base surrounding the implementation of concrete EbA interventions; iv) encouraging the exchange of climate change adaptation knowledge at a local, national and regional level; and v) institutionalising climate change adaptation – particularly EbA – into government and community structures.

Under **Outcome 1**, long-term sustainability will be achieved by: i) building the technical capacity of vulnerable communities and local government agencies; ii) raising awareness and knowledge of EbA interventions; and iii) facilitating participatory stakeholder engagement and knowledge exchange between local communities and government agencies. In addition, the EbA interventions that are implemented by beneficiary communities will ameliorate the impacts of

climate change upon livelihoods, ecosystems and biodiversity. Local communities will, therefore, be incentivised to continue implementing and maintaining the various EbA interventions upon which their livelihoods depend. This will encourage project sustainability at both the community and government levels.

Under **Outcome 2**, knowledge of EbA intervention implementation will be generated, collated and shared using existing forums, workshops and networks. The proposed project will also build upon existing knowledge exchange platforms and databases that are both functional and that have relevant stakeholder support at the national and regional level. Sharing knowledge using existing mechanisms that are independently organised and funded will ensure that the knowledge products generated by the proposed project remain available after the project has finished. In addition, the long-term sustainability of the proposed project will be enhanced through the development of policy briefs that seek to institutionalise the lessons learned from the implementation of project interventions and climate change adaptation during the lifespan of the project. This will ensure that the sustainability of the proposed project is institutionalised at both a national and regional level. Furthermore, the cost-effectiveness monitoring and analysis performed under Component 2 will be used to expand the local, national and regional knowledge base on climate change adaptation in all six countries of the GMS. A thorough understanding of the cost-effectiveness of EbA will further justify and sustain its implementation across the region in communities and ecosystems vulnerable to the effects of climate change.

Under **Outcome 3**, the regional approach to addressing climate change impacts – particularly floods and droughts – will be strengthened through the linking of the science, experience with the political processes for transboundary water and river basin management in the region. Scaling up the drought and flood risk measures at a Basin scale could reduce the impacts of climate change in the given country and downstream in the Mekong River basin. A strengthened regional approach to climate change adaptation in the GMS will encourage a coordinated approach in the member countries, which is essential for effective and sustainable transboundary water management. Existing regional forums will be used as platforms to disseminate best practices and knowledge generated from the intervention of various adaptation activities. This collaboration will ensure that the sustainability of the project is secured at the regional level, whereby all countries in the GMS are able to share in the knowledge generated through the proposed project.

#### L. Environmental and social impact risks

*Provide an overview of the environmental and social impacts and risks identified as being relevant to the project / programme.*

A preliminary screening of the project’s impacts on the AF’s Environmental and Social Principles is presented below. It is recognised that the environmental and social context of the proposed project is dynamic as hydropower and water extraction initiatives in particular continue to be developed. The environmental and social impact screening and mitigation plan will therefore be updated during the development of the full proposal.

**Table 5: Environmental and social principles**

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		X

<p><i>Compliance with the Law</i></p>		<p>The proposed project will be implemented in a protected area in Vietnam that is also a RAMSAR site. There is a risk that the project</p>
		<p>interventions may contravene national protected area management laws</p> <p>The final project design will be consistent with all relevant regional and national laws. To achieve this, during development of the full project proposal both regional and national stakeholders will be consulted to ensure that relevant legal requirements are met</p>
<p><i>Access and Equity</i></p>		<p>X</p> <p>The beneficiaries of the proposed project are poor people in vulnerable communities who are often not integrated in decision-making processes. There is therefore a risk that certain community members may benefit more than others.</p> <p>In addition, the proposed project is taking place in a rapidly changing context as hydropower and water extraction initiatives continue to be developed within the basin. There is a risk that these developments negatively affect the access of target communities to basic services, such as clean water</p> <p>The final project design will ensure that project activities will not reduce or prevent communities at project sites from accessing basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions and land rights. Beneficiary communities will be further engaged during the development of the full proposal to ensure that interventions adhere to these principles.</p>

<i>Marginalised and Vulnerable Groups</i>		<p style="text-align: center;">X</p> <p>There is a risk that vulnerable and marginalised groups will have insufficient access to project activities, particularly EbA interventions under Component 1.</p> <p>The project design will ensure that marginalised and vulnerable groups - especially women, indigenous people, youth, and people living with disabilities – will not be adversely affected by, but instead benefit from, climate change adaptation interventions. To avoid the exclusion of marginalised communities, these groups will be involved in the community consultations carried out</p>
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		<p>during the preparation of the full project proposal to ensure equal participation and that social impacts do not unjustly impact on marginalised and vulnerable groups.</p>
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<i>Human Rights</i>	<p style="text-align: center;">X</p> <p>No activities are or will be included in the design of the proposed project that are not in line with established international human rights. Moreover, the proposed project will promote the basic human rights of access to food, water and information.</p>	
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<i>Gender Equity and Women's Empowerment</i>		<p style="text-align: center;">X</p> <p>The proposed project is targeting communities where men occupy the majority of the leadership positions. There is therefore a risk that women will not benefit equitably from the proposed project's EbA and capacity-building interventions</p> <p>The project will adhere to this principle throughout the project design and implementation. During the development of the full proposal and further stakeholder consultations, gender equality and women's empowerment will be considered. For technical assessments as well as capacity building activities, women will be strongly encouraged to participate, both as part of the team and as participants.</p>
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<i>Core Labour Rights</i>		<p style="text-align: center;">X</p> <p>Local communities will be involved in the construction and maintenance of climate change adaptation and EbA interventions. Therefore, local community members may be exposed to the risk of accidents while implementing the proposed project's climate change adaptation interventions.</p> <p>Core labour rights will be respected and considered in project design and implementation. National and regional stakeholders will be involved in the design of project activities to ensure that labour legislation is adhered to.</p>
<i>Indigenous Peoples</i>		<p style="text-align: center;">X</p> <p>There is the risk that not all indigenous peoples have been identified. Therefore, there is also the risk of inequitable access of indigenous peoples to the project's resources.</p>
		<p>The proposed project will ensure that indigenous peoples will be properly included in the project design and implementation, particularly those living in and around demonstration sites. The inclusion of indigenous people is seen as essential and beneficial since they possess traditional knowledge related to EbA that will contribute to the inclusive identification of EbA options as well as implementation. Therefore, they will be included in the local-level assessments, demonstration of EbA interventions, capacity</p>
<i>Involuntary Resettlement</i>	<p style="text-align: center;">X</p> <p>No activities are or will be included in the project design that will result in involuntary resettlement.</p>	

<p><i>Protection of Natural Habitats</i></p>		<p style="text-align: center;">X</p> <p>On-the-ground interventions will include planting of species for enrichment and/or restoration of ecosystems. This could lead to long-term environmental impacts on natural habitats</p> <p>Interventions will take place around Tram Chim National Park. There is a risk that interventions may unintentionally impact on the natural habitats of the park.</p> <p>By implementing climate resilient water conservation and EbA activities, the project will promote the improvement of natural habitats and the enhancement of ecosystem functioning in the long-term.</p> <p>All necessary impact assessments will be conducted before the implementation of interventions around Tram Chim National Park.</p>
<p><i>Conservation of Biological Diversity</i></p>		<p style="text-align: center;">X</p> <p>There is a low risk that the construction of adaptation interventions could result in negative impacts on biodiversity</p> <p>The project will ensure that the conservation and sustainable use of biodiversity factors into the process of site selection. Project sites will be considered using a participatory approach to ensure that project activities do not cause significant loss of biodiversity or the introduction of known invasive species.</p>
<p><i>Climate Change</i></p>	<p style="text-align: center;">X</p> <p>No climate change impact is anticipated for the project. Project activities will contribute to climate change adaptation efforts in the GMS. The EbA approach adopted for the proposed project is unlikely to result in maladaptation or contribute to climate change threats.</p>	<p>During the development of the full project proposal, the full range of climate change risks and vulnerabilities will be determined and the concrete adaptation interventions for those areas will be tailored adaptation responses.</p>
<p><i>Pollution Prevention and Resource Efficiency</i></p>	<p style="text-align: center;">X</p> <p>Project activities are not expected to result in any significant pollution. Project design will ensure that all applicable international standards are met for maximising resource efficiency and minimising waste production and the release of pollutants, including carbon emissions.</p>	



<i>Public Health</i>	<p style="text-align: center;">X</p> <p>Project activities will have no foreseeable negative effect on public health. Activities under Component 1 will likely improve public health through the improvement of water quality and the provision of medicinal plants.</p>	
<i>Physical and Cultural Heritage</i>		<p style="text-align: center;">X</p> <p>There is a low risk that the construction of adaptation interventions could result in negative impacts on physical and cultural heritage</p> <p>The participatory approach to project design will use local knowledge to ensure that physical and cultural heritage is not negatively affected by on-the-ground activities. The location of physical and cultural heritage sites will be considered during site selection to reduce the likelihood of negative impacts of project intervention on local heritage.</p>
<i>Lands and Soil Conservation</i>	<p style="text-align: center;">X</p> <p>Project activities will promote land and soil conservation across the demonstration sites. Furthermore, activities under Outputs 2 and 3 will promote land and soil conservation on a regional scale through knowledge sharing and recommendations for national and regional strategies and policy frameworks.</p>	

According to the AF's Environmental and Social Policy, a project can be categorised as either A, B or C. Category A refers to projects that "likely to have significant adverse environmental or social impacts that are for example diverse, widespread, and irreversible". Because any adverse

social and environment impacts of the project are expected to be localised and minimal – on-the-ground interventions will largely be "green" and contain minimal construction of hard infrastructure – the Category A classification does not apply. In contrast, Category C refers to projects "with no adverse environmental or social impacts". Because the proposed project will be undertaking on-the-ground activities, some environmental and social impacts are expected, however negligible. Therefore, the proposed project is classified as a Category B project as its potential impacts are "less adverse than Category A projects, because for example they are fewer in number, smaller in scale, less widespread, reversible or easily mitigated."

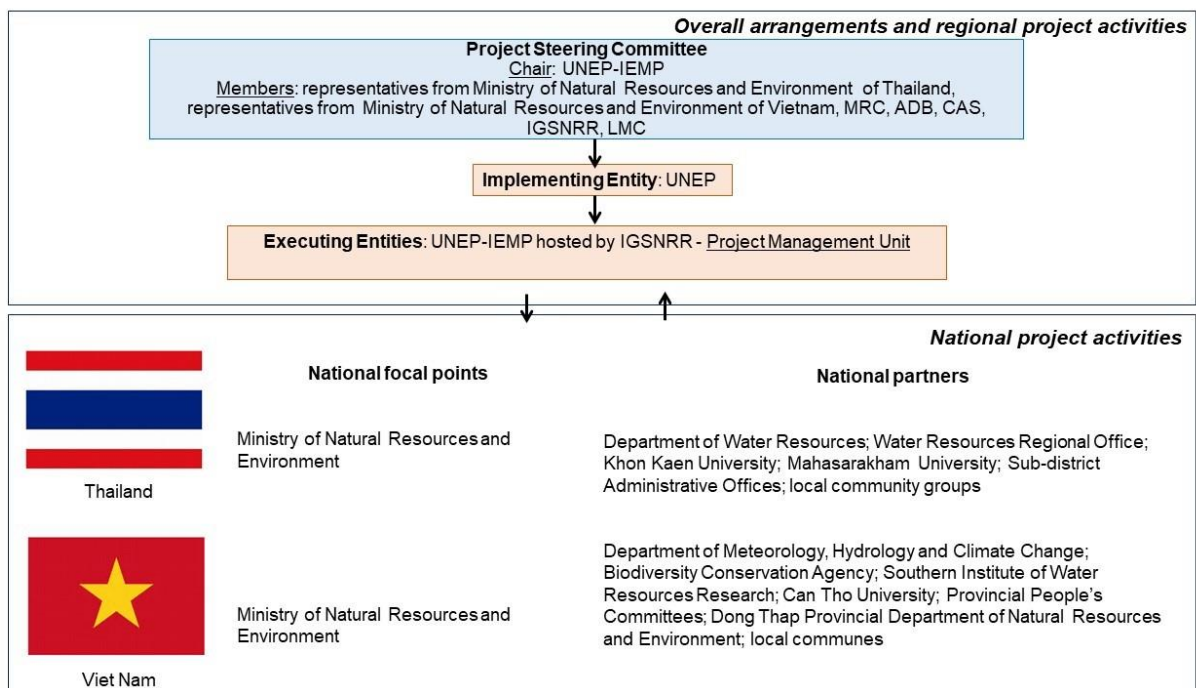
## PART III: IMPLEMENTATION ARRANGEMENTS

### A. Management arrangements

*Describe the arrangements for project / programme management at the regional and national level, including coordination arrangements within countries and among them. Describe how the potential to partner with national institutions, and when possible, national implementing entities (NIEs), has been considered, and included in the management arrangements.*

The proposed project will be implemented during 2018-2022. UN Environment will be the Multilateral Implementing Entity and will be responsible for project supervision to ensure consistency with AF policies and procedures. The regional aspects of the project will be executed by UN Environment-International Ecosystem Management Partnership (UNEP-IEMP) hosted by the Institute of Geographic Sciences and Natural Resources Research (IGSNRR) under the Chinese Academy of Sciences (CAS), while the country-level adaptation strategies will be executed by the Ministry of Natural Resources and Environment of Thailand and the Ministry of Natural Resources and Environment of Vietnam. UNEP-IEMP is a collaborating centre of UN Environment and is co-hosted by the CAS and UN Environment. As legally separate entities, UN Environment will ensure adequate segregation of reporting between its roles in line with the differentiation between UN Environment and UNEP-IEMP

The planned project management structure is shown in the figure below. Please note that during project document formulation stage the implementation arrangements will be discussed further and finalised along with specific roles and responsibilities.



**Figure 5:** Proposed implementation arrangements.

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

### A. Record of endorsement on behalf of the government<sup>119</sup>


*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 an annex to the project/programme proposal. Please attach the endorsement letters with this template; add as many participating governments if a regional project/programme:*

Dr Wijam Simachayer, Permanent Secretary Ministry of Natural Resources and Environment, Thailand	Date: 1 August 2017
Dr Tran Hong Ha, Minister of Natural Resources and Environment, Socialist Republic of Vietnam	Date: 26 July 2017

i. <sup>6</sup> Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

## 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 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.	
<u>Implementing Entity Coordinator</u>	
Monika G. Macdevette (PhD) Deputy Director, Ecosystems Division Chief, Operations and Programme Delivery Branch, Ecosystems Division UN Environment	
	
Date: 7 August 2017	Tel. and email: + 254 20 762 4595; monika.macdevette@unep.org
Project Contact Person: Jessica Troni	
Tel. And Email: +254 20762 3794 Jessica.Troni@unep.org	

## Annex I: Endorsement letters

**URGENT**

No. 1006.5/ 1657



Ministry of Natural Resources and Environment  
92 Soi Phahol Yothin 7, Phahol Yothin Road  
Samsen-Nai, Phayathai, Bangkok 10400  
Thailand

1 August B.E. 2560 (2017)

To: The Adaptation Fund Board

**Subject: Endorsement for Mekong EbA South: Enhancing Climate Resilience in the Greater Mekong Sub-region through Ecosystem-based Adaptation in the Context of South-South Cooperation**

In my capacity, as designated authority for the Adaptation Fund in the Kingdom of 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 Kingdom of Thailand, which is part of the Greater Mekong Sub-region.

Accordingly, I am pleased to endorse the above concept project proposal with support from the Adaptation Fund. If approved, the project will be implemented by United Nations Environment Programme (UNEP) and executed by the Department of Water Resources of Thailand and the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, supported by UNEP-International Ecosystem Management Partnership (UNEP-IEMP), and national partners.

Yours sincerely,

(Mr)Wijarn Simeachayak

Permanent Secretary

Ministry of Natural Resources and Environment

c/o Adaptation Fund Board Secretariat

1818 H Street NW, Washington DC 20433, USA

Email: Secretariat@Adaptation-Fund.org



SOCIALIST REPUBLIC OF VIET NAM  
MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT

Ha Noi, 26... July 2017

The Adaptation Fund Board  
c/o Adaptation Fund Board Secretariat  
Email: Secretariat@Adaptation-Fund.org

**Subject: Endorsement for the Project Proposal on 'Enhancing Climate Resilience in the Greater Mekong Sub-region through Ecosystem-based Adaptation in the Context of South-South Cooperation (Mekong EbA South)'**

In my capacity as Designated Authority for the Adaptation Fund in the Socialist Republic of Viet Nam, I confirm that the above regional project proposal is in accordance with the government's priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the Socialist Republic of Viet Nam, which is part of the Greater Mekong Sub-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 United Nations Environment Programme (UNEP) and executed by Ministry of Natural Resources and Environment of Viet Nam and other partner, supported by UNEP-International Ecosystem Management Partnership (UNEP-IEMP), and national partners.

Yours sincerely,



**Dr. Tran Hong Ha**  
Minister of Natural Resources and Environment  
Socialist Republic of Viet Nam

Three formal meetings with Thailand and Viet Nam were organized in June, July and October 2016 with the following purposes:

- 1) to introduce the project overview;
- 2) to receive preliminary comments and advice;
- 3) to consult on the site selection for demonstration of ecosystem-based adaptation interventions; and
- 4) to consult on the engagement of potential national, sub-national and local partners.

A summary of the three meetings are presented below.

#### **A. Thailand, 6 June 2016**

Venue: Office of Natural Resources and Environmental Policy and Planning (ONEP), Bangkok

Participants:

- 1) Dr. Kollawat Sakhakara, Environmental Official, Professional Level
- 2) Ms. Chanutsakul Supirak, Environmental Official, Practitioner Level
- 3) Ms. Juthamas Panitrangsri, Project Coordinator

Policy and Strategy Sub-division

Climate Change Management Coordination Division

ONEP, Ministry of Natural Resources and Environment, Thailand Summary:

ONEP was informed that UN Environment is currently developing a proposal to be submitted to the Adaptation Fund. It is now at the concept formulation stage which requires a preliminary consultation with the participating countries. Then, a presentation was given on the topics: Purpose of the consultation; Project overview; Project goal & components; Work plan; and Demonstration sites.

Preliminary comments and advice received are as follows:

- The proposal seems interesting and would be beneficial to Thailand. There are several climate change adaptation activities in Thailand but not many focus on EbA or with regional context. The project does not seem to duplicate with any adaptation activities in the country. As far as they are aware, there is an ongoing GIZ project on EbA with a few community-level demonstration sites, one in the Northeast where we also plan to have a demonstration site there. Thus, we may consult with GIZ to seek advice, if needed. Their office is located in the Department of Water Resources.
- Currently, the main climate change policy in Thailand is the *Climate Change Master Plan 2015-2050*, which covers both mitigation and adaptation aspects and was approved in mid-2015. It is available only in Thai language for now. The 5-year National Adaptation Plan (NAP) is in the process of formulation and expected to complete in 2016. As part of the NAP formulation, a vulnerability and risk assessment at provincial level has been conducted and can be found on ONEP website. The NAP will provide recommendations, including where adaptation interventions are needed due to the high climate change risks. After that, in 2017 there will be pilot activities for adaptation interventions. Both NAP formulation and pilot activities are supported technically and financially by GIZ.
- If commencing in 2017, this proposed project will timely provide complementarity to the NAP process. EbA is already considered in the NAP. However, the EbA-related results as well as international cooperation activities under this proposed project will directly support the implementation of NAP (including the NAP pilot phase), mainstreaming EbA in the NAP, as well as further recommendations for NAP revision.
- For location of the demonstration site in Thailand, further consultation is needed.
- Regarding national partners, it depends on the expertise needed but they are likely university professors. ONEP will need to see who are experts in risk and vulnerability assessments as well as working at demonstration site on EbA and will further propose a national team of Thailand.

## **B. Thailand, 26 July 2016**

Venue: Department of Water Resources (DWR), Bangkok Participants:

Dr. Ekarut Archeewa, Civil Engineer, Professional Level

Mekong Management Bureau

DWR, Ministry of Natural Resources and Environment, Thailand Summary:

UN Environment received further advice from the ONEP that DWR would be a strong potential national partner of the proposed project due to the previous experience in climate change activities in the Mekong part of Thailand. A meeting with DWR was therefore arranged. Overall, the DWR is very supportive to the proposal, noting that the project would be very beneficial for people living in the Mekong Basin, especially for the climate change adaptation issue.

Specific comments were given as follows:

- Decision of demonstration site: The selection of the site can be discussed in the next stage of full proposal preparation. Wider groups of stakeholders will be included in the further discussions.
- Working modality: DWR would like to emphasize on the ownership and benefit to strengthen the capacity and knowledge of DWR during the implementation of the project.

## **C. Thailand, 10 October 2016**

Venue: Office of Natural Resources and Environmental Policy and Planning (ONEP), Ministry of Natural Resources and Environment (MoNRE), Bangkok Participants:

○ From Climate Change Management and Coordination Division, ONEP, MoNRE

- 1) Dr. Phirun Saiyasitpanich, Director (Chair of the meeting)
- 2) Dr. Kittisak Prukkanone, Environmentalist, Professional Level
- 3) Dr. Jarunee Nugranad, Environmentalist
- 4) Dr. Kollawat Sakhakara, Environmental Official, Professional Level

○ From Mekong Management Bureau, Department of Water Resources (DWR) , MoNRE

- 5) Dr. Ekarut Archeewa, Civil Engineer, Professional Level
- 6) Mr. Noppadol Inchana, Civil Engineer, Practitioner Level
- 7) Mr. Kidsanapong Jumparee, Civil Engineer, Practitioner Level

○ From UN Environment Regional Office for Asia and the Pacific

- 8) Ms. Tunnie Srisakulchairak, Programme Officer

○ From UN Environment-IEMP

- 9) Ms. Tatirose Vijitpan, Climate Change Adaptation Specialist

### Summary:

The meeting was informed that the DWR has been officially assigned as the focal point for implementation of the project, as per internal process for project development and implementation. Regarding the Letter of Endorsement, there is a strong concern that it will not be easy to obtain the letter at every stage of proposal development (i.e. concept and full proposal). The Chair then requested UN Environment-IEMP to consult with the Adaptation Fund Board Secretariat whether it is acceptable to obtain only one LoE for the whole proposal development process. After that, UN Environment-IEMP gave a presentation on the topics: Status of proposal development, Key comments from the Adaptation Fund Board Secretariat, Revisions of the concept, On-the-ground adaptation interventions at demonstration sites, Next steps and Work plan.

Next, DWR was invited to give presentation about demonstration site selection for the project, as summarised below:

- The Mekong Management Bureau of DWR has previously worked with the Mekong River Commission on local climate change adaptation at 3 sites during 2011-2015. Considering



the previous experience working with local stakeholders, preliminary findings and data availability on climate change, relevance to the mandates of DWR, those 3 sites therefore have been considered to further select as the demonstration site of this project. The 3 sites are (1) Young River Basin, (2) Huay Saneng Basin, and (3) Bung Kong Long Wetland.

- In late September 2016, DWR had discussed with the sub-national offices of DWR who are responsible for the DWR-related activities in those 3 areas, i.e. Water Resources Regional Office 4 (based in Khonkaen province), 5 (based in Nakhon Ratchasima province) and 3 (based in Udon Thani province), respectively. The 3 WRROs then further consulted with local stakeholders and collected and informed the DWR the information about the sites, including general information, geographical coverage, climate change impacts in the area, potential local project implementing partners, beneficiaries, initial climate change adaptation intervention ideas to be implemented at the site.
- With all the information, the DWR then compared the strengths and weaknesses of each site. Finally, the **Young River Basin** has been proposed as demonstration site of the project for Thailand.

The discussion and Q&A were followed, as the key points below:

- The meeting agreed with the selection of the Young River Basin, with all the justifications presented by DWR as well as the overall site selection criteria of the project.
- The scale of each site and detailed activity plan will have to be specifically defined and comparable in all the three countries in order to be commensurate with the budget allocated.
- Information related to loss and damage, number of stakeholders and severity of the adverse effects should be understood in order to appropriately estimate the budget for the site.
- As part of the formulation of National Adaptation Plan, vulnerability assessment has been conducted at national level and currently is under revision. There are also recommended adaptation options, including EbA. Therefore, the proposal should consider the linkages with NAP and seek advice from SEA START, which led the vulnerability assessment. Priority identified in NAP should be reviewed in order to address in this project, e.g. food security related to flood and drought.
- In this regard, the vulnerability assessment of the project has to be clearly planned with specific sectors and coverage (e.g. whole country or only Mekong Basin) because data collection on the ground will be intensive.
- Questions regarding the project team were raised, especially who will be the team members for regional activities. National experts from Thailand should also be included for country ownership. Number of national experts to be involved will be decided by topics needed (e.g. vulnerability in water resources, drought, flood, and others) and this point is important to estimate the budget allocation to hire the national experts.
- The budget to be allocated to each country has to be sufficient for the 4-year project duration that will also include fee for national team.
- The method for monitoring and evaluation will need to be well-planned.

At the end, the Chair concluded that the Thai government fully supports the proposal development in order to alleviate climate change impacts in Thailand. Next steps of the proposal development and submission, as presented by the UN Environment-IEMP, were agreed upon and ONEP was looking forward to the revised concept proposal.

#### **D. Vietnam, 9 June 2016**

Venue: Department of Legal Affairs, Ministry of Natural Resources and Environment (MoNRE) Headquarters, Ha Noi Participants:

- 1) Mr. Phan Tuan Hung, Deputy Director General
- 2) Dr. Michael Parsons, Policy Adviser to the Minister
- 3) Dr. Heidi Stockhaus, Integrated Expert

4) Mr. Nguyen Thi, Head of Division of Law Dissemination and Education Department of Legal Affairs

Ministry of Natural Resources and Environment of Vietnam Summary:

The MoNRE thanked the UN Environment for including Vietnam in the proposed project. Then, the project was introduced to the MoNRE on the topics: Purpose of the consultation; Project overview; Project goal & components; Work plan; and Demonstration sites.

Preliminary comments and advice received are as follows:

- In general, the project is seen as relevant and beneficial to Vietnam, especially the linkages with the upstream. There are no major comments for the time being. The three components look fine but for each country there are differences in priority. Therefore, more consultation will be needed at later stage in order to fit into the national priority and context while keeping the same goal.
- Regarding national partner for the proposed project (once approved), the MoNRE will play a focal role and will mobilize other governmental officers and university professors with relevant expertise. They may come from the *Department of Meteorology, Hydrology and Climate Change*; *Vietnam Environment Administration*; and others working on EbA.
- Concerning the demonstration site selection, Tram Chim National Park would be an interesting site to demonstrate EbA. There are Sarus cranes, which are the main concern of the park and could be related to basin-wide problem showing upstream-downstream effects. If the cranes migrate from somewhere else in the Mekong Basin, they could link to the basin-wide concern.
- To facilitate upstream-downstream dialogues, Tram Chim would give more upstreamdownstream elements than in coastal area. It is a wetland, a Ramsar site and a national park with endangered species. It is also a flood plain connected with the Mekong. There are impacts from climate change as well as from human (e.g. tourism) also on biodiversity.
- We need to try to link the 3 demonstration sites to get the synergy, rather than implementing the 3 sites separately.
- Regarding related climate change policies to be reviewed for inclusion in the concept, there are mainly 3 documents. These are the *National Climate Change Strategy 20112020* (where adaptation is a focus), the *Intended Nationally Determined Contribution* (submitted to UNFCCC in 2015 and EbA is included), and the *National Target Program to Respond to Climate Change*.
- Climate change adaptation is already mainstreamed into Vietnam laws, e.g. on forest, sea, land, natural disasters. Under the environmental laws, there is Strategic Environmental Assessment that requires all mater plans to integrate climate change.
- However, there are still plenty of rooms to integrate EbA that the proposed project can support, especially for the laws under MoNRE and MARD (Ministry of Agriculture and Rural Development). Under MoNRE, these laws include the issues on forest, environment, biodiversity, and land. Under these laws, there are master plans and strategies that the proposed project may contribute to EbA mainstreaming. These include land use master plan, biodiversity master plan, environmental master plan, climate change strategy, river basin master plan, and sea master plan. Apart from the national laws, the proposed project may contribute to facilitation of EbA mainstreaming at provincial level. There is also a decree to implement the environmental protection law on ecological zoning that this project (component 3) can contribute. The biodiversity planning can also be enhanced by the EbA approach of this project. The vulnerability assessment of the proposed project should include biophysical assessment (e.g. what is happening at the headwaters, environmental flows, glacier/spring sources along the river) that would be useful for the implementation of the 2014 Environmental Protection law.
- In Vietnam, from policy point of view EbA will be about mangroves. Therefore, it would be good to find some other cases on EbA because there are a lot of climate change impacts,

including on crops in the mountains due to the warmer weather changing the flowering period. Livelihoods aspect will, as a result, need to be looked at. For example, if people cannot grow lychees anymore, the transformation to rubber monoculture may not be a solution.

- Component 3 should not only aim to integrate EbA into NAP but into policy/legal framework as well. This would allow the broader context of policy, which includes many legislations and implementation.
- Regarding EbA activities in Vietnam, there are two ongoing GIZ projects which are recommended to further discuss with, i.e. '*Strategic Mainstreaming of Ecosystem-based Adaptation*' and '*Integrated Coastal Management Programme*.
- This proposed project would create the upstream-downstream linkages on river system itself. These cover species/fish movement and sediment transport. Water hazard element is important for Vietnam. These include flood and drought that could be controlled by dams. Normally, Vietnamese government officially requests the Chinese government on water level management/dam regulation. The proposed project may be able to work at livelihoods level that the Mekong River Commission or the Lancang-Mekong Cooperation platform cannot address.

### **Annex III: Summary of consultations with participating countries - May 2017.**

In May 2017, a mission was undertaken by Ms Jessica Troni (UN Environment), Ms Tatirose Vijitpan (UN Environment–International Ecosystem Management Partnership), Mr Nicholas Tye (C4 EcoSolutions) and Mr Ashley Robson (C4ES) to initiate a revision of the “*Enhancing Climate Resilience in the Greater Mekong Sub-region through Ecosystem-based Adaptation in the Context of South-South Cooperation*” concept note for submission to the Adaptation Fund (AF). The objective of the mission was to gather the information required to address the comments received from the AF on a previously submitted version of the concept note. Various meetings and consultations were conducted with community, national and regional stakeholders in Vietnam, Laos and Thailand to gather the required information. Additionally, field visits were undertaken to potential implementation sites in Vietnam and Thailand to identify potential on-the-ground implementation technologies for the project.

#### **Preliminary consultation with the government of Vietnam: Mekong-EbA concept for Adaptation Fund**

- **Venue:** Department of Legal Affairs (DLA), Ministry of Natural Resources and Environment (MoNRE) Headquarters, Ha Noi, Viet Nam - **Time:** 09.00-11.00 hrs, 4 May 2017
- **Participants:**
  - 5) Mr. Phan Tuan Hung, Deputy Director General, Department of Legal Affairs, Ministry of Natural Resources and Environment of Vietnam
  - 6) Dr. Michael Parsons, Policy Adviser to the Minister, Department of Legal Affairs, Ministry of Natural Resources and Environment of Vietnam
  - 7) Dr. Heidi Stockhaus, Legal Advisor, Department of Legal Affairs, Ministry of Natural Resources and Environment of Vietnam
  - 8) Mr. Nguyen Thi, Head of Division of Law Dissemination and Education, Department of Legal Affairs, Ministry of Natural Resources and Environment of Vietnam
  - 9) Dr. Le Minh Nhat, Director of Climate Change Adaptation Division (CCAD), Department of Meteorology, Hydrology and Climate Change, Ministry of Natural Resources and Environment of Vietnam
  - 10) Ms. Nguyen Thi Kim Tinh, Biodiversity Conservation Agency (BCA), Vietnam Environment Administration, Ministry of Natural Resources and Environment
  - 11) Ms. Dang Thi Phuong Ha, Division of Science and International Cooperation, Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE), Ministry of Natural Resources and Environment
  - 12) Mr. Nguyen Trung Cau, Institute of Meteorology, Hydrology and Environment (IMHEN), Department of Meteorology, Hydrology and Climate, Ministry of Natural Resources and Environment
- **Objective:**

To consult on the technical review comments from the Adaptation Fund Secretariat and the way to possibly best address those comments, especially on transboundary aspects and specific adaptation interventions at the demonstration sites
- **Summary:**

Mr. Phan Tuan Hung opened the meeting by giving a brief history of the proposal development, coverage of the proposal, the demonstration site in Viet Nam, and previous consultation as

well as follow up communications up until today. He added that the participants today were relevant to the project, for instance from the agencies responsible for water, biodiversity, Mekong region, climate change and natural resources policy. After that, each participant introduced themselves.

Then, the UNEP representative expressed the gratitude to the government of Viet Nam , in particular the DLA, for continuous support of the proposal development. She, then, briefly explained the proposal development status that the concept was submitted to the Adaptation Fund in August 2016 and initial technical comments from the Secretariat received. Therefore, the objective of today's meeting was to consult on those technical comments, especially on strengthening regional aspects as well as elaborating on adaptation interventions on the ground. The meeting was also asked about other climate change adaptation activities in the country and Mekong region.

Preliminary comments and advice received are as follows:

#### Climate change adaptation activities in Viet Nam

- 1) There are currently other adaptation activities being conducted in Vietnam. Some of them focus on ecosystem-based adaptation. These include IUCN project that covers a few Mekong countries, including Vietnam; an EbA project under GEF/UNDP on wetland that might be relevant to this proposal; many adaptation research and activities in the Mekong Delta by various organizations, covering mangrove and other EbA measures; some research topics related to economic aspects on climate change adaptation in Vietnam; GIZ projects on EbA that this proposed project can learn from regarding assessments, stakeholders, interventions, EbA integration into policy.
- 2) There was also a completed World Bank project on water utilization in the Mekong countries, including Vietnam.
- 3) It was suggested to review those projects and discuss with those organizations to find the gaps and lessons learned.

#### Regional and transboundary aspects

- 4) 'Partner' is key to this proposed project because not many projects include China, Thailand and Viet Nam together. Thus, at political level the combination of these 3 countries is great.
- 5) Connection at the site level should also be highlighted. If the ecosystem types are not the same, then knowledge sharing is needed.
- 6) Drought is currently the key impact in the region. This, therefore, could be the link to transboundary aspect of the region, e.g. owing to glacial retreat in the Himalayas, there are less water input to the Mekong system, plus hydropower construction along the river and water abstraction from the Mekong mainstream, drought is going to affect everyone.
- 7) 'Harmonising the policy' to integrate EbA in the region might be better than 'enhancing knowledge'. Example of 'harmonising the policy' could be on groundwater, which is a transboundary issue.
- 8) The project may choose one climate change impact, e.g. salinity for Viet Nam and drought for Thailand. South-South Cooperation can then build around that one (or two) main impact to transfer to other countries as best practice. Baseline and indicators will be changed over time as people adapt.

### Activities at the demonstration site

- 9) Tram Chim is a successful case for national park management and it can also be an appropriate site for climate change adaptation, e.g. to demonstrate drought-proofing livelihoods that can be transferred to other countries.
- 10) The salinity intrusion situation at Tram Chim is suggested to look at. There are gauges/watergates to alleviate drought but it is getting worse due to climate change.
- 11) Interventions both inside and outside the national park are allowed, but inside the park is easier because the national park is in charge. Areas outside belong to communities.

### Policy aspects

- 12) The Mekong River Commission (MRC)'s Mekong Adaptation Strategy and Action Plan (MASAP) is at the last preparation stage and hoped to get approved soon, although China is not a Member Country under MRC. Another MRC product that it suggested to look at is the groundwater map in the Lower Mekong Basin, that could be helpful for the proposed project.
- 13) Vietnam's climate change policy includes EbA. This project can help with EbA approach that overlaps with the Vietnamese policy.
- 14) EbA guideline for Vietnam is already in place.
- 15) In 2020, the government will approve the strategy for NDC of the vision up to 2050.
- 16) New legislation is going to be revised and biodiversity law is now being reviewed. There are others on the way, e.g. MASAP, Paris Agreement (NDC, adaptation), a decree on mitigation roadmap. GIZ and ADB are now working with MONRE on both mitigation and adaptation hoping to have climate change law. This project will be helpful to these processes.

### Others

- 17) National system vs ecosystem should be divided in this project because the demonstration site will be small and not able to upscale due to different context (e.g. different problems, different services, different livelihoods, different policy in different Mekong countries).
- 18) Ecosystem services need to estimate the cost. 19) Benefits to the countries should be clear.

At the end of the meeting, the UNEP representative summarized the key comments and explained the next steps. The revised concept will be sent to the countries by end of June for review. For project implementation in Vietnam, a national execution team is to be established. A new letter of endorsement will be requested.

The chair thanked the UNEP team and all the participants for the fruitful discussions. He also added that at the next consultation, more stakeholders will be invited, including development partners, World Bank, IUCN. He also wished the team a fruitful field visit and consultation at Tram Chim on the following day.

### **Preliminary consultation with local stakeholders at the demonstration site of Vietnam: Mekong-EbA concept for Adaptation Fund**

- **Venue:** Office of Tram Chim National Park, Dong Thap province, Viet Nam
- **Time:** 10.00-12.00 hrs, 5 May 2017

- **Participants:**

- 1) Mr. Nguyen The Hanh, Deputy Director of Tram Chim National Park
- 2) Mr. Nguyen Hoang Minh Hai, Head of Science and International Cooperation of Tram Chim National Park
- 3) Mr. Doan Van Nhanh, Park Ranger of Tram Chim National Park
- 4) Mr. Cao Thai Phong, Park Ranger of Tram Chim National Park
- 5) Mr. Pham Hoang An, Park Ranger of Tram Chim National Park
- 6) Ms. Tran Thi Anh Thu, Park Ranger of Tram Chim National Park
- 7) Ms. Nguyen Thi Huong Thao, Park Ranger of Tram Chim National Park
- 8) Mr. Phung Van Tung, People's Committee of Tram Chim Town
- 9) Mr. Le Van Thanh, Tram Chim Town
- 10) Mr. Nguyen Van Nam, Tan Cong Sinh Commune
- 11) Mr. Nguyen Van Nhieu, Phu Duc Commune
- 12) Mr. Tran Van Luong, Phu Duc Commune

- **Objective:**

To consult on the technical review comments from the Adaptation Fund Secretariat and the way to possibly best address those comments, especially on concrete interventions to be implemented at the demonstration site as well as climate change impacts and other adaptation projects in the area

- **Summary:**

Mr. Nguyen Hoang Minh Hai gave opening remarks by expressing his appreciation to UNEP for the initiation of efforts to help Tram Chim to find solutions to climate change. After that, a round of self-introduction was carried out.

Next, the UNEP representative informed the meeting about overview of the proposed project, components and status of submission. Objective of the meeting today was mainly to obtain more information about concrete climate change adaptation measures, that the Adaptation Fund Secretariat asked to elaborate in detail, as well as climate change impacts in the area, how do people cope with the changes, any measures already implemented that should be scaled up, and additional measures that should be conducted.

Preliminary comments and advice received are as follows:

**Overview of Tram Chim National Park**

- 1) Tram Chim National Park has a total area of around 7,313 ha. It was established in 1998 as a national park and in 2012 recognised as a Ramsar site. It is located 25 km from the Mekong River and 40 km from the border with Cambodia.
- 2) The national park is very rich in biodiversity – consisting of 130 flora species, 231 water bird species (32 rare species), 130 fish species (40% of Mekong Delta), among others. The world's tallest flying birds – the Sarus Cranes - appear at the national park 5 months each year. Wild rice is an important food source for small and big animals here.
- 3) Key services of Tram Chim wetland ecosystems include water storage and purification; groundwater replenishment; bird feeding areas; landscape beauty; fish nursing and spawning grounds; micro-climate regulation; carbon sequestration; cultural and historical values; recreation and tourism.
- 4) Hydrological management measures implemented at the national park include dikes, sluice gates, channels and spillways.

- 5) Maintaining water level in the park for forest fire protection is an important challenge, along with climate change, population pressure, illegal and unsustainable resource exploitation, invasive alien species, and inadequate capacity of the national park staff.

#### Communities nearby the national park

- 6) Approximately 50,000 people live around (outside) the national park, which does not have a buffer zone. 70% of people are farmers mostly growing rice, fish, and vegetables. 30% of people are very poor, do not own land, with no full time or unstable jobs far from home, low education (mostly primary school).
- 7) In the past, people were not allowed to enter the park but after 20 years natural resources were depleted. As a result, people illegally entered the park for poaching, fishing with electricity. In 2006, it started to allow people to use some resources.
- 8) Under the Mekong Wetlands Biodiversity Conservation and Sustainable Use Programm (by MRC, UNDP, IUCN), Tram Chim learned about resource utilization model from Thailand, e.g. which months can extract, what can take. Therefore, 3 types of resources can be utilized from Tram Chim National Park. These are fish, fuel wood and vegetables (spinach, lotus, water lily).
- 9) 200-300 people per year can enter the park to get resources and about 100 people have seasonal jobs at the park.
- 10) Last year, not many people could utilize the resources and this year it is not allowed for exploitation at the national park.
- 11) Tram Chim ecosystem services provide benefits to people living around the park, e.g. resources for poor people, hiring people to work here, harvesting grass-water hyacinth, working as tour guide and homestay.
- 12) Every year, local government organizes workshop about the situation, climate change, forest protection, etc.
- 13) Women work both in farm and at home. Climate change affects rainy seasons affecting their income, especially to dry chili and to dry water hyacinth stems for handicraft.
- 14) Handicraft products are difficult to scale up because it depends on the market and material availability

#### Climate change impacts and how people cope with the changes

- 15) Local communities notice that climate change affects them heavily, e.g. the rain starts too early or too late. Too much rain rots chili. Currently there are no solutions to cope with climate change. The communities used to change to raise pigs and cows but the prices dropped. People prefer to grow rice because rice can be stored for long time while others need to sell in short time. Rice diseases and insects occur due to climate change, therefore the communities need to pay extra for pesticide and hire people, leading to less or no profits remaining.
- 16) Drought due to the changes in rainy season is a serious impact in the area. When drought occurs, people cannot fish. Solutions for drought might include installing water pumps, using meteorological information to maintain suitable water level, deepening the canal inside the park to keep more water, and digging a reservoir in the park.
- 17) In some years, it rains too little or too much and also sometimes it suddenly rains in dry season. Some years, high flood occurs. All these prevent people from fishing and wild rice cannot grow well.
- 18) Salinity intrusion is not yet an issue in the area. Last year it happened 80 km away.



- 19) It is difficult to change what to grow (e.g. to drought tolerant rice varieties) because it depends on market.
- 20) Farmers sell products directly at very low price. There is farmers union that connects farmers with buyers and has contract which types of rice to grow but not many people join the contract farming deals because sometimes the price is lower than the market.

#### Other projects in the area

- 21) There are no other climate change projects in the area. Recently there is locally funded project on species survey.
- 22) Also, there are no studies in detail about the water level vs drought of no-return point – only on impacts on rice, birds.
- 23) There is an upcoming WWF project to support technical capacity on natural resources management (instead of taking from the park) e.g. growing mushroom on water hyacinth, beekeeping for honey, handicraft from water hyacinth stems.

#### Others

- 24) Suggestions for this proposed project include research on how certain species would change under climate change (e.g. wild rice this year does not grow well), update research on appropriate water level (which is very important to wetland ecosystem involving flora and fauna).
- 25) The research conducted in 2014 on water level (used as reference) is not effective anymore because the year 2016 was hotter and with less rain.

At the end of the consultation, the UNEP representative summarized the key comments and explained the next steps. The revised concept will be sent to the countries by end of June for review. She also added that if the concept is approved, more consultation will be organised in detail to obtain further information.

The chair thanked the UNEP and all the participants. He also wished the UNEP team for a successful concept submission and expressed his readiness to further work together.

### **Preliminary consultation with the Mekong River Commission:**

#### **Mekong-EbA concept for Adaptation Fund**

- **Venue:** Mekong River Commission Secretariat, Vientiane, Lao PDR
- **Time:** 09.30-11.30 hrs, 8 May 2017
- **Participants:**
  - 13) Mr. Pham Tuan Phan, Chief Executive Officer
  - 14) Dr. Anoulak Kittikhoun, Chief Strategy and Partnership Office
  - 15) Dr. Thim Ly, Chief River Basin Planner
  - 16) Dr. So Nam, Chief Environmental Management Officer
  - 17) Dr. Nguyen Dinh Cong, Climate Change Adaptation Specialist
  - 18) Dr. Dao Thi Ngoc Hoang, Water Quality Officer
- **Objective:**

To learn about climate change adaptation progress in the Mekong Basin, the challenges involved, MRC's roles in adaptation in the Mekong Basin plus their involvement with the

Lancang-Mekong Cooperation Mechanism, and to discuss potential collaboration with the proposed project

- **Summary:**

The UNEP representative expressed the gratitude to the Mekong River Commission Secretariat for an opportunity to meet. She, then, briefly explained about the concept development history, overall components and technical comments received from the Adaptation Fund Secretariat in August 2016. One of the key comments is about highlighting the regional focus of the project, that is to find out from today's meeting, as the Mekong River Commission (MRC) is a key regional player in the region. After the brief introduction, a round of self-introduction was carried out by all the participants.

MRC has conducted regional climate change assessments in the Lower Mekong Basin in 7 topics, i.e. hydrology, floods, droughts, hydropower production, ecosystem and biodiversity, food security, and socio economics. These assessments aim to find out about vulnerable areas, among others. Currently, it is at the last stage of finalizing the reports that can be expected in the coming months. A policy framework analysis, that reviews policies, institutions, climate change adaptation projects at national level, is also going to be published soon. Most importantly, the Mekong Adaptation Strategy and Action Plan (MASAP), which will address transboundary climate change in the future, also aims to finalise by this year. A stakeholder forum on MASAP will be organised in June 2017 and MASAP implementation is being discussed with the MRC Member Countries. Thailand has requested to share interim reports and MASAP to provide input to the Thai climate change strategy. So, MASAP is already very much wanted by the countries. Other climate change-related work of MRC include the Mekong Delta Study that includes impacts of climate change in the delta, and a study on sustainable management of the Mekong in different sectors (including hydropower and irrigation) that climate change is taken into account.

MRC focuses on transboundary and macro level, although there are some local level projects going on, e.g. on flood hotspots and exchange between Tonle Sap (Cambodia) – Songkla Lake (Thailand). China has been a dialogue partner of MRC, so there would not be a problem to cooperate with China in this proposed project.

In terms of the major players in the region, 'Water, Land and Ecosystems (WLE)' Forum is organised annually in the Mekong countries. For the Lancang-Mekong Cooperation Mechanism (LMC), there are several joint working groups – one on water resources. Some of these groups also include MRC Secretariat. Currently, MRC is working on the mandates and expect to sign an agreement with a water institute of the LMC.

With regard to involvement of MRC in the proposed project, MRC might contribute to knowledge sharing and policy elements in order to keep the regional approach to address transboundary water management issues. In this case, MASAP might be the best entry point to build on. Since Lao PDR and Cambodia are MRC member countries, further exchange with the two countries can be facilitated. Therefore, from the MRC Secretariat's points of view, MRC's involvement is valid and crucial to strengthen the proposal. Apart from MASAP, the proposed project may also contribute to the MRC database, which is available on MRC website.

At the end of the meeting, UNEP representative thanked the MRC for all the information, comments, suggestions and willingness for collaboration. The team would have internal discussions about how to best cooperate with MRC and further inform MRC Secretariat.



## **Preliminary consultation with the government of Thailand: Mekong-EbA concept for Adaptation Fund**

- **Venue:** Office of Natural Resources and Environmental Policy and Planning (ONEP), Bangkok, Thailand
- **Time:** 09:30-11:30 hrs, 11 May 2017
- **Participants:**
  - 19) Dr. Phirun Saiyasitpanich, Director, Climate Change Management and Coordination Division, ONEP
  - 20) Mr. Worapon Mathurosmethanee, Environmental Official, Climate Change Management and Coordination Division, ONEP
  - 21) Dr. Jarunee Nugranad, Environmentalist, Climate Change Management and Coordination Division, ONEP
  - 22) Ms. Chompunut Songkhao, Environmental Officer, Climate Change Management and Coordination Division, ONEP
  - 23) Ms. Benjama Bunyachalongsak, Policy and Plan Analyst, Climate Change Management and Coordination Division, ONEP
  - 24) Ms. Sirinee Pengpreecha, Project Coordination Officer, Climate Change Management and Coordination Division, ONEP
  - 25) Ms. Chuleekorn Sawetwong, Policy and Plan Analyst, Climate Change Management and Coordination Division, ONEP
  - 26) Ms. Panporn Suwan, Senior Civil Engineer, Planning Division, Mekong Management Bureau, Department of Water Resources (DWR)
  - 27) Ms. Rutima Aramrung, Policy and Plan Analyst, Planning Division, Mekong Management Bureau, Department of Water Resources (DWR)

- **Objective:**

To consult on the technical review comments from the Adaptation Fund Secretariat and the way to possibly best address those comments, especially on transboundary aspects and specific adaptation interventions at the demonstration sites

- **Summary:**

Dr. Phirun Saiyasitpanich opened the meeting by giving a brief introduction of the proposal and previous consultations. After that, each participant introduced themselves.

Then, the UNEP representative expressed the gratitude to the government of Thailand, in particular the ONEP and DWR, for continuous support of the proposal development. She, then, briefly explained the proposal development status that the concept was submitted to the Adaptation Fund in August 2016 and initial technical comments from the Secretariat received. Therefore, the objective of today's meeting was to consult on those technical comments, especially on strengthening regional aspects as well as elaborating on adaptation interventions on the ground. The meeting was also asked about other climate change adaptation activities in the country and Mekong region that the project could build on.

Preliminary comments and advice received are as follows:

### Development of the National Adaptation Plan (NAP)

- (1) Thailand is now at the final stage of NAP development, aiming to finalise it within this year as a 3-year plan. After that, the next version will have coverage of 5 years, in order to be in line with the National Economic and Social Development Plan.
- (2) NAP development process has started with vulnerability assessment (referring to IPCC AR4) but later on (referring to AR5) it is based on risk assessment at provincial level plus stocktaking on best practices within Thailand.
- (3) Moreover, in parallel 4 sites will be soon established in order to identify climate change impacts and adaptation options and to finally create local adaptation plan that will be mainstreamed into their local development plan (in order to get budget for implementation).
- (4) NAP will include adaptation options based on the best practices for each sector (as guideline for the locals/each site to further consider because climate change adaptation is context specific). In addition, the experience at the 4 sites will later on feed into the NAP.
- (5) NAP does not specially recognize regional problems/projects. Therefore, this is a gap that NAP does not include transboundary aspects and the proposed project can fill in this gap.
- (6) Moreover, the proposed project could pilot interventions in a similar manner to feed back into the NAP process.

### Other key national assessments and policies

- (7) There is a scoping assessment that was conducted in order to identify the 4 sites. It was conducted based on research and consultations to choose specific sectors as a focus for each site.
- (8) It will be useful if the proposed project would conduct risk assessment at a finer scale but it would depend on resource availability.
- (9) Thailand climate change master plan covers mitigation, adaptation, and capacity building areas.
- (10) The adaptation area of the master plan covers 6 sectors e.g. water resources, health, natural resources management, human settlement. Specific ministries are closely involved in corresponding sectors (e.g. Ministry of Public Health in the health sector).

### Climate change adaptation activities in Thailand

- (11) GIZ is currently supporting the NAP development and risk assessment. They also have EbA activities in Thailand.
- (12) UNDP is currently supporting NAP development in agricultural sector.
- (13) Thailand Greenhouse Gas Management Organization has some capacity building activities.
- (14) JICA has conducted research on vulnerability on water resources and agriculture at 19 sites.
- (15) Apart from the Mekong River Commission (MRC), there are no other regional projects in Thailand at the moment. However, recently the German government is in the process of identifying the countries to engage in a regional climate change project.

### Database and knowledge sharing

- (16) MRC works on transboundary water-related activities and they have knowledge sharing projects at site level, e.g. Thai-Cambodia lakes, Thai-Lao. Their Mekong Adaptation Strategy and Action Plan (MASAP) is not yet finalized.
- (17) MRC database is designed specifically for MRC purposes (water management). Therefore, adding a climate change component would be beneficial.

- (18) MRC has regional platform and workshops for knowledge sharing (under the MRC Procedures). The proposed project is suggested to join the MASAP stakeholder forum.
- (19) JICA is recently also having discussion about establishing a knowledge dissemination platform.
- (20) The Asia Pacific Adaptation Network mainly works on training, workshop on experience sharing – not with a focus on database system.
- (21) NAP global network is a platform to share experience how each country develops their NAP.
- (22) In conclusion, generally there are many workshops and training with different objectives but not many having a data center.
- (23) Establishing a knowledge platform under the proposed project would be beneficial. However, a key principle for knowledge sharing platform is that it must be sustainable and stay updated.

#### Other key regional cooperation arrangements

- (24) The Lancang-Mekong Cooperation Mechanism is rather new. The framework is not yet finalized and nothing concrete has been established yet between the countries.
- (25) There have not been substantial interactions on climate change adaptation with the ADB GMS so far, but possibly with other divisions under ONEP and DWR.

At the end of the meeting, the UNEP representative summarized the key comments and explained the next steps. The revised concept will be sent to the countries by end of June for review. A new letter of endorsement will be requested. The chair thanked the UNEP team and all the participants for the fruitful discussions. He also added that the process to issue the new LoE would require at least two weeks. He also wished the team a successful application.

### **Preliminary consultation with local stakeholders at the demonstration site of Thailand: Mekong-EbA concept for Adaptation Fund**

- **Venue:** Village hall and surrounding areas, Sainawang sub-district, Nakoo district, Kalasin province, Thailand
- **Time:** 10.00-12.00 hrs, 12 May 2017
- **Participants:**
  - 13) Mr. Bumrung Kayotha, Sainawang community
  - 14) Mr. Charoen Vilasri, Sainawang community
  - 15) Mr. Muangmon Sukpan, Sainawang community
  - 16) Mr. Seela Vilasri, Sainawang community
  - 17) Mr. Vas Kutarasang, Sainawang community
  - 18) Mr. Sathit Kayotha, Sainawang community
  - 19) Mr. Amnat Vilasri, Sainawang community
  - 20) Mr. Ruengdet Kayotha, Sainawang community
  - 21) Mr. Somsri Sripayom, Sainawang community
  - 22) Mr. Pichet Vorasan, Sainawang community
  - 23) Ms. Kanungnit Polkayun, Sainawang community
  - 24) Mrs. Jalu Waenpetch, Sainawang community

- 25) Mrs. Ring Glerung, Sainawang community
- 26) Mr. Chairat Srinontong, Director of Coordination and Management of Upper Chi Basin Division, Water Resources Regional Office 4, Department of Water Resources
- 27) Ms. Siripak Pason, Water Resources Regional Office 4, Department of Water Resources
- 28) Mr. Ittirong Chokchaloem, Water Resources Regional Office 4, Department of Water Resources
- 29) Assist. Prof. Rachapat Rattanavaraha, Director of Water Resources Management Research Center: Khong-Chi-Mun River Basin, Rajamangala University of Technology Isan
- 30) Ms. Rutima Aramrung, Policy and Plan Analyst, Planning Division, Mekong Management Bureau, Department of Water Resources

- **Objective:**

To consult on the technical review comments from the Adaptation Fund Secretariat and the way to possibly best address those comments, especially on concrete interventions to be implemented at the demonstration site as well as climate change impacts and other adaptation projects in the area

- **Summary:**

Mr. Chairat Srinontong gave opening remarks by expressing his appreciation to UNEP for the inclusion of Sainawang as part of demonstration site in Thailand for the proposed project. Then, he thanked the community representatives for participating in the meeting and encouraging them to provide input as much as possible for the proposal development. After that, a round of self-introduction was carried out.

Next, the UNEP representative informed the meeting about overview of the proposed project, components and status of submission. Objective of the meeting today was mainly to obtain more information about concrete climate change adaptation measures, that the Adaptation Fund Secretariat asked to elaborate in detail, as well as climate change impacts in the area, how do people cope with the changes, any measures already implemented that should be scaled up, and additional measures that should be conducted.

Preliminary comments and advice received are as follows:

**Overview of Sainawang**

- 1) This area is the upper reach of Young River, which is a tributary of Chi River, which is a primary tributary of Mekong River.
- 2) Sainawang sub-district consists of 8 villages with 4,200 people, who mainly depend on rainfed-agriculture. Mostly they are rice farmers (this lowland area is suitable for rice plantation) but some also grow sugarcane as contract farming. Many households grown vegetables for own consumption.
- 3) Water shortage for agricultural activities have long been a problem. In some areas, there are also issue of insufficient water for domestic consumption.
- 4) Ecosystem-based solutions, based on local wisdom, have been applied.
- 5) A sub-district water management committee is in place to manage water resources and allocate water to use through 11 water gates. There is a reservoir (5 million m<sup>3</sup>) in the area. Water storage (small ponds scattered around) is insufficient for agricultural activities. There is no systematic irrigation, nor water distribution system. Irrigation canal exists but covers only some parts of the area.

- 6) The 4-year local (sub-district) development plan is updated annually. However, it is mostly about infrastructure development (e.g. roads), not on climate change. This might be because climate change is a long-term issue.

#### Climate change impacts, other climate change projects in the area and how people cope with the changes

- 7) Water shortage is a significant problem. Lately, it is noticeable that the rain starts later than usual. This seriously affects rice plantation because the rice field has to be prepared to match the rain. Also, Jasmine Rice becomes burnt when it gets very hot (in some farms, only 30% survived). Water in the ponds also dries up. It is also unbearably hot to work in the field. Moreover, the municipality also use water from the reservoir to produce tap water, hence water competition between different user groups.
- 8) There is a plan to pump water to the higher ground for irrigation but there is no budget to implement yet.
- 9) The Mekong River Commission had a 1-year project a few years ago to conduct impact and vulnerability assessment in the area. The study also documented various ways that Sainawang community have applied to adapt to climate change. Although the project has produced valuable knowledge and created understanding, there are no tangible on-the-ground measures implemented under that project.
- 10) The people have tried practicing organic farming and the results have been successful. Some farmers have also planted native rice varieties, which are suitable to the locality. Totally, the people plant about 20 rice varieties – some for own consumption, others for sell. The seeds are partly received from the exchange of rice and vegetable native varieties under the 'Alternative Farming Network of Thailand'.
- 11) Although principal knowledge is in place,
  - The community does not know how others adapt to climate change. So far, groups from Lao PDR and Vietnam have come to learn from Sainawang but Sainawang community never have any chances to learn from others.
  - There is no documentation of what and how to adapt effectively.
    - Accurate weather forecast system is needed, e.g. to inform when the rain will start in the area.
    - Updated agricultural techniques and news would be beneficial, e.g. on ASEAN Free Trade.

#### Potential interventions to be implemented under the proposed project

- 12) The meeting proposed potential measures to be implemented under the proposed project as below:
  - Establishing a systematic water resources management committee at community level that will work with different sectors to be in charge of holistic management, e.g. water distribution for agriculture, marketing
  - Increasing water storage and water sources in the area
  - Extending the irrigation canal to cover more area
  - Applying integrated water management in order to have enough water, improve livelihoods, use solar and wind power for pumping water, practice land management.
- 13) In order to make the interventions sustainable, the proposed project should establish tangible measures on the ground as well as give knowledge, create self-motivation and empower the local people for management. Monitoring and knowledge transfer, as parts of the IWRM principles, should be followed. It is also suggested to follow a



teaching by doing approach (also to young generations) over the course of the concrete measure implementations.

After the meeting, the team visited the neighbouring areas to see the irrigation canal and water gates. Then, the team visited a farm that practices integrated farming with the principle 'to plant everything you eat and eat everything you plant'. This 1.6 hectare creates minimum 300 baht/day as extra income besides the major livelihood as rice farming.

After that, the UNEP representative concluded that the proposed project would be guided by the MRC study plus consultations. The interventions would consider environment as a whole, including integrated water resources management, irrigation canal, water storage infrastructure, improved farming (which already found suitable, therefore may expand more in the community). Thus, it will be a combination of infrastructure (e.g. irrigation canal) and EbA (e.g. organic farming). Lessons learned and sharing with other countries at community, national, and regional levels will also be included in the project. There were additional requests from the meeting to include water distribution system for farms located on the higher ground as well as study about groundwater yield and balance to further set rules how much can be used (overuse of groundwater yield is an issue). Another important aspect of this proposed project will be about monitoring e.g. agricultural production, rainfall. Research institutions and universities will be involved in this aspect, which will also be beneficial for students.

At the end, the UNEP representative explained the next steps. The revised concept will be sent to the countries by end of June for review. If the concept is approved, more consultation will be organised in detail to obtain further information. The chair thanked the UNEP and all the participants. He also wished the UNEP team for a successful concept submission and expressed his and the community's readiness to further work together.

#### **Preliminary consultation with local stakeholders at the demonstration site of Thailand: Mekong-EbA concept for Adaptation Fund**

- **Venue:** Som Sa Ard Pittayasan School, Kuchinarai district, Kalasin province, Thailand
- **Time:** 15.00-17.00 hrs, 12 May 2017
- **Participants:**
  - 31) Mr. Supan Kaewnisai, Principal
  - 32) Mrs. Pensri Chuenwattana, Teacher
  - 33) Mrs. Manuschanok Udomdee, Teacher
  - 34) Mrs. Jintana Asucheewa, Teacher
  - 35) Mrs. Kobkul Utaisang, Teacher
  - 36) Mrs. Chayanee Potchanapatee, Teacher
  - 37) Mrs. Sineerat Hankul, Teacher
  - 38) Mrs. Kanitta Laosupab, Teacher
  - 39) Mr. Pao Puntupa, Teacher
  - 40) Mr. Teerasak Jomtarak, Teacher
  - 41) Mr. Patcharapng Kulartsri, Teacher
  - 42) Mr. Sangkom Suttiwapa, Teacher
  - 43) Mrs. Kansawalee Chokdeepong, Teacher
  - 44) Mrs. Patchadaporn Chotesawai, Teacher
  - 45) Ms. Oranit Chuarom, Teacher
  - 46) Mr. Chainarong Kaewnisai, Teacher

- 47) Mr. Vichien Pattabut, Janitor
- 48) Ms. Vijitra Somda, Teacher
- 49) Mr. Chuvich Pangput, Admin officer
- 50) Mr. Chairat Srinontong, Director of Coordination and Management of Upper Chi Basin Division, Water Resources Regional Office 4, Department of Water Resources (DWR, WRRO 4)
- 51) Ms. Siripak Pason, Water Resources Regional Office 4, Department of Water Resources
- 52) Mr. Ittirong Chokchaloem, Water Resources Regional Office 4, Department of Water Resources
- 53) Assist. Prof. Rachapat Rattanavaraha, Director of Water Resources Management Research Center: Khong-Chi-Mun River Basin, Rajamangala University of Technology Isan
- 54) Ms. Rutima Aramrung, Policy and Plan Analyst, Planning Division, Mekong Management Bureau, Department of Water Resources

- **Objective:**

To discuss with the school, which is a local climate change learning center, on potential involvement with the proposed project and learn about the activities within the school

- **Summary:**

Mr. Supan Kaewnissai welcomed the UNEP and DWR representatives to the school. He expressed his enthusiasm on behalf of the school to have a chance to discuss the potential involvement in the proposed project. Mr. Chairat Srinontong, then, thanked the school principal and the teachers for warm hospitality. After that, a round of self-introduction was carried out.

Next, the UNEP representative informed the meeting about overview of the proposed project, components and status of submission. Since the school serves as a local climate change learning center, the team is interested to learn more for potential involvement of the school as part of demonstration activities in the Young Basin.

Key information, comments and advice received are as follows:

- 1) The climate change learning center of the school was established by DWR WRRO4 with financial support from the nearby Mitr Phol sugarcane factory. This cooperation was facilitated under the Mekong River Commission's climate change adaptation project in the Young Basin a few years ago. The learning center primarily targets the school students and communities nearby. It is a good example of tripartite collaboration (government-private sector-school).
- 2) The school produces tasteful snack (peanut with sugarcane) that is on market at national level and produced from organic peanuts (aiming to get the peanuts certified as organic).
- 3) At the learning center:
  - Activities include raising fish and frogs (for school lunches), planting crops (bananas, lemons etc), dripping irrigation, land planning for different agricultural productions, exhibition on climate change.
  - For sustainability, the school would like to engage banana farmers, further market the peanut snacks to increase school income, increase more stations to learn.
  - It lacks computer and multi-media equipments that would be useful for giving presentation to visitors.

- When the center becomes more complete, visitors from Lao PDR and Vietnam (among others) can come to learn and practice back at home.
- 4) Number of people already visited the center:
    - 300 students from the schools in the same sub-district
    - 400 students from schools in other provinces
    - 50 households
    - On average from this sub-district 400 people/year
  - 5) There should be more people to visit after the GMS East-West Economic Corridor is finished (the school is located along this corridor). Also, the school is part of a school network.
  - 6) Climate change theory is taught in science classes at school. Knowledge generated at the school is not part of the curriculum but rather extra-curricular activities since it is important to build capacity of students for the future (e.g. they will be able to implement lessons when they leave school). School children learn how to produce products and create sources of income.
  - 7) IWRM means knowledge from both scientists and local wisdom. This school contributes to the latter one (participatory action).
  - 8) If the proposed project produces a climate change adaptation handbook, it will provide direct benefits to school because knowledge is needed first in order to know how to adapt.
  - 9) For the proposed project, this school can provide good practices and share with other countries (China and Vietnam) as knowledge center for Young Basin with support from university on knowledge generation. This school can be self-regulated because teachers are self-motivated to work on climate change. Therefore, the centre has the capacity to be an international centre for knowledge sharing.

After the meeting, the team visited the climate change learning center of the school, which consists of a dedicated pavilion with climate change exhibition poster sets; fish and frog ponds; chicken raising for eggs; banana and other vegetable planting; drip irrigation, pond for water storage, among others.

At the end, the UNEP representative explained the next steps. The revised concept will be sent to the countries by end of June for review. If the concept is approved, more consultation will be organised in detail to obtain further information. The chair and the school principal thanked the UNEP as well as confirming the eagerness to further work together.

**Preliminary consultation with local stakeholders at the demonstration site of  
Thailand: Mekong-EbA concept for Adaptation Fund**

- **Venue:** Pa Na Kham Temple, Kuchinarai district, Kalasin province, Thailand
- **Time:** 09.30-12.00 hrs, 13 May 2017
- **Participants:**
  - 55) Pramahasuphap Bhuddhaviriyo, Abbot, Pa Na Kham Temple
  - 56) Mr. Bundit Akkarapracha, Kuchinarai community
  - 57) Ms. Yupin Bungtong, Kuchinarai community
  - 58) Mrs. Utai Songkasee, Kuchinarai community
  - 59) Dr. Tarin Taramon, Kuchinarai community
  - 60) Mr. Nikon Tiangkaew, Kuchinarai community
  - 61) Mrs. Ratchanok Suchaichit, Moral Development Center of Kalasin province
  - 62) Mrs. Supasadee Puthakru, Moral Development Center of Kalasin province
  - 63) Mrs. Srintorn Srioui, Moral Development Center of Kalasin province
  - 64) Mr. Jul Patam, Moral Development Center of Kalasin province
  - 65) Mr. Chairat Srinontong, Director of Coordination and Management of Upper Chi Basin Division, Water Resources Regional Office 4, Department of Water Resources
  - 66) Ms. Siripak Pason, Water Resources Regional Office 4, Department of Water Resources
  - 67) Mr. Ittirong Chokchaloem, Water Resources Regional Office 4, Department of Water Resources
  - 68) Assist. Prof. Rachapat Rattanavaraha, Director of Water Resources Management Research Center: Khong-Chi-Mun River Basin, Rajamangala University of Technology Isan
  - 69) Ms. Rutima Aramrung, Policy and Plan Analyst, Planning Division, Mekong Management Bureau, Department of Water Resources

- **Objective:**

To learn about 'living check dam', which is led by the temple, and discuss potential involvement with the proposed project

- **Summary:**

Pramahasuphap Bhuddhaviriyo welcomed the UNEP and DWR representatives to the temple. He thanked the team for being interested in the living check dam and expressed his great pleasure to potentially collaborate with the proposed project. Mr. Chairat Srinontong, then, thanked the abbot and all participants for opportunity of the meeting. After that, a round of self-introduction was carried out.

Next, the UNEP representative informed the meeting about overview of the proposed project, components and status of submission. Since the temple is located within the Young Basin, the team is interested to learn more about the living check dam, which is a unique solution for drought and flood alleviation, along with other measures initiated by the temple for potential involvement of the temple as part of demonstration activities in the Young Basin.

Key information, comments and advice received are as follows:

- 10) There are 3 principles initiated by Pramahasuphap Bhuddhaviriyo reflecting 3 levels to solve problems of poverty, environmental damage and development:
  - (1) At household level – to depend on themselves, become self-sufficient, environmentally friendly and financially accountable

(2) At group/community level – to depend on each other, share knowledge and act in the common interest of the community

(3) At network of communities - to form network, link with each other and get access to market.

11) At household level, there are 3 tools, i.e. sufficiency pit, chemical-free practice, household account. In the past 10 years, 40,000 people country-wide have come to learn from here.

12) At group/community level, stronger people help others. For instance, in 2010 a group established a 'Pig Bank' with initially 100 pigs, then in 2011 totally the bank would have 400 pigs, then 800, 1,600 etc. Those increasing pigs would be distributed to others. This practice can be applied as 'Banana Bank'.

13) The sufficiency pit is an important tool that has been proved effective.

- Size: 2m x 2 m
- The main idea is to plant in the same pit different types of trees/crops that support/depend on each other - reflecting the symbiosis relationship of ecosystem - in order to reduce burden on providing water and fertilizer, replanting overtime, and getting rid of pests/weeds.
- Each pit consists of 5 main components:
  - (1) Banana - as 'supporter' of the whole pit- to provide shade, detain water/moisture in dry season
  - (2) 'Clever' plants – that can survive over years and moderately tolerate different conditions – which can start harvesting about within a month and last quite long time (5-10 years), e.g. papaya, climbing wattle
  - (3) Daily plants that are easy to plant, fast growing, most demanding (in the pit) and can harvest almost every day starting from the first 15 days, e.g. chili, cucumber, sweet basil, lemongrass, eggplant, morning glory, kale, pumpkin
  - (4) 'Pension' trees that take 2-4 years to grow but the fruits can be harvested continuously, e.g. jackfruit, mango, lemon, satol, rambutan, durian, mangosteen, rubber – to choose only 1 tree each pit
  - (5) 'Heritage' trees that will take long time to grow, so this is for passing over to the children (to get large amount of money once cut it down) or to use for fixing the house, e.g. teak, paduak, yang, Siamese Rosewood.
- The income from the pit will be both short and long terms (daily, monthly, yearly).
- On average, from practicing 500 pits in 1 rai (0.16 hectare), it will decrease expenses of 100,000 baht/year, increase income of 100,000 baht/year and create savings (in terms of perennial trees) of 300,000 baht.

14) A living check dam is effective at creating community spirit, and incorporates local knowledge, creating a sense of community ownership.

- Living check dam started 4 years ago in Nakhonsrithammarat province and 1 year ago in Kalasin province.
- It helps retain water and slow the flow in the stream/river during rainy season. Without a living check dam, river water only infiltrates soil 50 m away from the river. With a living check dam, water infiltrates 500 m to 2 km. This allows farmers to grow crops far away from the river. There is also a fish ladder in the check dams. Moreover, living check dams can also be used to generate electricity.
- Planting trees (e.g. banyan tree) along the banks, as part of creating a living check dam, will help stabilise the dam. Thus, the 'living' aspect refers to those

trees on the bank of the check dam that the roots will eventually act as the checks dam for decades later.

- Living check dams can last for 10 years and cost ~50,000 baht (10% of concrete dams). It only takes 8 days to build. If the whole community helps to build and each person only has to volunteer 1–2 hours a day.
- Its success depends on 50% local wisdom (using locally available materials – bamboo, sand, rope, bag) and 50% community engagement for sense of ownership.
- The governor of the Kalasin province fully supports living check dams and wishes to have 1,000 living check dams in the province (currently 136 check dams already in place).

15) The abbot and community representative informed the meeting that the proposed project could:

- Replicate living check dams to 1,000 e.g. on workshops/training how to create check dam
- Increase forest area from 31% to 40% in Young Basin
- Create learning centres (small) on land-forest-water around the Young Basin
- Provide solar cells for agricultural irrigation pumps for the areas adjacent to the selected 25% of successful check dams.

After the meeting, the team visited a living check dam nearby the temple. Moreover, the team also visited a few farmers who have been practicing the ‘sufficient pits’.

At the end, the UNEP representative explained the next steps. The revised concept will be sent to the countries by end of June for review. If the concept is approved, the team is expecting to visit the temple again to obtain further information. The abbot thanked the UNEP as well as wished the UNEP team for a successful concept submission.

### **Preliminary consultation with local stakeholders at the demonstration site of Thailand: Mekong-EbA concept for Adaptation Fund**

- **Venue:** Navee village, Sriwilai sub-district, Selaphum district, Roi-et province, Thailand

- **Time:** 13.00-16.00 hrs, 13 May 2017

- **Participants:**

- 70) Mr. Surachai Sriphol, President of Sriwilai Sub-district Administrative Organisation
- 71) Mr. Somphong Promwong, Vice President of Sriwilai Sub-district Administrative Organisation
- 72) Mr. Suntarom Chusritong, Chief of Sriwilai Sub-district
- 73) Mrs. Jumrong Sararat, Member of Sriwilai Sub-district Administrative Organisation
- 74) Mr. Sumruam Polyiem, Member of Sriwilai Sub-district Administrative Organisation
- 75) Mrs. Punnee Tipnet, Assistant to Member of Sriwilai Sub-district Administrative Organisation
- 76) Mr. Charoen Saisri, Assistant to Member of Sriwilai Sub-district Administrative Organisation
- 77) Mr. Somsri Kosuwan, Assistant to Member of Sriwilai Sub-district Administrative Organisation
- 78) Mr. Suan Sarakul, Head of Moo 10 Village
- 79) Mr. Sujit Potan, Head of Moo 3 Village

- 80) Ms. Putkata Sarakul, Assistant to Head of Moo 3 Village
- 81) Mr. Bupha Sararat, Young Basin Committee Member
- 82) Mrs. Pongsai Sripchol, Head of Housewife Group
- 83) Mrs. Sumontha Laochai, Community Leader, Wang Luang sub-district, Selaphum District
- 84) Mr. Chairat Srinontong, Director of Coordination and Management of Upper Chi Basin Division, Water Resources Regional Office 4, Department of Water Resources
- 85) Ms. Siripak Pason, Water Resources Regional Office 4, Department of Water Resources
- 86) Mr. Ittirong Chokchaloem, Water Resources Regional Office 4, Department of Water Resources
- 87) Assist. Prof. Rachapat Rattanavaraha, Director of Water Resources Management Research Center: Khong-Chi-Mun River Basin, Rajamangala University of Technology Isan
- 88) Ms. Rutima Aramrung, Policy and Plan Analyst, Planning Division, Mekong Management Bureau, Department of Water Resources

- **Objective:**

To consult on the technical review comments from the Adaptation Fund Secretariat and the way to possibly best address those comments, especially on concrete interventions to be implemented at the demonstration site as well as climate change impacts and other adaptation projects in the area

- **Summary:**

Mr. Chairat Srinontong gave opening remarks by briefly introducing the proposed project on climate change adaptation that would include the Young Basin as the demonstration site in Thailand. Then, he thanked the community representatives for participating in the meeting and encouraging them to provide input as much as possible for the proposal development. After that, a round of self-introduction was carried out.

Next, the UNEP representative informed the meeting about overview of the proposed project, components and status of submission. Objective of the meeting today was mainly to obtain more information about concrete climate change adaptation measures, that the Adaptation Fund Secretariat asked to elaborate in detail, as well as climate change impacts in the area, how do people cope with the changes, any measures already implemented that should be scaled up, and additional measures that should be conducted.

Key information, comments and advice received are as follows:

(1) Flooding is the main problem in the area:

- The floods situation in wet season in Sriwilai sub-district (lower reach of Young Basin) is very serious every year, especially at Nong Done reservoir area, where approximately 1,000 households and farms are affected (floodwater is 1m high). Flooding occurs in August and lasts 1 month.
- Flooding has made the area unsuitable for living. Many people have to use a boat to commute in the area. Around 2 people die per year from floods. There has been a lot of emigration because of the flooding.
- An embankment in the opposite district has enhanced flooding. Sediment is also making the river shallower which increases flooding. More structures along the river won't solve the flooding problem. Water flood must be controlled and there must be an outlet.
- A joint meeting between the two districts who share the river will be needed to find a solution.

(2) Other climate change problems:

- The community have observed increased rainfall intensity and with shorter rain duration, damaging young rice.
- Rain normally starts in March or April, some years in July. However, in the last 3 years it rains as intense as storms during harvesting season, destroying crop products.
- It also becomes hotter, causing damage to mangoes, tamarind (smaller fruits, not good price), decreasing crop yields.

(3) The community have started coping with climate change:

- Some people have started farming peanuts (instead of rice) due to less water required.
- Some other people have started non-agricultural businesses, e.g. changing to work as construction workers.
- 20% of people have left the area.
- Houses are built on stilts to avoid floods.
- Different rice varieties have been planted.
- Overall, what have found to be beneficial to cope with climate change include practicing self-sufficiency at household level (initiated by the late King Rama 9), adjusting the farm to tolerate floods, planting different rice varieties.

(4) The communities would like to propose 3 interventions for flood mitigation:

- Inlet of the Nong Done reservoir – to expand for less strong water coming into the pond
- Outlet of the reservoir
- Embankment (using the sediment of the pond) on the nearby farms.

(5) Others:

- There is 60 rai (9.6 hectares) of forest along the river, which is used for conservation and as food source for household consumption, e.g. mushrooms, bamboo shoots, red ant eggs.
- The village committee is in charge of everything, including infrastructure, health, natural resources.
- There is a sub-district plan under the sub-district administrative organization.
- The communities in Sriwilai and Selaphum districts have conducted community research on climate change impacts in the sub-districts (funded by Thailand Research Fund) several years ago. The study came up with certain number of solutions, but not yet implemented.
- The communities have formed network for organic products to get certified and sell in town.
- Participation is key to sustainability.

Afterwards, the team visited the Nong Done reservoir, that is seriously flooded every year, and organic rice production of the village.

At the end, the UNEP representative explained the next steps. The revised concept will be sent to the countries by end of June for review. If the concept is approved, more consultation will be organised in detail to obtain further information. The chair thanked the UNEP and all the participants. He also wished the UNEP team for a successful concept submission and expressed his and the community's readiness to further work together.



## **Preliminary consultation with the Asian Development Bank (ADB)'s Greater Mekong Subregion (GMS):**

### **Mekong-EbA concept for Adaptation Fund**

- **Venue:** GMS Environment Operations Center (EOC), Asian Development Bank, Bangkok, Thailand
- **Time:** 14.00-15.30 hrs, 15 May 2017 - **Participant:** Dr. Suchat Katima, Team Leader
- **Objective:**

To learn about climate change adaptation activities under the ADB GMS and to discuss potential complementation from the proposed project

- **Summary:**

The UNEP representative expressed the gratitude to the ADB GMS EOC for an opportunity to meet. He, then, briefly explained about the concept development history, overall components and technical comments received from the Adaptation Fund Secretariat in August 2016. One of the key comments is about highlighting the regional focus of the project, that is to find out from today's meeting, as the ADB GMS is a major regional player in the Mekong region. Also, the meeting would like to explore how best to address regional policy and how to avoid duplication with other projects.

Key information, comments and advice received are as follows:

- (1) The ADB GMS works in the whole Mekong region; 5 Mekong countries and 2 provinces of China.
- (2) Phase 2 of the Core Environment Program (CEP) (2011-2017) under the ADB GMS EOC has a component on enhancing climate resilience, i.e. EbA and climate change integrated into transboundary landscape management strategies. In the next phase (starting in 2018, now under formulation), one of the thematic areas is climate change adaptation and mitigation.
- (3) Issue of ecosystem services is also integrated into the transboundary landscape management assessment. An EbA guideline has been produced and made available on website.
- (4) The CEP also hosts a 3-monthly regional climate change adaptation roundtable with 11 Thailand-based regional organisations (e.g. USAID, IUCN, FAO, WWF), organized in Bangkok. The next roundtable (in June) aims to finalise watershed-scale vulnerability and adaptation guideline that is to be released by this year.
- (5) CEP also works on policy level and pilot projects, e.g. harmonising Biodiversity Conservation Corridors policy, transboundary biodiversity landscape policy, but it is challenging because the countries have different laws.
- (6) Other relevant activities include Community Vulnerability Assessment and Adaptation to Climate Change (CVAA) capacity building for Cambodia, Lao PDR and Vietnam; training; online portal.
- (7) Other adaptation activities in the region include USAID Lower Mekong Initiative (also working on climate change adaptation in 5 Mekong countries), mapping of ecosystem services in Mekong Delta by Vietnam (ISPONRE).
- (8) The GMS info portal is an online knowledge management tool. It is possible to collaborate and the proposed project can provide input to the portal, rather than

launching a new one. This portal is independent and already hosts a lot of information from other collaborations.

At the end of the meeting, UNEP representative thanked the ADB GMS EOC for all the information, comments, suggestions and willingness for collaboration. The team would have internal discussions about how to best cooperate with ADB GMS EOC would keep them informed.

**Preliminary consultation with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH: Mekong-EbA concept for Adaptation Fund**

- **Venue:** GIZ Office Thailand, Bangkok, Thailand
- **Time:** 09.00-10.30 hrs, 16 May 2017
- **Participant:** Mr. Christoph Mairesse, Project Director
- **Objective:**

To learn about climate change adaptation activities under GIZ Thailand and to discuss potential complementation from the proposed project

- **Summary:**

The UNEP representative thanked GIZ Thailand for an opportunity to meet. Then, he briefly explained about the concept development history, overall components and technical comments received from the Adaptation Fund Secretariat in August 2016. Objective of the meeting was to learn about climate change adaptation activities under GIZ both in Thailand and in the Mekong region, since GIZ plays an active role in climate change area.

Key information, comments and advice received are as follows:

- (9) GIZ Thailand does not have a regional focus. Currently, GIZ is assisting the government of Thailand (ONEP) with the preparation of the NAP. Another GIZ climate change project is on EbA, with the Department of Water Resources, focusing on flood protection.
- (10) There are 4 pilot sites under the NAP preparation. One of them is in Khonkaen province, which is close to the proposed project sites in the Upper Young Basin.
- (11) Risk assessments are being conducted to determine the impacts on 6 sectors of the Thailand Climate Change Master Plan (e.g. water resources, natural resources management, human settlement), and to direct the preparation of the NAP.
- (12) Thailand has a three-year NAP process: Year 1 for risk assessments; Year 2 to prepare the draft NAP; and Year 3 for demonstrations. The draft NAP has been prepared (currently under revision), and the final product will be available in the second half of 2018. Afterwards, sub-national adaptation plan will be prepared.
- (13) The NAP may include suitability studies to identify suitable climate change adaptation interventions.
- (14) There are two major problems with conducting risk assessments in Thailand:  
i) limited data availability; and ii) limited capacity to analyse data.
- (15) Knowledge of climate change and scenarios is important for future spatial planning in Thailand.
- (16) There are sub-national government institutions (e.g. environmental office at the provincial level) which are important for vertical mainstreaming and autonomous horizontal mainstreaming at municipal/local levels.
- (17) GIZ has initiated an “expert forum” (roundtable) for the NAP process that brings together various experts to assist with project design, e.g. to validate the NAP process, to provide direction/feedback.

- (18) GIZ also participates in the ADB GMS's 3-monthly regional climate change adaptation roundtable to include relevant points into the NAP process.
- (19) Sharing information in the region can be difficult because of the language barrier.

At the end of the meeting, UNEP representative thanked the GIZ for all the information and suggestions. If the concept is approved, the team would contact GIZ again for further comprehensive consultation.

## **Preliminary consultation with the European Union: Mekong-EbA concept for Adaptation Fund**

- **Venue:** Delegation of the European Union to Thailand, Bangkok, Thailand

- **Time:** 11.00-12.00 hrs, 16 May 2017

- **Participant:**

1) Ms. Jenni Lundmark, Attaché, Programme Officer Cooperation 2)  
Ms. Julie Menant, Intern

- **Objective:**

To learn about climate change adaptation activities under support from EU and to discuss transboundary aspects of the proposed project

- **Summary:**

The UNEP representative thanked the EU for an opportunity to meet. Then, he briefly explained about the concept development history, overall components and technical comments received from the Adaptation Fund Secretariat in August 2016. Objective of the meeting was to learn about climate change adaptation activities supported by EU both in Thailand and in the Mekong region in order to avoid duplication, to address transboundary/regional aspect as well as to feed into knowledge generation for planning and policy.

Key information, comments and advice received are as follows:

- (1) The EU does not have bilateral support to Thailand.
- (2) It is agreeable to have China, Thailand and Vietnam as pilot countries. Climate change adaptation cooperation can be strengthened in this regard.
- (3) The EU is very pro in regional cooperation. It supports the Mekong River Commission and is aware of MRC activities on climate change. Their demonstration projects in Thailand generate an impressive amount of knowledge on climate change adaptation. However, the MRC does not have any specific EbA-related projects in their workplan for 2017.
- (4) There should not be a concern of duplication between the proposed project and other climate change adaptation projects in the region. Indeed, there is a definite need for more pilot projects.
- (5) An important regional rationale for the project is the transfer of knowledge from China to other countries.
- (6) The government of Thailand is good at integrating lessons-learned into development plans. They are also good at upscaling effective interventions.
- (7) Regarding engagement with regional bodies, the LMCM would be a good partner for the project. They have high-level support and a substantial amount of funding from China. It is suggested to find out their interest in this project. For MRC, it might still need to be considering because having only two MRC member countries directly involved in this project may be an issue for the MRC. It would be important to show how the other MRC countries will be engaged in the project. The advantage of the MRC over the LMCM is that MRC is a treaty-based organisation that is already established in the region. ADB GMS would also be a good regional partner and their areas cover sustainable development.
- (8) There is an annual Mekong forum organised by the Consultative Group for International Agricultural Research (CGIAR) research program on Water, Land and Ecosystems (WLE). The forum does have a focus on climate change and our project can showcase on EbA.

At the end of the meeting, UNEP representative thanked the EU for all the information and suggestions. If the concept is approved, the team would contact EU again for further comprehensive consultation.

## **Preliminary consultation with the Sida: Mekong-EbA concept for Adaptation Fund**

- **Venue:** Embassy of Sweden, Bangkok, Thailand
- **Time:** 15.00-16.00 hrs, 16 May 2017
- **Participant:** Mr. Daniel Klasander, First Secretary, Programme Manager - Environment and Climate Change, Development Cooperation Section (Regional)

- **Objective:**

To learn about climate change adaptation activities under support from Sida and to discuss transboundary aspects of the proposed project

- **Summary:**

The UNEP representative expressed the appreciation for an opportunity to meet. Then, he briefly explained about the concept development history, overall components and technical comments received from the Adaptation Fund Secretariat in August 2016. Objective of the meeting was to learn about climate change adaptation activities supported by the Swedish International Development Cooperation Agency (Sida) both in Thailand and in the Mekong region in order to avoid duplication and to enhance transboundary/regional impacts of the proposed project.

Key information, comments and advice received are as follows:

- (1) The Swedish Government under this section only supports regional (not bilateral) programmes in Asia and the Pacific, e.g. MRC, ADB GMS and civil society.
- (2) Regional added value is very important for Sida. The focus tends to be on projects that address either issue with regional resources or problems common across the region.
- (3) It is important to work on climate change in the Mekong because most other projects address the other concerns of the river basin.
- (4) It would be good if the proposed project can link up to MASAP. Officially, MRC and LMCM state that they would like to work together in the region.
- (5) A partnership with the LMCM would be very beneficial to the proposed project. In general, the project should make the most of the Chinese involvement as much as possible.
- (6) Climate change could be a common interest shared by China and other Mekong countries, as it is less political than other development interests.
- (7) Peer-to-peer learning could be an important focus for a regional project, and meetings at a regional level help people see beyond the context of their own country.
- (8) The Water, Land and Ecosystems (WLE) annual forum is a good platform for knowledgesharing. ADB GMS and MRC are Sida's main platforms for knowledge exchange.
- (9) Sida also organises an annual workshop for partners, and climate change is often a topic of discussion.
- (10) National policies normally do not take regional aspects into account. NAPs need more of a regional focus to be effective, which in this regard would be beneficial from the proposed project.

At the end of the meeting, UNEP representative thanked Sida for all the information and suggestions. If the concept is approved, the team would contact Sida again for further comprehensive consultation.

## **Annex IV: Consultations with China-ASEAN Environmental Cooperation Center**

- **Venue:** China-ASEAN Environmental Cooperation Center, Beijing, China

- **Time:** 09.30-11.00 hrs, 13 June 2017

- **Participants:**

Dr. Yan Feng, Section Chief, Regional Environmental Cooperation Ms.

Wen Zhuqing, Project Manager

China-ASEAN Environmental Cooperation Center (CAEC)

Division for Asia-Pacific Cooperation

Ministry of Environmental Protection of China

- **Objective:**

To discuss possible collaboration with the Lancang-Mekong Environmental Cooperation in the proposed project and to learn about the status of the establishment of the LancangMekong Environmental Cooperation, including regional roundtable policy dialogues; Environmental Cooperation Outlook report series; Lancang-Mekong Environmental Cooperation Strategy and Action Plan

- **Summary:**

I. **Operation:**

- The Lancang-Mekong Environmental Cooperation Center will be established under CAEC for implementation.
- Focal points of each country are under different ministries, e.g. environment and natural resources, commerce, industry.
- Some international organizations who have offices in the Mekong countries are also partners, e.g. CI, WWF, TNC.

II. **Strategic Framework and Action Plan:**

- The Lancang-Mekong Environmental Cooperation Strategic Framework (2019-2023) is now being revised based on latest developments and comments from the countries – aiming to circulate for comments end of June 2017.
- In October 2017, a high level meeting will be held to discuss the strategic framework aiming to get it finalized by 2017 (or early 2018). Then, 2018 it aims to start drafting an Action Plan (inventory of projects with budget and implementation information) until end of 2018 to be ready for comments. In 2019, the Action Plan is expected to start implementation.
- The Action Plan is to be produced every 2 or 3 years. It will be problem-project oriented. The inventory of projects will be collected mainly from proposals from the countries. The funding to implement those projects will be from the Chinese government and other sources.
- There are currently 3 ‘early harvest’ activities that already have funding approval from the central government for implementation. They can be seen as ‘pilot projects’ to help understand ground status and to collect countries’ further needs that can be developed as ‘mature projects’ in the future.
- The 3 activities are:
  - (1) High-level environmental policy dialogue: planned as a regular event (annual or more often, as needed). The first one will be in October on the strategic framework that will pave the way for action plan development. Afterwards, the topics will be problem-oriented as proposed by the countries.



(2) Capacity building on Green Lancang-Mekong Initiative umbrella programme: to include industrial monitoring, water quality monitoring, environmental technology, etc.

(3) Environmental mainstreaming in industrial park: to start at Sihanoukville Industrial Park in Cambodia.

- There are also some other planned early harvest activities, e.g. industrial emission control and standard.
- Therefore, if the proposed project gets approved before the strategic framework and action plan are finalised, collaboration can still be realized under 'early harvest' category.

### III. Collaboration with the proposed project:

- LMC is interested to support the proposed project.
- UNEP-IEMP is highly involved in an early harvest project under LMC on ecosystem management (in 2016).
- UNEP-IEMP has been participating in elaboration of the strategic framework of the Lancang-Mekong Environmental Cooperation and will get involved in the action plan preparation as well as pilot projects in the future.
- A letter of intent for collaboration could be able to issue by CAEC at the full proposal stage.

### IV. Strategic Framework (June 2017 version) and potential collaboration:

- According to this latest draft, the proposed project may contribute to:
  - o 5.4 2) adaptation methods and tools
  - o 5.4 5) adaptation cooperation platform
  - o A sub-component under the priority area 5.4 can be added to support partnership with the proposed project, e.g. a policy dialogue.
  - o Environmental cooperation outlook can also have contribution from the proposed project. However, it will be produced only every 4 or 5 years, i.e. at the end of each phase of the LMC framework.
- 5.1 1) high-level policy dialogues will be broad, e.g. on SDGs.
- 5.1 2) environmental cooperation outlook will be a comprehensive report or research based on the progress and results of the LMC implementation.
- UNEP-IEMP may also contribute to a GIS web database of CAEC.