GREATER MEKONG SUBREGION
ENVIRONMENT
OPERATIONS CENTER

Core Environment Program and Biodiversity Conservation Corridors Initiative, Phase II (2012–2016)

RETA 7987

Component Strategy – Climate Change

November 2012

CONTENTS

I. BACKGROUND

A. Introduction to the GMS

In 1992, the six countries along the Mekong River – Cambodia, PR China, Lao PDR, Myanmar, Thailand and Viet Nam – formed the Greater Mekong Subregion (GMS) with the launch of the GMS Economic Cooperation Program (GMS Program). Facilitating regional investment, collaboration and integration across major growth sectors, the GMS Program has for 20 years successfully stimulated economic growth in the subregion, and helped reduce poverty and improve livelihoods. The Core Environment Program and Biodiversity Conservation Initiative (CEP-BCI), is an initiative designed to achieve an environmentally sustainable GMS Program. The first phase of the program was implemented under an ADB Regional Technical Assistance (RETA 6289) between 2006 and 2012. The second phase (RETA 7987) was approved by ADB's Board in December 2011 and will be implemented between 2012 and 2016.

CEP-BCI Phase II aims to integrate sound environmental management, biodiversity conservation, and climate resilience measures into the GMS Program's and the expected outcome is "an environmentally friendly and climate-resilient GMS Program." This outcome will be achieved through a programmatic approach by supporting activities in priority economic corridors targeted by the GMS Program and in priority transboundary biodiversity conservation corridors and landscapes.[1]

CEP-BCI has the following four components and outputs:

- ***Component 1: Environmental Planning, Safeguards, and Monitoring***
  Output: Environmental planning systems, methods, and safeguards improved

- ***Component 2: Biodiversity Landscapes and Livelihoods***
  Output: Management of transboundary biodiversity conservation landscapes and local livelihoods improved

- ***Component 3: Climate Change***
  Output: Climate-resilient and low-carbon strategies developed

- ***Component 4: Institutions and Financing***
  Output: Institutions and financing for sustainable environmental management improved

This paper outlines the 2012–2016 strategy and major activities for **Component 3: Climate Change**.

[1] While economic corridors enhance "physical connectivity," biodiversity conservation corridors support "ecosystem connectivity" to accommodate movements of species between core areas. These corridors are embedded within wider conservation landscapes, which provide services based on ecosystem functions.

B. Climate change in the GMS

Climate change and associated extreme weather events will have a significant effect on the GMS – both in terms of economic growth and human development. This section introduces the major issues related to climate change in the GMS.

Vulnerability of the subregion

The GMS is particularly vulnerable to climate change due to frequent exposure to climate hazards such as floods and droughts, a lack of resources and adaptive capacity associated with widespread poverty, and high socio-economic dependence on climate-sensitive sectors such as agriculture and water supply. For example, it is estimated that up to 46% of the rural population in Lao PDR, most of who are living in lowlands, are vulnerable to drought. Based on data from the past five years, 70% of Cambodia's paddy production was destroyed by floods, 20% by droughts and 10% by disease.[2] Extreme climatic events are likely to become more frequent and severe as a result of future climate change. This will pose a greater threat to vulnerable communities, and increase their struggle to meet basic development needs.

In addition, climate change will affect economic progress in GMS countries and the future development of productive sectors. Major GMS investments in energy and transport, particularly in the Mekong delta and along coastal areas, are vulnerable to sea level rise. Preliminary studies suggest that 5 billion dollars' worth of existing and planned GMS transport and energy projects are located partially or fully in areas most vulnerable to climate change (i.e. areas that will be affected by 1 meter sea level rise). Recent studies suggest that the cost of climate change for Thailand and Viet Nam could be as much as 6.7% of GDP per year by 2100, significantly higher than the global average.[3]

Growth of subregional infrastructure

Increased investment in GMS transport connectivity and trade, agriculture, tourism and energy will be accompanied by corresponding increases in emissions, both directly (by facilitating an increase in the use of fossil fuels) and indirectly (i.e. through land use change and deforestation). The GMS accounts for close to 6% of the world's forestry related greenhouse gas emissions despite having only 3% of the world's forest area. Greenhouse gas emissions from land use change are the major source of emissions from the subregion, dwarfing those from energy use in some areas. For example, annual emissions from the loss of carbon stocks in Savannakhet province in Lao PDR in the last two decades are more than 10 times the emissions from traffic along the major highways in the province.[4]

Per capita emissions in the GMS are far lower than the global average and GMS countries collectively produce less than 2% of global energy related fossil fuel emissions.[5] However, increasing demand for

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[2] Cambodia National Adaptation Plan of Action 2006

[3] ADB, 2009. The Economics of Climate Change in Southeast Asia.

[4] GMS-EOC, 2012. Carbon Neutral Transport Corridors: Reducing emissions from freight and forestry in the EWEC. Feasibility study report.

[5] With the exception of the People's Republic of China, the GHG emissions per capita from energy use in all the GMS countries (ranging from 0.25 tonnes CO2e per capita to 3.7 tonnes CO2e /per capita) are far lower than the global average of 4.1 tonnes CO2e per capita in 2005.

energy and rising urbanization and motorization trends in the GMS will lead to greater fossil fuel emissions. A study of the East-West Economic Corridor showed that emissions due to increasing traffic will double between 2005 and 2020, mainly from heavy goods vehicles being used for cross-border and domestic freight transport.[6]

Current development trends

The current development context in the GMS is inextricably linked to the impact of climate change. The GMS has seen robust economic growth driven by expanding trade over the last two decades and sustained by the subregion's extensive natural capital. This has resulted in increased human development and progress towards national development goals. However, current trends in resource extraction, driven by increasing demands for food, energy, and commodities, are unsustainable over the long term. Despite increasing efforts by GMS governments to sustainably manage natural resources, the magnitude of pressures is overwhelming the adequacy and efficiency of responses. This is illustrated by the extent and quality of forests in the subregion; while overall forest loss has slowed during the last decade,[7] forest degradation has accelerated. Many critical biodiversity landscapes in the GMS are being damaged by forest fragmentation, placing more strain on populations of globally significant threatened species. Emerging and future challenges for the GMS will include managing water, land, food and energy resources to meet growing demand. Increasing uncertainty and climate change impacts on the natural resource base will only exacerbate existing trends and hamper ongoing efforts to increase sustainable development in the subregion.

Limited institutional and technical capacity

Though there have been many national and subregional efforts to build institutional and technical capacity in the GMS, a lack of capacity continues to hamper the efficacy of national policy and regulatory responses. This is particularly true for responses to climate change, which although a cross-cutting issue affecting multiple sectors, is still largely considered an environmental issue. National adaptation responses prioritise engineering and infrastructure based solutions and there is a clear need for adaptation that focuses on communities, livelihoods and ecosystems. Similarly, for mitigation responses, recent global climate agreements call for 'Nationally Appropriate Mitigation Actions (NAMAs)' supported by technology, finance and capacity building and implemented in a measurable, reportable and verifiable (MRV) manner.[8] However, as all GMS countries currently lack the capacity to formulate NAMAs and develop MRV systems, support to strengthen both institutional and human climate change capacity in the region is essential.

II. CLIMATE CHANGE ACTIVITIES DURING CEP-BCI PHASE I

Climate change initiatives under CEP-BCI Phase I began in 2009 through supplementary funding provided by governments of Sweden and Finland. The program's climate change aims were to:

[6] Ibid Footnote 3.
[7] FAO 2011. Forests and Forestry in the Greater Mekong Subregion to 2020
[8] Bali Action Plan, Copenhagen Accord and Cancun Agreement

- Strengthen climate change risk and vulnerability assessment capacity (with a particular focus on ecosystem services and livelihoods), and

- Reduce CO_2 emissions resulting from land use change/forestry and key GMS Program sectors such as energy and transport.

Initial work focused on investigating the feasibility of interventions that could be further piloted and scaled up during subsequent phases of the program. Recognizing that climate change was a cross-cutting issue, climate change activities were integrated throughout the program.

Climate change adaptation activities focused on raising awareness of climate change impacts in the GMS through learning events, workshops and studies focussing on specific areas such as risk assessment and climate change projections. A macro-level study on climate projections for the GMS found that there was an urgent need to build adaptation capacity and institutionalize adaptation concerns into local planning process. Building on this, a locally focused study assessed vulnerability and climate risks at BCI sites in Lao PDR, Thailand and Viet Nam. The study strengthened the capacity of national agencies to understand local community vulnerability and the importance of ecosystems for diversifying livelihood sources and building community resilience. A similar study at the Xishuangbanna BCI site in Yunnan, PRC highlighted the need to understand climate change impacts on biodiversity and to pilot decentralized renewable energy applications to increase community resilience and reduce dependence on forest resources for energy.

Mitigation activities under Phase I explored interventions that could reduce emissions and increase energy efficiency. In Thailand, capacity for Reduced Emissions from Deforestation and Forest Degradation (REDD+) was built through support to the development of national REDD+ plans. In Lao PDR and Viet Nam, CEP-BCI identified capacity gaps in REDD+ monitoring, reporting and verifying, as well as interventions to pilot participatory monitoring systems. CEP-BCI also targeted GMS Program sectors for improving energy efficiency and lowering carbon emissions. For example, a strategic environmental assessment of Viet Nam's national power development plan led to the integration of carbon footprint considerations into the plan and helped define targets for renewable energy and energy efficiency. Under the Carbon Neutral Transport Corridors (CNTC) feasibility study, pilot projects were identified to increase the fuel efficiency of freight companies operating along the East-West Economic Corridor.

A. Achievements

One of the main achievements from climate change activities under Phase I was the strengthening of science-policy links within the region. CEP-BCI mobilized and developed country technical capacity for adaptation and mitigation work by partnering with regional and national institutions. Among national partners were the Institute of Energy, Viet Nam; Kasetsart University and Khon Kaen University, Thailand and the Yunnan Environment Institute, PRC. Regional partners included The Center for People and Forests (RECOFTC), the Clean Air Initiative-Asia, the World Wildlife Fund, SNV, and the Mekong Institute. Additionally four PhD students from GMS countries were supported to undertake work relating to carbon stock assessments, freight and transport policy reviews and climate change adaptation.

Another achievement was the identification of adaptation and mitigation interventions for piloting under CEP-BCI Phase II. For adaptation, a number of potential pilots were identified through the application of an assessment framework for integrating climate change considerations into development planning at a local level. These pilots include livelihood diversification, improved water management, and financing mechanisms such as micro-insurance schemes. The feasibility study under the CNTC initiative led to four pilot projects identified for implementation under Phase II:

1. Vehicle retrofits by creating access to and awareness of low-carbon technologies;
2. Vehicle upgrades by improving access to finance;
3. Creating opportunities for driver training in eco-driving and preventative maintenance; and
4. Supporting access to logistics management.

Climate change activities also supported wider program level coordination of CEP-BCI. Development partners were engaged to coordinate and streamline activities and identify areas of collaboration. Some of these include USAID (ADAPT and LEAF activities), EEP Mekong (supported by Government of Finland) and the UNEP Adaptation Forum, Network and Platform. GMS focal agencies were engaged and consulted through the Regional Power Trade Coordination Committee (RPTCC), Subregional Energy Forum (SEF), Subregional Transport Forum (STF) and the GMS Working Group on Agriculture (WGA).

B. Lessons learned

The key lessons from Phase I activities relating to climate change are summarized below and have informed the direction of Phase II work under this component.

Focus on the link between communities and ecosystems

Assessments of communities during the first phase of the program highlighted the role that ecosystems have to play in sustaining communities currently and in enhancing the adaptive capacity of communities in the future. Institutional frameworks tested and being built through the BCI and BCC provide an excellent entry point for climate change adaptation interventions such as development of early warning systems, micro-insurance schemes and decentralized renewable energy.

Forestry, transport and energy supply for communities as priorities for mitigation

Phase I mitigation activities showed that there are opportunities to significantly reduce carbon emissions from the transport and forestry sectors. For example, the study of the East-West Economic Corridor revealed that low carbon freight transport could reduce emissions by as much as 23% of business-as-usual freight emissions along the corridor. The same study showed that carbon sequestration through forestry could reduce a further 60% of annual business-as-usual emissions. Additionally, Phase I work in the BCI sites revealed opportunities to decrease community dependence on forest resources for energy by increasing decentralized energy technologies using solar power and biomass gasification.

Capacity building continues to be essential

Technical and institutional capacity for climate change adaptation and mitigation, while improving, remains weak in the GMS countries. Under Phase II, it is essential that CEP-BCI continues to build GMS climate change capacity by further developing strategic partnerships between local/national and regional/international institutions and experts. 'Action-learning' capacity building activities will be an important focus of these efforts but will need to be complemented by events targeted at relevant sectors and higher levels of government to build awareness of interventions such as REDD+.

Need for a robust information base on climate change

The subregion still lacks scientifically sound climate change data and information. Under Phase II climate change work, there will be a need to generate more specific information on climate change to support decision-making in the GMS. For example, a better understanding of the future impact of climate change on biodiversity and ecosystem services will enable GMS countries to better focus natural resource investments and identify holistic adaptation solutions to increase the resilience of communities and ecosystems. Similarly, quantifying the scale of climate change impacts on infrastructure investments under the GMS Program would help to identify safeguards to protect these investments.

Integrate climate change considerations across the program

During Phase I, a cross-cutting approach was employed to integrate climate change within all four CEP-BCI program components. This involved ensuring climate change considerations were factored into a range of activities under different components and identifying new activities focussing on climate change, building on work ongoing under SEAs, EPAs and BCI. This approach should be continued during Phase II.

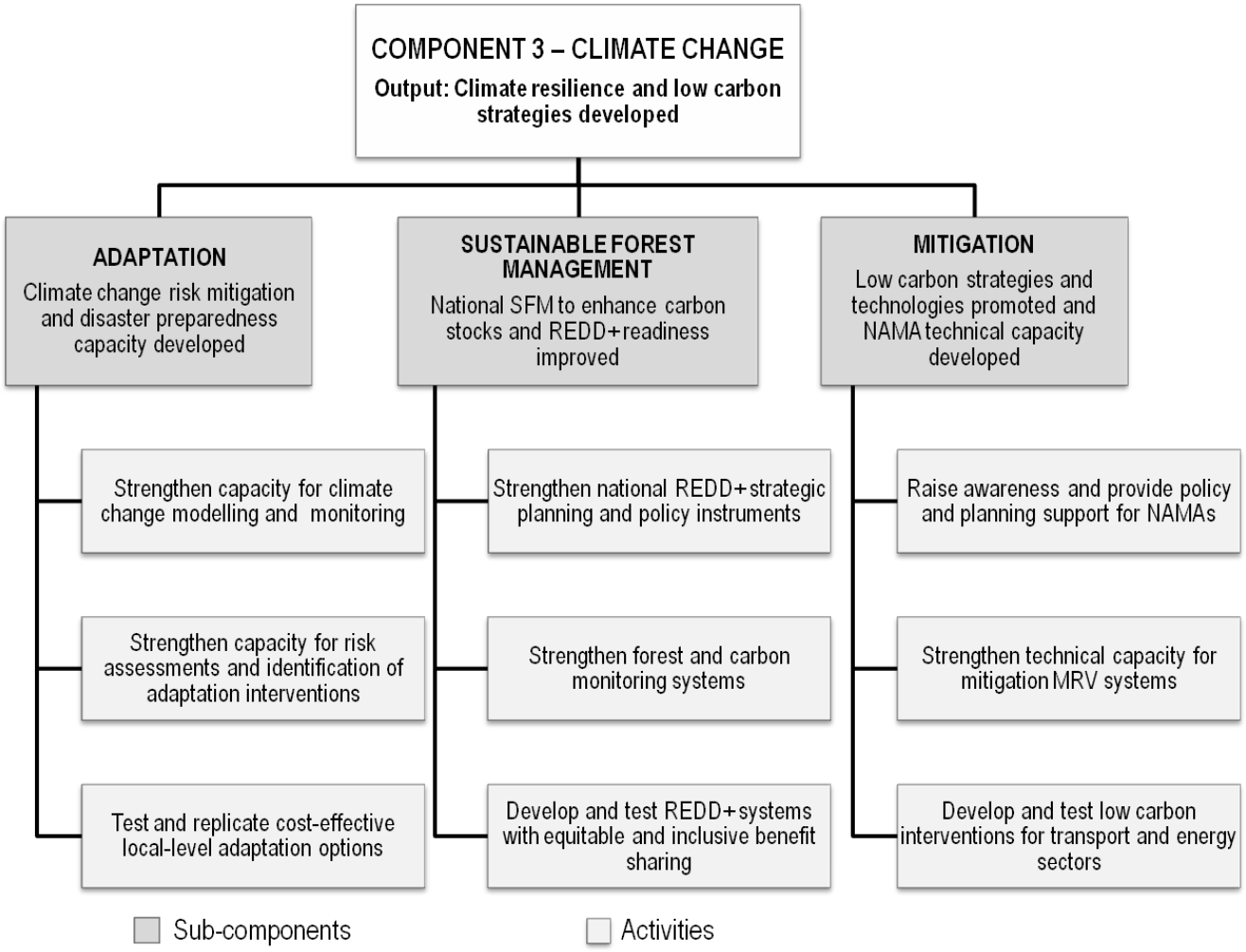
III. COMPONENT OVERVIEW AND ACTIVITIES

The overall aim (output) of Component 3: Climate Change is to develop climate-resilient and low-carbon strategies and to integrate these into development planning and investments. To achieve this output, the component has the following three objectives:

- Enable productive sectors and communities to effectively adapt and respond to climate change risks by promoting their engagement in ecosystem based approaches**;**
- Reduce greenhouse gas emissions from land-use changes by building national and subnational institutional capacity to engage in carbon markets; and
- Reduce greenhouse gas emissions from energy intensive sectors (e.g. energy, transport) by building national climate change mitigation capacity and promoting public-private partnerships.

The structure of Component 3 is shown in Figure 1 below, and includes its three subcomponents, which are overviewed in the following section.

Figure 1: Structure of Component 3 – Climate Change



A. Sub-components and activities

Under Component 3 there are three sub-components, Adaptation, Sustainable Forest Management/REDD+, and Mitigation. This section overviews each of these sub-components, including their respective outputs and major activities as well as the milestones and indicators to track progress.

Subcomponent 3.1: Adaptation

The output of this subcomponent is "climate change risk mitigation and disaster preparedness capacity improved." Work under this subcomponent will strengthen the climate change knowledge base and adaptation capacity of GMS countries by focusing on the following three activities:

- ***Strengthen capacity for climate change modelling and monitoring:*** By building strategic partnerships with research and academic institutions, work under this activity will assess, model and monitor climate change risks, and improve information about climate change projections

and impacts for the region. Climate projections will be developed using various downscaled models, identifying areas at risk from natural hazards (risk/hazard mapping), and compiling adaptation best practice (including from indigenous knowledge).

- ***Strengthen capacity for risk assessments and identify adaptation interventions:*** The aim of this activity is to build risk assessment capacity in academic institutions and government agencies to integrate climate change considerations (i.e. hazards, vulnerability, risks, adaptation) into local investment decisions and land use plans. To achieve this, CEP-BCI will focus on developing sectorial approaches to assess and respond to climate change risks. The capacity of communities to respond to climate change risks will be strengthened by replicating integrated ecosystem and community-based risk assessments based on participatory rural appraisal techniques. Climate proofing will be integrated into sector planning and infrastructure investments to improve the adaptation capacity of economic sectors such as transport and energy.
- ***Test and replicate cost-effective local-level adaptation options:*** Under this activity, local funding and institutional instruments will be initiated to develop and implement climate change adaptation interventions. The focus of work will be on supporting communities to respond to natural disasters and adapt to a changing climate. Pilot projects for early warning systems and local finance mechanisms (e.g. risk insurance) will be developed in communities living in biodiversity conservation corridor areas.

Table 1: Activities, Milestones, and Indicators for Sub-component 3.1

Activities	Milestones	Indicators	Scope
Strengthen climate capacity for climate change modelling and monitoring	**2013** Knowledge transfer mechanism between academia and decision makers improved	• Loose framework of academics / decision makers established and key knowledge gaps identified	1. Updating of regional/ national knowledge managements systems with downscaled GCM models, hydrological model projections, hazard maps, crop models.
	2014 Country capacity to analyze climate change impacts strengthened	• At least 30 government and climate change practitioners trained in applying climate change risk assessment and modelling tools	
	2015 Up-to-date climate change modelling methodologies and outputs developed and disseminated (knowledge transfer)	• Documented usage / citation of climate change knowledge products in support of at least 5 national / regional documents	
Strengthen capacity for risk assessments and identification of adaptation interventions (In coordination with component 2.1)	**2014** Capacity of stakeholders (provincial government, research and academic institutions / network and local communities) to identify cost effective adaptation interventions improved	• At least two existing and pipeline environmental and development investments guided/informed to incorporate adaptation interventions • Adaptation best practice identified for at least 150 communities in three biodiversity landscapes	2. Integration of climate change hazard maps into local land use plans. 3. Identification of best practice and technologies on disaster preparedness and early warning systems applicable to local context (applying participatory/consultative processes). 4. Assessment of financial feasibility

			of micro insurances and risk pooling. 5. Preparation of investment framework on integrated ecosystem and community based adaptation.
Test and replicate cost-effective local level adaptation options (In coordination with Component 2.3)	**2015** Commune development funds and community conservation agreements recognized / demonstrated as instruments to implement climate change adaptation interventions (water/water shed management, changes of agriculture practices and crop diversification, micro-insurance and early warning systems).	• Integrated ecosystem and community based adaptation interventions successfully piloted in 50 communities in biodiversity conservation corridors • Increased investment (10%) in water harvesting and flood control small infrastructure • Increase (10%) in the number of households participating in agriculture productivity enhancement and livelihoods diversification strategies • 50 communities have improved access to micro-insurance • Early warning system established and communities trained on disaster preparedness	6. Establishment of community groups to participate in watershed enhancement (water regulation and storage). 7. Protection, restoration and enhancement of watershed and riparian forest functions (including bamboo plantation) for water discharge regulation and flood control. 8. Construction of small infrastructure for water retention. 9. Demonstration projects on agriculture intensification, crop diversification using climate stress tolerant varieties. 10. Development of locally applicable micro-insurance schemes and establishment of climate risk mitigation financial packages. 11. Establishment of IT based early warning systems and trainings on emergency responses and disaster preparedness.

Subcomponent 3.2: Sustainable forest management / REDD+

The output of this subcomponent is “national sustainable forest management to enhance carbon stocks and REDD+ readiness improved.” Work under this subcomponent will generate co-benefits via the mitigation of forestry related emissions by focusing on the following three activities:

- ***Strengthen national REDD+ strategic planning and policy instruments:*** The aim of this activity is to support national efforts to improve SFM and access additional REDD+ financing. CEP-BCI will collaborate with national technical working groups to improve understanding of REDD+ and to develop and implement REDD+ strategies and readiness plans.
- ***Strengthen forest and carbon monitoring systems:*** Under this activity, cost effective participatory carbon and forest monitoring systems will be designed and tested and their regional harmonization facilitated. The focus will be on building national capacity to develop methodologies to establish baseline Reference Emission Levels (RELs) and MRV systems.
- ***Test and develop REDD+ systems with equitable and inclusive benefit sharing:*** Work under this activity will aim to design and test REDD+ pilot projects that ensure the full and effective participation of indigenous peoples and local communities as well as socially inclusive benefit distribution systems. This activity will build on CEP-BCI Phase I REDD+ work that included the application of a participatory monitoring framework and consultations on benefit sharing mechanisms. Pilot projects will be designed and implemented in biodiversity

conservation corridor sites to test 'free, prior, informed consent'; a participatory monitoring framework to support REL/MRV; and inclusive benefit distribution mechanisms.

Table 2: Activities, Milestones, and Indicators for Sub-component 3.2[9]

Activities	Milestones	Indicators	Scope
Strengthen national REDD+ strategic planning and policy instruments	**2013** National level REDD+ roadmap established.	• National REDD+ strategy formulated in Thailand leveraging REDD+ investments. • REDD+ investments leveraged in at least one additional GMS countries (e.g. FIP).	1. REDD+ R-PLAN for Thailand submitted to UNFCCC.
Strengthen forest and carbon monitoring systems *(in coordination with Component 2)*	**2013** Participatory Forest Monitoring (PFM) and Participatory Carbon Monitoring (PCM) systems developed and tested in biodiversity conservation corridors.	• Demonstrated improvement in capacity to apply PFM and PCM in at least 30 communities	2. Establishment of framework methodology for PFM and PCM in collaboration with other initiatives (e.g. UN REDD, USAID LEAF) 3. Practical trainings on PFM and PCM delivered to provincial authorities and local communities in biodiversity conservation corridors.
	2015 MRV/REL system methodologies harmonized across the region.	• PFM and PCM applied uniformly across biodiversity conservation corridors in two countries.	**4.** Regional consultations and agreement on framework methodology for PFM and PCM in collaboration with other initiatives.
Test and develop REDD+ systems with equitable and inclusive benefit sharing *(in coordination with Component 2)*	**2014** Commune development funds and community conservation agreements recognized as instruments to implement REDD+ projects in biodiversity conservation corridors.	• FPIC obtained and agreements signed with at least 30 communities in biodiversity conservation corridor to test REDD+ interventions. • At least three legal instruments to test pilot REDD+ systems applying existing delivery instruments such as commune development funds and conservation agreements promulgated. • Site level deforestation/forest degradation rate reduced and carbon stocks enhanced	5. Develop prior consent instruments with REDD+ awareness and outreach package developed, hold community consultation to ensure prior consent 6. Policy and institutional feasibility assessment of existing delivery instruments completed to identify appropriate benefit sharing mechanism 7. Participatory forest management activities

Subcomponent 3.3: Mitigation

The output of this subcomponent is "low carbon strategies and technologies promoted and NAMA technical capacity developed. CEP-BCI will support GMS countries to develop mitigation actions by strengthening policy responses, establishing monitoring systems, and testing on-the-ground actions through the following activities:

[9] This is the same as Sub-component 3.3 in the CEP-BCI Phase II Inception Report.

- ***Raise awareness and provide policy and planning support for NAMAs:*** Under this activity, CEP-BCI will raise GMS awareness of emerging global mechanisms such as NAMAs and provide planning and technical support for countries to formulate climate change mitigation actions in sectors including transport, energy and agriculture.

- ***Strengthen technical capacity for mitigation MRV systems:*** This activity will build national capacity to monitor and track greenhouse gas emissions, and evaluate the effectiveness of mitigation actions and policies. A sector/sub-sector-level plan will be identified and used as a case to establish an emissions baseline and subsequent MRV framework.

- ***Develop and test low carbon interventions for transport and energy sectors:*** Low-carbon 'Green Freight' interventions identified during CEP-BCI Phase I will be piloted and through these pilots local-level Green Freight centers will be established to deploy technical and financial interventions. These projects will involve the private sector and identify potential investment opportunities. Additional interventions for testing in the GMS will be identified such as decentralized renewable energy and energy efficiency) through feasibility studies and assessments of carbon/cost trade-offs for different mitigation activities (e.g. Marginal Abatement Cost Curves).

Table 3: Activities, Milestones, and Indicators for Sub-component 3.3[10]

Activities	Milestones	Indicators	Scope
Raise awareness and provide policy and planning support for NAMAs	**2013** Increased awareness on climate change mitigation actions (e.g. NAMAs).	• At least 30 GMS officials trained on NAMA formulation.	1. Awareness raising regional workshops on NAMA in collaboration with ongoing efforts (UNFCCC, GIZ) 2. Sector-specific technical training on NAMA (e.g. transport, energy, agriculture) in collaboration with ongoing efforts (UNFCCC, GIZ).
Strengthen technical capacity for mitigation MRV systems	**2015** Capacity of GMS institutions to monitor GHG emissions and develop national low carbon actions (e.g. NAMAs) improved.	• Greenhouse gas MRV system (national / provincial) developed and tested for three sector/sub-sector development plan/investment.	3. Emissions baseline for one sector/subsector development plan/investment. 4. MRV methodology for sector/subsector.
Develop and test low carbon interventions for transport and energy sectors	**2014** Institutional mechanism to deploy low carbon / green freight actions designed and piloted.	• Fuel consumption of at least 300 trucks reduced by 10%. • Private sector financing leveraged for green freight interventions in at least 6 companies. • Investment plan prepared for low carbon / green freight in at least 2 GMS countries	5. Pilot projects on eco-driving, green freight technologies and logistics management in Thailand, Lao PDR and Viet Nam. 6. Investment framework for green /low carbon freight.

[10] This is the same as Sub-component 3.2 in the CEP-BCI Phase II Inception Report.

	2015 Financial and technical feasibility of low carbon interventions for communities (i.e. energy efficiency, decentralised energy) assessed.	• Potential low carbon interventions for BCI sites identified.	7. National/provincial MACC assessment report. 8. Feasibility report for low carbon technologies for communities in biodiversity conservation sites (e.g. renewable energy).

B. Implementation arrangements, budget and cost estimates

Implementation arrangements and monitoring of component progress will be in line with the CEP-BCI Phase II Inception Report and RETA 7987 TA paper. Table 4 shows the cost estimates for the four components of the CEP-BCI Phase II for period 2012–2016.[11] Table 5 shows the estimated budget breakdown by sub-component and activity, excluding ADB and EOC administrative costs.

Table 4: Budget Estimate by Components in $ '000

No.	Components	Amount (2012–2016)	%
1	Environmental Planning, Safeguards, and Monitoring	7,400	26
2	Biodiversity Landscapes and Livelihoods	4,770	17
3	Climate Change	5,800	20
4	Institutions and Financing	6,930	24
	EOC Administrative Cost	2,200	8
	ADB Administrative Fee	1,400	5
	Total	**28,500**	**100**

Source: ADB / EOC estimates, October 2012

Table 5: Budget Estimate by sub-component and activity in $ '000

No.	Sub-component / activity	Phasing (start date)	Estimate
3.1	**Climate change risk mitigation and disaster preparedness capacity developed**		**2,000**
	- Climate change modelling/ monitoring capacity building	2013	400
	- Risk assessment capacity building and identification of adaptation interventions	2013	600
	- Testing and replication of cost-effective adaptation options	2014	1,000
3.2	**National SFM to enhance carbon stocks and REDD+ readiness improved**		**800**
	- Strengthening national REDD+ strategic planning and policy instruments	2013	200
	- Strengthening forest and carbon monitoring systems	2013	600
	- Testing and development of REDD+ system with equitable and inclusive benefit distribution systems	2014	

[11] The estimates were computed on a base case model where Phase II is complemented by other programs including the BCC project and the GEF-supported GMS Forest and Biodiversity Conservation Program.

3.3	**Low carbon strategies and technologies promoted and NAMA technical capacity developed**		**1,500**
	- NAMA awareness raising and policy / planning support	2013	100
	- Technical capacity building for mitigation MRV systems	2014	200
	- Testing and development of low carbon interventions in the transport and energy sector	2013	1,200
	EOC Staff costs		**1,500**
	Total		**5,800**

Source: ADB / EOC estimates, October 2012