



Investing in Nature: Protecting Societies and Economies in the Greater Mekong Sub-Region through Ecosystem-based Adaptation

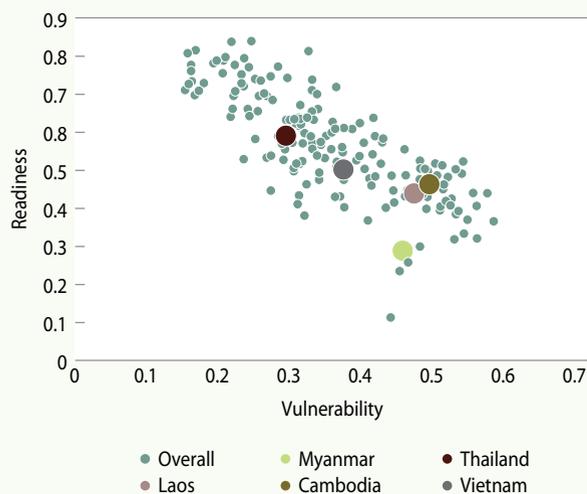
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Vulnerability and Readiness to Climate Change in the Greater Mekong Sub-Region



Source: Global Adaptation Institute (GAIN) Index 2011.

Climate Change in the Greater Mekong Sub-Region

Climate change in the Greater Mekong Sub-region (GMS) is putting increased pressure on livelihoods and economies.

- ▶ From 1951 to 2000, average daily temperatures across Southeast Asia increased by 0.5–1.5°C according to the IPCC. There has been a marked increase in the frequency of climate related disasters such as floods, typhoons, storms, and droughts. For example, for the decades of 1970–1979 and 2000–2009 the total number of floods per decade increased from seven to 118 (CRED, 2013).¹
- ▶ The projected climate change for Southeast Asia includes increases in temperature of 1.5–2°C by 2046–2065, with the most warming in the northwestern areas of the region, which includes Thailand, Myanmar, Laos, Cambodia, and Vietnam. The highest daily maxi-

um average temperature would increase by 3–4°C. Yearly rainfall averages would increase across the region.² These changes are expected to exacerbate the frequency and intensity of disasters.

- ▶ The economic impact associated with extreme weather events has increased in Southeast Asia, from US\$14 billion in 1980–1989 to US\$108 billion in 2000–2009.³
- ▶ The GMS is home to a population of more than 300 million, which will be hard hit by climate change. The climate-change related impacts would affect both urban and rural areas. While large cities like Ho Chi Minh City and Bangkok will be affected by sea level rise and floods, the rural poor will further suffer a loss of livelihood such as farming, fisheries, and collection of non-timber forest product (NTFP) that are sensitive to the impacts of climate change and variability.

All GMS countries reflect two or more of the following characteristics, each of which confer vulnerability to climate change and decrease the coping ability of the GMS population:

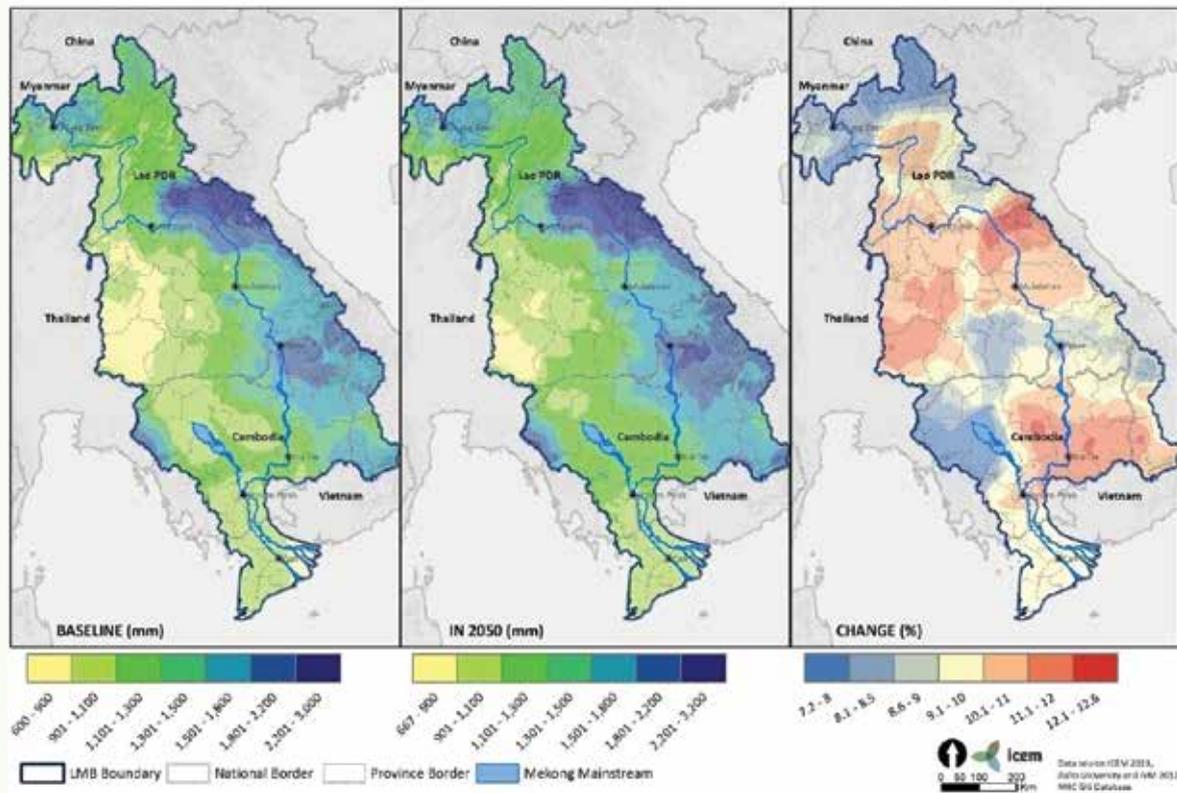
- ▶ At-risk geographic conditions such as extensive low-lying coastal zones with major deltas barely above mean sea level; for example in Vietnam and Myanmar.

¹ Number of floods in different decades - 6 (1960–69), 7 (1970–79), 14 (1980–89), 68 (1990–1999), 118 (2000–2009)

² Data from IPCC 2013. Report of Working Group 1. The predictions assume that very little is done to reduce carbon emissions and business as usual continues (RCP 8.5 from the IPCC report).

³ Data taken from EM-DAT, The international disaster database, Center for Research on Epidemiology of Disasters (DRED); URL: <http://www.emdat.be/database>.

Average Precipitation in Wet Season, Lower Mekong Basin



Note: ICEM (2013) USAID Mekong ARCC Climate Change Impact and Adaptation: Main Report. Prepared for the United States Agency for International Development by ICEM – International Centre for Environmental Management
Source: ICEM, 2012.

- ▶ Large rural, and often poor, populations whose economies depend directly on climate-sensitive natural resources.
- ▶ Low levels of economic development, technical capacities, and enabling policy structures in some areas, all of which negatively impact the capacity and readiness of governments, communities, and economies to adapt to climate change.
- ▶ Insufficient investment in adequate maintenance and restoration of natural capital that supports the function of ecosystems and thereby people's livelihoods.

Decrease Vulnerability and Building Resilience through Ecosystem-based Adaptation

Ecosystem-based Adaptation (EbA) offers new opportunities that can build resilience in societies and economies and strengthen the natural capital base that drives economic development in the GMS.

- ▶ EbA responses use nature-based solutions to decrease vulnerability and increase the resilience of communities and ecosystems by

effectively using and managing natural resources such as forests, wetlands, and coastal ecosystems within a given area. It accomplishes this through the use of sustainable management, conservation, and restoration of ecosystems, while considering the effects of climate change.

- ▶ EbA considers natural resource management through a lens of enhancing community resilience as it strengthens the resilience of ecosystems that support key sectors such as hydropower, tourism, fisheries, forestry, and agriculture.
- ▶ Compared to infrastructure-based adaptation options such as building dikes and sea walls, EbA solutions are often more accessible to rural communities. They are less capital intensive and more cost effective both during construction and management. They also build on existing knowledge and capacity in communities related to water and forest management, integrated

coastal zone management and related natural resource-based management approaches.

- ▶ EbA can be implemented as stand-alone solutions or to complement hard/infrastructure based adaptation solutions.
- ▶ By contributing to food security, biodiversity conservation, carbon sequestration, and sustainable land and water management, EbA augments and complements other sustainable development-related efforts.

Entry Points for Scaling up Ecosystem-based Adaptation in the Greater Mekong Sub-region

Now is the time to scale up efforts to mainstream and implement EbA solutions in the region since GMS governments are currently poised to take action on climate change adaptation overall.

- ▶ Throughout the GMS, governments are in various stages of developing and implementing climate change and green growth strategies and action plans, and are making strides to mainstream climate change across sectors and development plans.
- ▶ Examples of national policies and planning processes that could be instrumental for mainstreaming EbA include socioeconomic development plans, natural resource management plans, and sectoral plans such as agriculture, water, infrastructure, energy, and transport.
- ▶ Institutional changes, including specific climate change governance structures, are taking place in most GMS countries. These changes will assist with cross-sectoral coordination and mainstreaming.



Inland aquaculture in Vietnam

Key regional policies, processes and governance mechanisms reflect an increased emphasis on climate change adaptation, providing a basis for more detailed EbA considerations region-wide.

- ▶ The ASEAN Socio-Cultural Community Blueprint, the ASEAN Economic Community Blueprint, the ASEAN Political Security Community Blueprint, and the ASEAN Agreement on Disaster Management and Emergency Response (for the period 2009–2015) all make reference to climate change adaptation.
- ▶ The Mekong River Commission (MRC), an intergovernmental agency, works with the governments of Cambodia, Lao PDR, Thailand, and Vietnam on climate change-related efforts including management of shared water resources and sustainable development of Mekong basin.
- ▶ The GMS countries have an active working group on environment (WGE) that is led by the environmental ministries of the six GMS countries (Cambodia, China, Lao PDR, Myanmar, Thailand, and Vietnam). The WGE oversees the Core Environment Program (CEP) and Biodiversity Conservation Corridors Initiative (BCCI) under the administration of the Asian Development Bank (ADB). The aim of the CEP is to achieve “an environmentally friendly and climate resilient GMS Program.” Phase 2 of the CEP includes significant interventions related to climate change adaptation—including EbA.
- ▶ Although EbA is gaining recognition in some GMS country and regional mechanisms, a substantial effort is needed to ensure a sub-regional commitment on EbA. Existing policies and governance mechanisms such as those previously mentioned will play an instrumental role to make that happen.



Tending to rice paddies in China

The GMS countries have prior experience in the fields of conservation and natural resource management, including some EbA initiatives. These provide a basis for applying lessons learned in further up-scaling efforts.

- ▶ According to a recent study conducted by the Asia Pacific Adaptation Network⁴, up until 2011, thirteen EbA-related adaptation projects were initiated in Vietnam, eight in Cambodia, four in Thailand, two in China, and one each in Laos and Myanmar. Examples of some already-applied EbA measures in the GMS include:
 - ▶ Agroforestry techniques;

⁴ <http://www.asiapacificadapt.net/sites/default/files/resource/attach/flyer-good-practices-in-eba-to-cc-in-gms.pdf>.



In Cambodia a man employs two oxen to plow a rice field

- ▶ Mangrove and other forest restoration efforts;
- ▶ Income/livelihood diversification projects; and
- ▶ Water and watershed management efforts aimed at ensuring sufficient and consistent flows from watersheds.

- ▶ The implementation of most EbA initiatives such as restoration of mangroves in Vietnam has been small-scale. There is need for further up-scaling in the region, with current efforts highlighting the extent of such need.
- ▶ Vulnerability assessments have been conducted at numerous sites and at multiple spatial and governance scales by various governmental and non-governmental organizations throughout the region. Given that such assessments are typically the first step in identifying effective adaptation strategies, each assessment can accelerate the identification and application of adaptation measures that may include EbA measures.
- ▶ Transboundary initiatives in the GMS including efforts to minimize habitat fragmentation, strengthen protected area management cooperation, and improve cross-border water resource management serve to build connectivity, safeguard natural systems, and build resilience in the sub-region.

Implementing and mainstreaming EbA in the GMS will, in some cases, require increased institutional and technical capacity at subnational and local levels.

- ▶ Recognition of climate change adaptation at the subnational level, both in policies and in action, is still low in most of the GMS countries.
- ▶ Many GMS countries, at both the national and subnational levels, do not yet have a clear understanding of EbA and what it represents.
- ▶ Integration of EbA in adaptation and development plans is still at a nascent stage. There is, however, recognition of the role of ecosystems in climate-resilient development.
- ▶ Technical and financial capacity at the subnational and local level is particularly low, and the institutional infrastructure to carry out climate

change action in general is still in the earlier stages of development.

The GMS has much potential to undertake and mainstream EbA, but needs an enabling environment in terms of policy, investment, capacity, and resources.

- ▶ Development planning and allocation of land-use do not fully integrate climate change adaptation issues in general and EbA in particular. These inadequacies result in development plans and processes that may compromise ecosystem services in the long run.
- ▶ Public sector funding, especially in a high-risk country like Vietnam, still tends to focus on large infrastructure-based solutions. The interest in and acceptance of EbA approaches and “soft” approaches that include institutional behavior change still remains low.
- ▶ A marked lack of financial resources and institutional capacity is still a problem in the GMS countries. National and regional investments should be focused on understanding and addressing the adverse impacts of climate change, including investment in developing proper tools and methods for implementing and monitoring EbA, technology transfer, and local capacity building.
- ▶ Capacity development at the subnational level needs to be prioritized so that EbA measures can be included at the lowest level of land-use planning.

Several international organizations and agencies are actively supporting the governments in the GMS region. Opportunities exist for further up-scaling of EbA through these existing partnerships and activities.

- ▶ Multilateral Development Banks (MDBs) like World Bank (WB) and Asian Development Bank



In Lao PDR, the community take part in vulnerability analysis

(ADB) are heavily involved in development/sectoral planning, projects, and investments.

- ▶ Regional organizations and entities like the Mekong River Commission and GMS - Environmental Operation Center (EOC) work very closely with the governments in the GMS on climate change, development, and environment issues.
- ▶ United Nations entities such as the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), as well as non-governmental organizations (NGOs) such as the World Wildlife Fund (WWF), International Union for Conservation of Nature (IUCN), CARE (Cooperative for Assistance and Relief Everywhere), The Nature Conservancy (TNC), the National Oceanic and Atmospheric Administration of the United States (NOAA), the International Centre



Mangrove nursery built in An Thuy commune to provide enough, healthy and diverse mangrove seedlings for restoration, Ben Tre province, Vietnam.

for Environmental Management (ICEM), The Global Environment Facility (GEF), and others are all actively working on promoting and furthering the development of EbA in the region.

Operationalizing EbA through Step-wise Guidance to Develop and Mainstream EbA in the GMS

Responding to the need for a detailed guidance in assessing and implementing EbA in the GMS, the World Bank and the WWF, under the guidance of international experts including ADB's EOC, jointly developed a framework to design, implement, and mainstream EbA responses.

- ▶ The framework covers a resource gap, as there are currently few frameworks and other supporting resources aimed at guiding EbA specifically.
- ▶ The framework builds on the methodologies, experiences and best practices of various organizations, including the work done by the ADB in CEP phase I.
- ▶ The framework was field-tested in the Bueng Kiat Ngong (BKN) wetland of the Pathoumphone District in the Champasak province in Lao PDR, as well as the Ben Tre province in the Mekong Delta in Vietnam, which helped develop a customized framework in each country to assist with further up-scaling and mainstreaming of EbA approaches.
- ▶ The EbA Framework provides easy step-wise technical guidance to help develop EbA responses and guide mainstreaming in the policy and planning process in GMS countries.
 - ▶ **Step 1:** Vulnerability assessment of Social-Ecological System
 - ▶ **Step 2:** Identification and Prioritization of EbA measures
 - ▶ **Step 3:** Implementation of EbA measures
 - ▶ **Step 4:** Mainstreaming EbA
- ▶ The operational guidance is targeted at policymakers and practitioners to ensure that EbA measures are considered in climate change adaptation initiatives and development planning processes.

For more information on developing and implementing EbA responses and to access the Operational Framework as well as related resources, visit: <http://go.worldbank.org/152S84OJR0>, wwf.panda.org/ebm.