Greater Mekong Subregion Core Environment Program

10 Years of Cooperation

GREATER MEKONG SUBREGION
CORE ENVIRONMENT PROGRAM

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Cover photo: Hot-air balloons rise as a new day dawns in Bagan, Myanmar (photo from iStock.com).

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Abbreviations

ADB	Asian Development Bank
CEP	Core Environment Program
EIA	environmental impact assessment
EOC	Environment Operations Center
EPA	environmental performance assessment
FDI	foreign direct investment
GMS	Greater Mekong Subregion
Lao PDR	Lao People's Democratic Republic
NGO	nongovernment organization
PES	payments for ecosystem services
PFES	Payments for Forest Environmental Services
PRC	People's Republic of China
SEA	strategic environmental assessment
SMEs	small and medium-sized enterprises
USAID	United States Agency for International Development
VDF	village development fund
WGE	Working Group on Environment
WWF	World Wide Fund for Nature

↑ The Tad Fane Waterfall, in Champasak Province, Lao PDR (photo from Shutterstock.com).

→ Twilight in the Central Annamite Mountains, Quang Nam Province, Viet Nam (photo from the EOC).

Introduction

The pattern of economic growth that has enabled the countries of the Greater Mekong Subregion (GMS) to grow rapidly over the past 2 decades is no longer sustainable. That growth brought prosperity to many of its 340 million people and lifted millions out of poverty. But it has been fueled by the unsustainable use of the subregion's natural capital, creating widespread environmental degradation.

GMS governments recognize that this natural capital, which includes extensive water resources and very fertile soil, underpins the subregion's economic development, and that they need to take better care of the environment. The ecosystems of the GMS, such as tropical forests, glacial mountains, and immense river systems, have a remarkable diversity. Managed well, these ecosystems can not only be preserved for future generations, but contribute to the environmentally sustainable and inclusive growth that the GMS governments are striving for.

In 1992, the six GMS countries and the Asian Development Bank (ADB) established the GMS Economic Cooperation Program. In 2002, the program's first 10-year strategy was launched. Among its five strategic pillars were protecting the environment and promoting the sustainable use of shared natural resources. Around this time, the economic cooperation program was implementing a small number of projects to tackle specific environmental problems in some GMS countries. By 2005, concerns over the worsening environment, particularly biodiversity losses, were gaining prominence. Planners working on the GMS program realized that because countries faced many shared environmental problems, more cohesive responses were needed.

The Core Environment Program (CEP) was launched in 2006. It is administered by ADB and overseen by the GMS Working Group on Environment (WGE). The WGE is composed of senior environment officials from the six countries and is one of nine sector working groups under the GMS Program. The CEP's mandate is to support environmental cooperation efforts to contribute to a vision of an ecologically rich subregion free of poverty. The Environment Operations Center (EOC) based in Bangkok, Thailand, is the working group's secretariat and provides technical support to implement the program.

In the CEP's first phase, from 2006 to 2011, one of its main aims was to identify and protect biodiversity areas under threat from economic development. Its flagship project then was the Biodiversity Conservation Corridors Initiative. The CEP soon expanded its work to broader environmental governance, working with

The Greater Mekong Subregion

Cambodia
People's Republic of China
- Guangxi Zhuang Autonomous Region
- Yunnan Province

Lao People's Democratic Republic
Myanmar
Thailand
Viet Nam

← The construction site of a new hospital in Chonburi, Thailand (photo from Shutterstock.com).

"Environment and climate change challenges in the GMS are often transboundary. Regional cooperation as it has been carried out through CEP brings a lot of the instruments and solutions to address these."

Daniel Klasander, first secretary, Development Cooperation Section, Embassy of Sweden, Bangkok

GMS governments to improve environmental planning capacity. In its first phase, the CEP played a leading role in promoting the use of strategic environmental assessments (SEAs) and environmental performance assessments by GMS countries.

Operations were expanded in the program's second phase, from 2012 to 2017. Over this period, the program moved from pilot on-the-ground interventions in core biodiversity areas to broader landscape and planning support for economic corridors. With climate change rising on the international agenda, the CEP became a leader in the subregion's efforts to reduce carbon dioxide emissions in road freight, and solutions to build the climate resilience of rural communities. As well as its continuing work to promote SEAs and environmental monitoring, the CEP increased its portfolio with environmental impact assessments, land use modeling, and other tools and approaches for environmentally sustainable economic development.

The CEP also stepped up efforts to build the capacity of environment ministries. One way this was done was by setting up CEP national support units in the environment ministries to coordinate and help implement activities. Meanwhile, the EOC was strengthened to become a subregional knowledge hub. It actively mined and then shared lessons learned and other valuable information from the program activities, and the work of partners.

Over the 10 years covered by both phases and with $50 million invested, the CEP strengthened its position as the foremost environment initiative of the GMS Program. Partnerships were critical to that success. The CEP works with rural communities, the private sector, nongovernment organizations (NGOs), United Nations agencies, and universities and research institutes. Although the main government partners are the environment agencies in the GMS countries, the CEP regularly engages with other ministries, and has implemented large projects with transport, agriculture, and energy agencies. The CEP also works closely with ADB sector and country operational teams.

A notable contributor to the CEP's effectiveness is its ability to adapt and quickly respond to emerging priorities and opportunities in the GMS Program and at the national level. As the subregional nexus among governments, ADB, and other development partners, the CEP is able to leverage large environment investments, coordinate collaborative work programs, and facilitate regional knowledge exchange and learning.

All around the world countries and their development partners are embracing new technologies, financing opportunities, and best practices as they try to move toward green growth and achieve their Sustainable Development Goals. In the GMS there have been many other complementary initiatives taking place since the CEP was launched. ADB and the countries have applied stronger environmental safeguards, and put more emphasis on environment-friendly investments, such as renewable energy. Numerous development organizations and businesses have their own projects and investments in the GMS countries focused on environmental sustainability. The GMS governments themselves are steadily putting in place the policies, regulations, and the capacity to develop pathways for green growth.

Despite all these efforts, much more needs to be done to ensure environmental sustainability and to tackle climate change. To intensify regional cooperation in this regard, a third phase of the CEP, covering 2018 to 2022, has been endorsed by the GMS governments.

This publication provides an overview of the environmental issues the CEP has worked on in its first 10 years, as well as solutions, achievements, and future priorities for tackling them. Wherever possible, articles and brief case studies were used to illuminate the CEP's work, using the voices and perspectives of its partners and beneficiaries.

Core Environment Program by the Numbers

The Core Environment Program Strategic Framework and Action Plan, 2018–2022

Under its new strategy, the CEP is evolving to better meet the needs of the countries and contribute to the implementation of the GMS Program's *Ha Noi Action Plan 2018–2022*.

During the next 5 years, the CEP will aim to plug investment gaps in the environment sector. A new project preparation facility will become an integral part of the EOC, dedicated to preparing large investment projects. So far, over $540 million of projects have been identified, some of which will scale up the CEP's pilot work on green freight, climate risk financing, and land use planning.

To ensure a strong enabling environment for these investments, the CEP will continue to provide the countries and the GMS Program with policy and planning support. This will build on the CEP's competencies in environmental assessments, spatial planning, and modeling and be provided by a policy advice "help desk." To ensure the investment projects are planned using quality information and best practices, the EOC's function as a knowledge hub on environmental management will be further enhanced. New knowledge platforms are planned, including one for the uptake of green technologies.

The key elements of the new strategy and action plan are as follows:

Impact

Improved environmental quality and climate resilience across the GMS

Outcome

Environmentally friendly and climate-resilient GMS Economic Cooperation Program

Areas of Support

+ Policy and strategic planning
+ Investment preparation and financing
+ Knowledge management and technology uptake

Themes and Outputs

+ Wider adoption of green technologies and sustainable infrastructure
+ Increased investment in the conservation of natural resources and maintenance of ecosystem services
+ Climate resilience and disaster risk management incorporated into investment plans

↑ Rice farming in Mandalay Region, Myanmar (photo from Shutterstock.com).

Geographic Focus

+ Transboundary landscapes with high ecosystem service values
+ GMS economic corridors

Sector Linkages

+ Agriculture
+ Energy
+ Transport

Investment Projects Identified

+ Rural environmental management, pollution control, and waste management
+ Integrated land management for sustainable development
+ Climate proofing of rural infrastructure
+ Green road freight financing
+ Electronic waste management
+ Capacity building to strengthen environmental management

The strategy and action plan can be downloaded from the CEP website: www.gms-eoc.org

Chapter One

Policies, Planning, and Safeguards

Overview

The continuing decline in natural capital stocks and environmental quality in the GMS is overwhelming evidence that environmental governance across the subregion must be greatly improved. Future sustainability depends on it.

GMS countries recognize the need to shift to planning systems that optimize the allocation of their natural resources, improve resource use efficiency and reduce wastage for better long-term socioeconomic outcomes. For this to happen, the countries need to ensure that the economic, environmental, and social implications of plans and investments are properly understood and influence decision-making. Making this shift, however, continues to be an immense task. Weak regulatory frameworks, a lack of technical know-how, fragmented government decision-making and coordination, and inadequate data and information are among the many issues to be tackled.

📷 ← Traditional fishing on Inle Lake, Shan State, Myanmar (photo from the EOC).

A main pillar of CEP support to the GMS governments since the program's inception in 2006 has been to improve planning processes and regulatory frameworks. The CEP's focus has been on facilitating better multisector and area-based planning. In particular, it has aimed to mainstream the use of SEAs, spatial multicriteria assessments, and the latest modeling tools. The CEP also promoted better environmental monitoring to support decision-making. In 2012, "safeguards" was added as a key area of support, enhancing systems for environmental impact assessment.

Key Results

+ Created stronger regulatory environments for sustainable development with new and improved laws, policies, and plans.
+ Developed, tested, and promoted key approaches and tools for more sustainable planning and decision-making, including for GMS economic cooperation initiatives.
+ Developed and strengthened national environmental impact assessment systems and application, leading to better environment and social safeguards for economic investments.

📷 ↑ The Can Tho Bridge stretches 2.75 kilometers over the Hau River in Southern Viet Nam (photo from Shutterstock.com).

+ Strengthened data and information generation to support planning decisions.
+ Enhanced institutional and technical capacity for sustainable development planning, including interministerial coordination and collaboration.

Next Steps

Under the CEP's third phase, which begins in 2018, improving environmental governance will continue to be a key area of support. The CEP will continue to work with government agencies to develop better policies and legal frameworks and promote the uptake of multistakeholder planning approaches and tools to improve planning. To do this more strategically and systematically than in the past, the CEP intends to set up a GMS help desk on policy advice made up of national and regional experts.

Policies and Planning

Ensuring countries have quality regulations, policies, and planning processes in place is vital for sustainable development. Achieving this is a challenge faced by developed and developing countries alike. Getting there is a long-term process, and impacts are notoriously difficult to assess compared with interventions in the field. This is because they are often not apparent for years and are influenced by many other factors.

The CEP has responded to country requests to help government planners develop environmental legislation policies and plans. These include national environment strategies, power-development plans, and more. The work is often across different sectors, including agriculture, energy, tourism, industrial development, and transport, and at different spatial levels, such as economic corridor and provincial development planning.

The program proactively promotes multisector planning approaches and tools, especially SEAs and the use of spatial planning and modeling tools. Helping countries generate and use better quality data is vital for effective decision-making, and this is another area of the program's support.

Achievements

+ Strengthened laws, regulations, and policies to guide sustainable development efforts in the GMS.
+ Led the mainstreaming of SEAs in the GMS through awareness raising, capacity building, and the conducting of 10 SEAs that have contributed to more sustainable plans, such as Viet Nam's power-development master plan.
+ Contributed to emerging national systems for monitoring and managing industrial pollution in Cambodia, the Lao People's Democratic Republic (Lao PDR), and Myanmar, and developed a pollution control strategy for the Lao PDR.
+ Assisted Viet Nam in reviewing its national Payments for Forest Environmental Services (PFES) scheme and to develop an improved monitoring and evaluation framework.
+ Developed, promoted, and built capacity throughout the subregion on tools for sustainable development planning, such as land use change modeling, pollution modeling, and spatial multicriteria assessment.
+ Improved national capacity to generate and utilize data and information for environmental planning and monitoring.

↑ A man paints his boat on the banks of the Mekong River in Chiang Rai Province, Thailand (photo from ADB).

12 laws, policies, and plans influenced in 6 countries

ARTICLE

GMS

POLICIES AND PLANNING

Promoting Strategic Environmental Assessments

The CEP has led efforts since 2007 to promote the use of SEAs as a key approach for sustainable development planning in the GMS.

Using analytical and participatory tools, SEAs bring together actors from the government and NGOs and from various sectors to assess the environmental, social, and economic effects of proposed government policies and programs. SEAs are particularly useful in identifying the "hidden" costs and benefits that are often overlooked in decision-making. If risks are spotted and addressed early, investments in infrastructure, for instance, are more likely to be sustainable. An SEA can greatly lessen the costs and other issues associated with project-focused environmental impact assessment.

SEA was a little-known concept in the subregion when the CEP was launched. Although a few SEAs had been conducted before then, none of the countries had a supporting regulatory framework. The national technical capacity to conduct an SEA was practically nonexistent. The CEP first focused on raising awareness of the benefits of SEAs and capacity building activities through regional and national workshops. As interest grew, the program began pairing international experts with national teams to conduct pilot SEAs. These were mainly for land use and energy planning, where demand was high and had significant impacts on natural capital. As befitting a regional program, the CEP also explored applying SEAs in transboundary planning processes.

"CEP has provided valuable support to Viet Nam to enhance its capacity for strategic environmental assessment, and now we have a very successful SEA system in place."

Kim Thi Thuy Ngoc, head of science and international cooperation, Institute of Strategy and Policy on Natural Resources and Environment, Ministry of Natural Resources and Environment, Viet Nam

← A fisher at dawn on the Mekong River (photo from Shutterstock.com).

Ten SEAs were done from 2007 to 2014 across five sectors, both nationally and regionally. These initiatives generated government support for SEA, greatly enhanced technical and institutional capacity to apply SEAs, and contributed to strengthened regulatory and policy frameworks. Although most of the SEAs were pilots, some have had impressive sustainable development outcomes.

The CEP's SEA work in Viet Nam is a good example of the program's influence in this area. The CEP collaborated closely with various ministries on five SEAs, beginning with one on the national power-development plan in 2007. Today, boosted by support from the CEP, Viet Nam has strong capacity to conduct SEAs and has conducted around 40 so far. Meanwhile, the country has put in place supporting regulations for SEAs, beginning with the revised *Law on Environmental Protection*, 2014. Since 2015, Viet Nam has been drafting a new planning law to improve its socioeconomic development planning system, and when enacted, it will greatly enhance SEA requirements. The CEP contributed to this by producing guidelines for a circular on environmental planning during 2016, which will be subsumed into regulations that stem from the new law.

The Lao PDR's *Environmental Protection Law*, 2012 provided the country with its first legal basis for an SEA. In early 2017, a ministerial decree was issued requiring SEAs to be applied to policies, programs, and strategic plans. Cambodia and Myanmar have less experience than other GMS countries in applying SEAs, but have nevertheless taken the initial steps for mainstreaming them into planning. Cambodia's draft environment code, which is awaiting government approval to be enacted as a law, includes provisions for SEAs. Myanmar, meanwhile, has indicated its interest in gradually adopting SEAs for sector planning. SEAs are also gaining traction at the subregional level. Recognizing the value of the CEP's work, the GMS energy sector has been applying SEAs to subregional power planning since 2012.

Since the early 2000s, the SEA approach has slowly but steadily taken root in the GMS. The CEP has been at the forefront of this process and will continue to promote SEAs in its 2018–2022 program. Through the CEP's proposed regional policy help desk, the focus will be on SEA regulations, institutional arrangements, and implementation mechanisms.

Examples of Strategic Environmental Assessment Application

Energy Sector Planning: With CEP support, the Government of Viet Nam conducted an SEA of its national power-development plan for 2011–2020. The SEA identified $5 billion of economic savings and benefits by 2030 from emissions reductions and greater use of renewable energy.

Influenced by the SEA findings and recommendations, the power plan was revised to achieve a less thermal-reliant energy mix and to better integrate climate change factors. The revisions included aggressive targets for energy efficiency and the use of cleaner renewable energy technologies. In 2014, the CEP did an impact evaluation, including assessing monetary impacts, for a new SEA of the revised power plan, which is being extended through to 2030.

Land Use Planning: The CEP provided technical support to the Government of Viet Nam's SEA of the *Quang Nam Provincial Land Use Plan, 2011–2020*. This involved extensive modeling tools that helped land use planners to understand how future land demand would affect the performance of agriculture, energy, and tourism in the province. Because of the SEA, the government formally recognized biodiversity conservation corridors as a valid land use option. The SEA also influenced the introduction of a provincial scheme for hydropower watershed payments for forest environmental services that was launched in 2012.

Subregional Strategic Planning: In 2009, the CEP conducted an SEA of the *GMS North–South Economic Corridor Strategy and Action Plan* to identify environmental and social effects of corridor development. The plan brought together a wide range of stakeholders from Yunnan Province in the People's Republic of China, the Lao PDR, and Thailand.

A major finding of that SEA was that the construction of roads near transboundary biodiversity areas could significantly contribute to the fragmentation of ecosystems, and increase land conversion to commercial crops. The SEA's recommendations helped guide the design and implementation of the CEP's activities, particularly in the management of transboundary biodiversity areas.

Source: Author.

↑ Power lines along the Noi Bai–Lao Cai Highway near Hai Phong City, Viet Nam (photo from ADB).

The Value of a Strategic Environmental Assessment

+ Improves the performance and efficiency of policy and planning by lessening adverse impacts on the environment and society.
+ Helps avoid costly mistakes and missed opportunities caused by inadequate information about the impacts and trade-offs of proposed plans.
+ Provides a framework for project-level assessment and coordination, particularly for understanding cumulative impacts.
+ Builds consensus and public trust through an SEA's multistakeholder and participatory focus.

ARTICLE

MYANMAR

POLICIES AND PLANNING

Myanmar Looks to Ecotourism for Sustainable Development

Tourism in Myanmar is booming. In 2011, the country had less than 1 million visitors; in 2015 it had 4.6 million visitors, who spent $2.2 billion during their stay.

With its mix of culture, history, and natural beauty, Myanmar has quickly become one of Asia's top emerging tourist destinations. To get the most out of tourism's contribution to socioeconomic development, the government is putting in place policies and building and upgrading infrastructure to promote sustainable tourism growth.

Ecotourism has played only a small role in Myanmar's tourism boom. Even so, the country's *Tourism Master Plan, 2013–2020* recognizes its considerable potential. If properly planned, ecotourism should not only help spur economic growth, but also contribute to nature conservation and provide livelihood benefits to local communities.

In 2014 and 2015, the CEP mobilized a team of experts to support the Ministry of Natural Resources and Environmental Conservation and the Ministry of Hotels and Tourism in developing an ecotourism strategy. The team assessed the state of conservation and tourism in 22 protected areas designated as having ecotourism potential.

The findings identified both risks and opportunities. For example, potential risks of tourism to cultural practices or endangered biodiversity, and opportunities such as features of interest to tourists and income generation activities for local livelihoods. The CEP's assessment featured prominently in the *Myanmar Ecotourism Policy and Protected Area Management Strategy, 2015–2025*.

↑ A tourist explores while local people go about their business on Inle Lake, Myanmar (photo from Shutterstock.com).

"Visitors have been keen to experience Myanmar's world-renowned cities and unique, unspoiled cultural heritage. Accompanying this growth is a new demand, especially from discerning international travelers, to explore Myanmar's natural heritage in a way that is sustainable and aligned with principles of green growth."

U Htay Aung, former union minister, Ministry of Hotels and Tourism, Myanmar

ARTICLE

CAMBODIA

POLICIES AND PLANNING

Cambodia's New Environment Strategy

Cambodia's ambitious new environment plan, the *National Environment Strategy and Action Plan, 2016–2023* (NESAP), aims to ensure that environmental protection and sustainable natural resource management are pillars of economic development.

The NESAP is Cambodia's first major environment plan in more than a decade, and sets out a road map to 2023 for the country's efforts to achieve many of its Sustainable Development Goals.

The NESAP gives a detailed analysis of the environmental situation, and outlines priority policy and governance improvements and financing mechanisms. It also includes a $260 million pipeline of current and planned donor-funded environmental projects and programs.

Work on the NESAP and on a national environment code to strengthen legal frameworks for environmental management began in 2015. Both the code and the NESAP were approved by the National Council for Sustainable Development in October 2017 and in December that year, the NESAP was signed off by cabinet.

The NESAP's development process was overseen by a task force comprising 10 ministries. The Ministry of Environment coordinated the process with extensive support from the CEP. Multistakeholder consultations were held nationally and in provinces, involving hundreds of representatives from government agencies, civil society groups, and development organizations.

Implementing the NESAP to its full intent will be a huge challenge, requiring extensive financial and technical support, institutional capacity strengthening, and greater coordination between ministries and with other stakeholders.

The CEP is already planning its contribution to this effort. Under the program's new 2018–2022 strategy, two large investments have been identified that will directly support the NESAP's implementation. One will support integrated and sustainable land use management; the other aims to improve rural environmental quality, with a focus on pollution control and waste management.

↑ Rice fields and thatched huts in Siem Reap Province, Cambodia (photo from Shutterstock.com).

"The NESAP is a strategy for all government ministries as well as the private sector, civil society, and development partners to integrate environmental concerns into economic policies and investments."

Say Samal, minister of environment, Cambodia

ARTICLE GMS

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Improving Land Use Planning in the Greater Mekong Subregion

Land use is constantly changing in the GMS. Yet government planners are often poorly informed about land use processes, which risks decisions being made that may lead to social and environmental costs that outweigh the intended benefits. For example, a forest cleared for timber or commercial plantations might, due to poor land use planning, affect water and soil quality and negatively impact nearby agriculture.

The CEP has been promoting, developing, and applying tools to help improve land use planning capacity since 2006. A particularly successful intervention to achieve this has been spatial multicriteria assessment, a decision-support tool that allows planning options to be compared and assessed using economic, environmental, and social criteria and scores.

The information can be mapped to assist decision-makers to prioritize investments by location, determine optimal land allocation, and plan mitigation measures to reduce risks. The CEP has trained hundreds of practitioners in the GMS on how to use this tool in planning processes.

In 2012, the CEP conducted a spatial multicriteria assessment of the GMS Program's *Regional Investment Framework, 2013–2022*, which at the time had an estimated $50 billion project pipeline. The assessment gave ADB and government decision-makers important insights into the geographic suitability of these investments in terms of environmental risks and economic opportunities.

In 2014, the CEP partnered with the Free University of Amsterdam to enhance the CLUMondo land use change modeling software. The revised tool was easier to use and had greater functionality, including a new ecosystem services demand module.

CLUMondo produces maps showing future land use based on land demand and the ecosystem service requirements of sectors. The risks and benefits of land use scenarios can be shown visually and be used to assess against sustainability criteria.

The tool's application is not only useful for area-based planning processes, but also as a risk assessment tool for investment sectors that heavily depend on forest ecosystem services (e.g., hydropower, tourism). This includes SEAs and cumulative impact assessments for plans for agriculture, energy, and transport, among other sectors.

The CEP formed a land use change modeling network for the GMS in 2015. The network brings together government planners and academics from the six countries to raise awareness of land use planning and build national expertise to apply CLUMondo.

In 2015, the CEP used CLUMondo to support Viet Nam's Ministry of Natural Resources and Environment in conducting an SEA on the 5-year revision of the *National Land Use Plan*. This generated insights into the risks and opportunities of adjustments to the plan's 2020 land use scenario.

With increasing competition for diminishing land resources and emerging threats such as climate change, the CEP's land use planning support is of increasing importance to the sustainability efforts in the GMS.

STORY THAILAND

POLICIES AND PLANNING

Training the Trainers—Land Use Planning

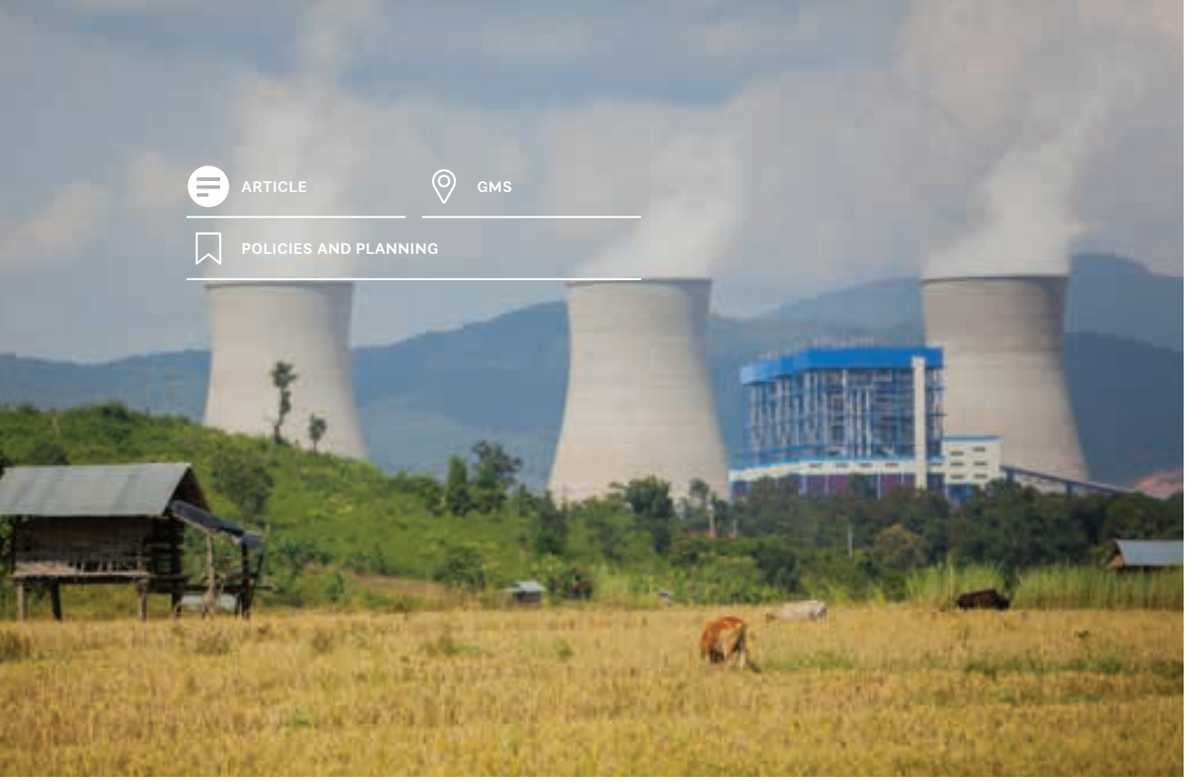
Yongyut Trisurat, a professor of forest biology, has been an ardent advocate of the CLUMondo land use change model since he began using the software during a CEP training course in 2007. These days he regularly trains trainers on using CLUMondo to help build land use planning capacity in Thailand.

His background is in sustainable land use planning in a career that includes 10 years with the Royal Forest Department and, since 2001, lecturing at Kasetsart University's Department of Forest Biology. He also conducts land use change analyses for development projects in Thailand.

Professor Trisurat has trained more than 50 government planners, academics, and development practitioners to use CLUMondo, as part of his role as Thailand coordinator for CEP's regional land use planning network. For him, the enhanced version of the CLUMondo tool is more user-friendly and better supports sustainable land use planning.

"CLUMondo provides lots of opportunities for stakeholder engagement, especially in mapping out future land use scenarios. The tool is very useful for projecting future land use change and the impacts on ecosystem services," he said. "It is also unique in that its ecosystem service demand aspect helps us move beyond simple land use thinking."

Professor Trisurat has already built up a strong group of CLUMondo experts in Thailand, but his work continues. His goal, he said, is to "fully embed" CLUMondo into the government's land use planning processes.



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POLICIES AND PLANNING

📷 ← A coal-fired power plant in the Lao PDR (photo from Shutterstock.com).

Managing Industrial Pollution in the Greater Mekong Subregion

After centuries of agricultural dependence, GMS countries have pursued industrialization in recent decades. As a result, their economies are now more diversified and consumer-driven. Although this has brought many socioeconomic benefits, it has created pollution problems, which are worsening.

Air pollution is a growing concern in urban areas across the GMS, as is the level of pollution in coastal and other water bodies. The impacts on health and the environment are already considerable and coming at an increasing cost to economic development. Effective efforts to tackle all forms of pollution will be essential for the GMS countries to achieve many of their Sustainable Development Goals.

The GMS's most industrialized countries—the People's Republic of China (PRC), Thailand, and Viet Nam—are already investing heavily in monitoring and managing pollution, though more needs to be done. Cambodia, the Lao PDR, and Myanmar are still in the early stages of industrialization and pollution is emerging as a growing problem in these countries, where thousands of factories have been built in recent years. Pollution from their burgeoning manufacturing sectors is a pressing concern for human health and the environment. So far, these countries have inadequate capacity, resources, and systems to monitor and manage pollution.

The CEP analyzed industrial pollution risks in the Lao PDR in 2015 and Cambodia in 2016 at the request of both countries' governments. The program used the World Bank's Industrial Pollution Projection System, with its coefficients for 16 water, air, and land pollutants. The system is fairly easy to use because it mainly relies on a database of national enterprises with information about the size, location, and type of manufacturing businesses. In 2017, Myanmar sought CEP support to analyze its industrial pollution risks, but because of inadequate enterprise data, the analysis was less comprehensive than for the other countries.

Despite the data constraints, important insights were generated for all three countries. The main finding was that they could make large reductions in industrial pollution discharges by focusing resources on a relatively small number of industrial facilities in a few geographic areas. In the Lao PDR, for example, 10 cement lime and plaster enterprises account for more than 30% of the country's industrial air pollution emissions. Across all three countries, the most polluting facilities are concentrated in the urban fringes, economic and industrial zones, and near major transport and trade infrastructure, such as ports, airports, and highways.

Among the recommendations that build on the pollution analyses was for a review of pollution control resources to ensure that they are allocated to the most polluting sectors and geographic areas. Another recommendation calls for industrial pollution audits for plants identified as the largest producers of air, water, and toxic pollutants.

Using the Industrial Pollution Projection System was an important first step for mainstreaming pollution control in the three countries. The analyses raised awareness among government officials about the pollution situation, information needs, and where resources should be allocated.

The findings influenced major environmental strategies in the GMS, including the Lao PDR's National Pollution Control Strategy and Cambodia's NESAP. The findings can also be used to inform environmental quality guidelines and broader policies and regulations for environmental and social safeguards.

With better input data and coefficients adjusted to national contexts, an adapted version of the Industrial Pollution Projection System could be a powerful tool to help the GMS countries estimate emissions and to avoid and mitigate pollution.

ARTICLE

GMS

POLICIES AND PLANNING

Assessing Environmental Performance

From 2007 to 2011, the CEP worked with the six GMS countries to strengthen their monitoring capacity and produce a second round of environmental performance assessment (EPA) reports.

This work built on an ADB technical assistance project that produced the subregion's first EPA reports from 2003 to 2006. The CEP put more emphasis in the second round on building national capacity to conduct these assessments to produce better quality information and ensure that analytical results fed into planning processes.

National consultants and concerned government agencies led this work, using the learning-by-doing approach. This effort resulted in national EPA units being established in the six countries. With the EPA process embedded in government agencies, closer collaboration with a wide range of sectors and ministries became easier and in turn resulted in better information and data.

The second round of EPAs continued to analyze the same environmental priorities undertaken in the first round: biodiversity conservation, climate change, poverty reduction, capacity building, and sustainable natural resource management. A notable difference in approach was the use of the driver-pressure-state-impact-response framework, an extension of the pressure-state-response framework used for the first round. This enabled deeper insights into pressures on the environment, as well as deeper insights into the social and biophysical impacts associated with environmental change.

The national reports and a subregional one were published in 2012, and timed to influence national development strategies, such as the Lao PDR's *Seventh Five-Year Socioeconomic Development Plan, 2011–2015*. Yunnan provincial authorities decided to test the EPA approach at the prefecture level. In 2012, they adapted the EPA methodology to track the performance of Xishuangbanna Prefecture's *11th Five-Year Plan for Development of Ecological Construction and Environmental Protection*. As well as the EPA report, they also produced a guidebook for applying prefecture EPAs.

In 2014, the CEP switched its emphasis from national support for EPAs to providing more timely monitoring information by developing an online statistics portal. This portal includes data to track regional, national, and landscape environment trends, and has become an integral part of the broader GMS Information Portal.

The CEP produced a third subregional EPA, covering 2006–2016, as a knowledge product for the 5th GMS Environment Ministers' Meeting, in January 2018.

↑ Tourist accommodations on the Khwae Noi River, in Sai Yok National Park, Kanchanaburi Province, Thailand (photo from Shutterstock.com).

"Pressures on forests are generally high and increasing, the key pressures being natural forest conversion to agriculture and plantation forest, excessive logging, and land clearance for large-scale development projects such as hydropower and mining."

Greater Mekong Subregion Environmental Performance Assessment 2006–2016. Page 2. (2017).

Safeguards

Environmental impact assessment (EIA) is an essential tool to safeguard the natural environment and communities from the negative effects of economic development. EIAs identify and manage the potential impacts of all types of investments, but they are particularly important for large or risky infrastructure, agriculture, industrial, and mining projects.

In the GMS, EIAs are being more rigorously applied in Cambodia, the PRC, Thailand, and Viet Nam, all of which have used them for many years now. The Lao PDR and Myanmar are in the process of developing EIA systems.

The CEP has been supporting EIA efforts in the subregion since 2012. In Myanmar, its EIA program was instrumental in establishing the regulatory framework for a national EIA system. In Cambodia, the CEP helped identify and address capacity weaknesses to strengthen the EIA system. In both countries, the CEP's efforts are benefiting the environment and society through hundreds of investments that are more environmentally and socially sustainable.

Achievements

+ Developed procedures, technical guidelines, national environmental quality standards, and sector-specific guidelines as pillars of Myanmar's EIA system.
+ Leveraged a $1.5 million ADB capacity support project for Myanmar and influenced the safeguards support programs of ADB and other development partners.
+ Raised awareness about EIA for over a thousand stakeholders in Cambodia and Myanmar through consultation events and publications.
+ Contributed to an improved EIA system in Cambodia through a capacity needs assessment and training program for provincial EIA officials.

Next Steps

Under the *CEP Strategic Framework and Action Plan 2018–2022*, the CEP plans to continue its support for mainstreaming and improving EIA in the GMS. This will include policy advice to strengthen EIA legal frameworks and helping countries identify and secure funds to strengthen capacity to implement EIAs.

📷↑ Fishers cast their nets over flooded rice fields near Tonle Sap Lake, Cambodia (photo from the EOC).

What Is an Environmental Impact Assessment?

An environmental impact assessment (EIA) systematically identifies and assesses the environmental risks of proposed projects, and recommends actions to improve their design to avoid or lessen adverse environmental and social impacts during project implementation.

A strong EIA system can stop risky projects from getting underway in the first place, and hold investors accountable by ensuring that project design avoids potential environmental problems. An effective EIA process will help avoid project delays, enable conflicts to be better managed, and build trust and transparency among stakeholders.

Source: Author.

ARTICLE

MYANMAR

SAFEGUARDS

Safeguarding Myanmar's Environment

> "Myanmar's EIA process will effectively help prevent the potentially adverse environmental and social impacts of development projects and contribute to the nation and its people's achievement of sustainable development."
>
> Daw Thet Thet Zin, former deputy minister, Ministry of Environmental Conservation and Forestry, Myanmar

The CEP has taken on a leading role in assisting Myanmar to develop an environmental impact assessment (EIA) system to safeguard the country from the adverse environmental effects of economic development.

The support has been particularly timely, given Myanmar's recent political and economic reforms reconnecting the country with the global community and leading to an upsurge in foreign direct investment (FDI). Much of this investment is tapping into Myanmar's extensive natural resources. Oil and gas extraction make up nearly a third of FDI, and forestry, manufacturing, hydropower, and agriculture are also attracting FDI. Other investments are helping the country to leverage development opportunities through transport, telecommunication, and infrastructure projects.

These investments are essential for Myanmar to reduce poverty and achieve other development goals. They can also cause considerable damage to ecosystems and communities if they are not designed and implemented with adequate environmental safeguards. Myanmar's natural environment is still in relatively good condition. That said, its forest and biodiversity losses are among the highest in Southeast Asia, and water and air pollution, and soil damage, are emerging environmental problems.

Myanmar's fledgling EIA system will play a key role in managing the potential negative impacts of investment projects. Most of these are financed through private companies, which often have weak or practically nonexistent environment and social safeguards.

Myanmar established the legal basis for EIA in 2012 through its new Environmental Conservation Law, supported by framework EIA rules. The Ministry of Natural Resources and Environmental Conservation was given the mandate and increased powers to build and oversee the EIA system, led by its Environmental Conservation Department. The CEP has been at the forefront of international support to the department to put together other pieces of the EIA regulatory framework. These include EIA procedures, technical guidelines, national environmental quality standards, and some sector guidelines.

The CEP has also helped build capacity for EIA through national multistakeholder consultations, awareness-raising events, and training programs. These involved over 1,000 stakeholders. Environmental Conservation Department is working with other ministries to test the new EIA system. More than 100 investments projects in energy, infrastructure, manufacturing, and mining are going through the new EIA process.

The policy and legislative environment for EIA is nearly complete and piloting is underway, though much remains to be done before Myanmar has a fully functioning EIA system. Institutional capability and interministerial coordination are two big challenges. Since late 2015, a $1.5 million ADB technical assistance project, leveraged by the CEP, has been building EIA capacity. Although it is still early days for Myanmar's EIA system, its emergence marks an important milestone in the country's efforts to safeguard its environment.

> "EIA is the key instrument to mainstream environmental management in development projects. CEP's support has been of fundamental importance."
>
> Hla Maung Thein, director general, Environmental Conservation Department, Ministry of Natural Resources and Environmental Conservation, Myanmar

STORY

CAMBODIA

SAFEGUARDS

Building Environmental Impact Assessment Capacity in Cambodia

When Chea Leng (*pictured above*) learned about environmental impact assessments (EIAs), in the mid-1990s, it was a concept few in Cambodia knew much about. Two decades on, the country's attempts to mainstream EIA have met with mixed results. But Leng, who is the deputy director of the Ministry of Environment's Environmental Impact Assessment Department, believes that is soon going to change.

This is because a new, comprehensive draft EIA that covers climate change, gender, and public participation is in the works. "Overall, there is now stronger political support and the EIA process is becoming more rigorous and systematic," said Leng.

In 2014, the Ministry of Environment sought the CEP's support to review the country's EIA practices and develop a priority plan for improvements. The review found, among other things, that provincial EIA departments were understaffed, and lacked the expertise and experience to effectively oversee EIAs.

Leng agrees with the review, pointing out that having enough people with the right expertise to oversee and implement EIAs is as important as ensuring that the right laws and regulations are in place to carry out these assessments.

In Cambodia, EIA provincial departments are responsible for reviewing environmental assessment reports and monitoring compliance for investment projects worth up to $2 million. Provincial authorities, however, are often unable to cope. Much of their workload is passed back to the Environmental Impact Assessment Department in Phnom Penh, which is itself overstretched in dealing with bigger investment projects, such as mines, hydropower schemes, and large agriculture concessions.

Following the review, the CEP and the department partnered to train provincial officials to review EIA reports and monitor compliance. In 2015 and 2016, four multiday workshops were held around the country, involving 150 provincial EIA officials.

"Before CEP, our provincial officials had never been trained on EIA review; they just learned by doing, but were often afraid and unsure how to deal with these lengthy EIA reports," said Leng.

He praised the program's training for using a step-by-step and practical learning approach based on actual EIA reports. "Our officials quickly developed greater understanding and more confidence to perform their role," he added.

Even though CEP's participation ended in 2016, the department continues this work by using CEP training methods and materials in its EIA workshops. But Leng said more external support will be needed to build Cambodia's EIA expertise to the level required.

→ Deforested land and newly planted rice in the Central Annamite Mountains, Viet Nam (photo from the EOC).

Chapter Two

Climate Change

Overview

"CEP is in a key position to promote climate resilience and adaptation and mitigation among GMS countries."

Hla Maung Thein, director general, Environmental Conservation Department, Ministry of Natural Resources and Environmental Conservation, Myanmar

Cassava farmers in Lao Ngam District, Lao PDR (photo from ADB).

Climate change is humanity's greatest challenge of modern times. The GMS is expected to be at the sharp end of a changing climate, with Cambodia, Myanmar, Thailand, and Viet Nam ranked among the world's 15 countries that are most vulnerable. Many cities and coastal and rural communities across the subregion are already grappling with the increased frequency and severity of weather events, such as floods, storms, and droughts. In the longer term, temperature change will be a huge challenge for these countries. Their food production systems and biodiversity will come under increasing pressure from climate-induced ecosystem change. Their flora and fauna will have to adapt or possibly face extinction in some places as habitat conditions become less favorable. Areas where crops now flourish may be rendered far less suitable for agriculture.

Governments, development organizations, businesses, and communities are accelerating efforts to find solutions to climate change. The signs are increasingly encouraging that the global community can and will take meaningful action to reduce climate impacts. Tackling climate change is a key pillar of the CEP's support to the GMS countries. The program has carved out an important niche as a subregional platform to generate knowledge, build capacity, and test solutions for both adaptation and mitigation.

With its partners, the CEP has shed light on how climate change is likely to unfold in the GMS, and identified practical and effective responses. The focus is on two fronts: solutions to build the climate resilience of rural communities and solutions to reduce carbon dioxide emissions from road freight.

Key Results

+ Developed, tested, and promoted tools and approaches for practitioners and planners to better understand how climate change will affect rural GMS communities, and how rural resilience to climate change can be strengthened.
+ Built national and regional capacity for using climate change adaptation tools and methodologies by developing regional networks, holding training programs, and creating knowledge resources.
+ Tested and proved the cost-effectiveness of fuel efficiency technologies and eco-driver training to reduce carbon dioxide and other emissions from road freight.

Next Steps

Climate change will continue to be an integral CEP pillar. Under the program's third phase, two of the six planned investment projects will build on the gains identified in the key results. One is to increase access to financing for projects and programs to scale up investments in green road freight. The other investment focuses on climate proofing rural infrastructure and using risk financing to strengthen the resilience of rural households to climate change. The CEP will also generate and disseminate more knowledge on climate change by strengthening its efforts to build a GMS network for adaptation.

Building Climate Resilience

For most of the past decade, climate change adaptation has focused on physical engineering solutions to protect urban and coastal populations from storm surges, floods, and rising sea levels. More recently, the adaptation needs of rural communities have gained increasing prominence on the international climate change agenda. In the GMS, thousands of geographically isolated communities are home to many of its poorest people. Subsistence farming dominates livelihoods in these areas, which have been long used to damaging floods, droughts, and storms. These disasters are set to worsen with climate change, and are already happening through the increased frequency and severity of weather events. For farming households living below or just above the poverty line, a major flood or drought can have dire long-term livelihood consequences.

Expensive, hi-tech climate adaptation solutions in the GMS rural communities are not feasible right now. Instead, practical and cost-effective solutions will have to be found. Since 2006, the CEP has worked with hundreds of rural communities in the subregion's transboundary areas through the CEP biodiversity corridors initiative (Chapter 3). The CEP began broadening this support from 2010 with the long-term aim of helping rural communities become more resilient against an increasingly uncertain future caused by climate change. Since then, the program has made significant contributions to the region's knowledge base on climate adaptation.

Achievements

+ Built climate change knowledge partnerships among regional development organizations.
+ Strengthened national capacity to assess climate change vulnerability and use participatory approaches to identify adaptation solutions.
+ Created and promoted platforms, guidelines, tools, training materials, and other knowledge resources for conducting vulnerability assessments.
+ Assessed the potential of climate risk financing mechanisms to build the resilience of rural communities in the GMS.

↑ A large landslide caused by a storm covers a main road in Thua Thien Hue Province, Viet Nam (photo from the EOC).

"In 2011, large-scale floods in Thailand affected almost 14 million people, resulting in an estimated $45.7 billion in damages."

Risk Financing for Rural Climate Resilience in the Greater Mekong Subregion. Page 1. (2017).

ARTICLE

GMS

CLIMATE CHANGE

Risk Financing for Rural Climate Resilience

In 2014, the CEP conducted a study to assess how risk financing could help strengthen the climate resilience of rural households. Such financing mechanisms have been set up in other parts of the world, but little was known about their potential in the GMS until this study.

The study assessed the frequency and severity of climate-related disasters, the impact of these events on rural livelihoods, and how local people manage climate risks in 28 rural communities in Cambodia, the Lao People's Democratic Republic (Lao PDR), and Viet Nam. It also explored the potential of climate risk financing strategies to build community resilience.

The study found that agrarian communities are often beset by droughts, floods, and storms, which sometimes severely damage livelihoods. Nearly all these communities already face considerable socioeconomic challenges, and severe climate events can tip many into extreme poverty. Nearly all of the rural households have some means of managing climate and other risks through diversified farming practices, social capital networks, and reliance on public assistance. But they are ill-equipped to cope with severe climate shocks.

The study's main conclusion is that a mix of climate financing risk mechanisms are needed to effectively protect rural communities from destructive climate events, even though these mechanisms come with considerable financing and organizational requirements. There is potential to incentivize household saving schemes, and to create disaster risk funds at the community, national, and even subregional levels. The CEP's 2017 publication *Risk Financing for Rural Climate Resilience in the Greater Mekong Subregion* examines this issue, presents findings, and offers recommendations for the greater use of risk financing.

Climate risk financing and climate proofing of rural infrastructure are two investment projects to be prepared by the CEP under its 2018–2022 strategic framework and action plan.

↑ Farmers hard at work in rice fields in Luang Prabang Province, Lao PDR (photo from the EOC).

"Households from the Koh Kong coastal zone reported as much as a 90% loss in economic income from paddy rice due to seawater intrusion events."

Risk Financing for Rural Climate Resilience in the Greater Mekong Subregion. Page 18. (2017).

STORY

CAMBODIA

CLIMATE CHANGE

Government Planners Help Farmers Fight Climate Change

Heng Hong grew up in a rice farming family near Santuk Mountain, one of Kampong Thom Province's most sacred sites. According to locals, the dry season is getting longer—a pattern seen across Cambodia and one of the most obvious signs of climate change. The dry and wet seasons usually last for 6 months each, but recent years have seen the dry season lasting 8 months.

These days, Hong lives and works in Phnom Penh, but he remains closely engaged with rural life in his role as deputy director of the Department of Community Livelihoods, an agency under the Ministry of Environment.

Hong was one of the 15 government planners from Cambodia, the Lao PDR, and Viet Nam who trained under the CEP to work with communities to assess their vulnerability to climate change and help find adaptation options. A series of three CEP-funded workshops were held by the Southeast Asia Regional Center for the Global Change System for Analysis, Research, and Training (START) in Bangkok between August 2016 and February 2017. Participants learned how to conduct situational analyses, risk profiling, and future visioning, and how to identify and implement adaptation solutions. In between the workshops, participants were encouraged to try out these skills in the field.

Hong did his fieldwork in Chikhaleu Commune, in Koh Kong Province's Dong Peng Protected Area. This is one of Cambodia's three "multiple use" protected areas, where communities within Dong Peng's 27,000 hectares are allowed to sustainably use natural resources to support their livelihoods.

Times are getting tougher for many of Chikhaleu's farmers. Land conflicts have emerged as commercial sugar plantations moved into the areas. Climate change is making it harder for the farmers to make a living from the land because of the shorter growing seasons.

Chikhaleu's farmers can no longer rely on the traditional farming practices passed down by previous generations, but need to learn technical solutions to adapt to climate change.

"Adaptation planning is very important for these farmers as they depend on natural resources to farm rice, raise livestock, and gather non-timber forest products," said Hong. "If they don't adapt to climate change it will destroy their livelihoods."

He believes that the CEP's "deep and detailed" training on climate adaptation planning will enable him to work better with rural communities to find solutions to tackle climate impacts using the analytical tools and approaches taught at the workshops.

↑ Villagers participate in climate-adaptation planning exercises, Lao PDR (photo from the EOC).

One of his biggest takeaways was the need to consider future change scenarios and to plan for these rather than base interventions on the current situation.

During 2011 and 2012, the CEP developed a participatory framework to assess rural vulnerability to climate change in the GMS and identify adaptation solutions. The framework was tested in 23 communities in Cambodia, the Lao PDR, and Viet Nam. In 2014, the framework was refined and published by the Asian Development Bank (ADB). In 2016, training materials and an online platform were developed to help implement the framework. Training on the framework was started that year for a core group of practitioners in the GMS, including government planners who work with communities.

ARTICLE

GMS

CLIMATE CHANGE

The Greater Mekong Subregion Roundtable on Climate Change Adaptation

The GMS Roundtable on Climate Change Adaptation was launched by the Environment Operations Center (EOC) in 2013 as forum for Bangkok-based regional organizations working on climate change to regularly meet, share information, and collaborate on climate challenges. Since its inception, roundtable partners have identified critical research gaps, developed adaptation tools and methodologies, and collaborated on new knowledge resources.

For Alex Smajgl, managing director of the Mekong Region Futures Institute, a roundtable founder, the initiative provides a mechanism for regional climate change specialists and their organizations to better coordinate their work to maximize impact. "It's all about an opportunity to influence climate change policy and programs," he said.

One of the early collaborations for the roundtable members was shaping events and knowledge products for the 4th GMS Environment Ministers' Meeting, held in early 2015. This ensured that climate change adaptation issues and solutions were high on the agenda at the flagship GMS environment event.

That same year, roundtable partners began working on guidelines for assessing climate change vulnerability within the subregion's many watersheds. Building capacity for such assessments is critical as the impacts and changes from climate change will be felt most acutely in catchment areas, which are becoming an increasingly important geographic focus of government planning processes. A workshop was held in September 2017 where the guidelines were tested and refined. The guidelines were finalized in November 2017 and will be a valuable tool for climate change practitioners and government planners throughout the subregion.

The roundtable is a good example of the CEP's value to the region. "CEP occupies a very unique space with its focus on the GMS and its coordination function bringing together environment ministries and stakeholders," said Smajgl.

Under the third phase of the CEP, the EOC will continue to coordinate the roundtable, and develop its already prominent role in generating and disseminating knowledge on climate change issues in the GMS.

↑ Farmers harvest rice in Cao Bang Province, Viet Nam (photo from Shutterstock.com).

Roundtable Organizations

GMS Environment Operations Center

Food and Agriculture Organization of the United Nations

Institute for Global Environmental Strategies

Mekong Region Futures Institute

International Union for Conservation of Nature

Southeast Asia START Regional Center

Stockholm Environment Institute

Thailand Environment Institute

UN Environment

United States Agency for International Development

United States Forest Service

"Reducing logistics costs will improve economics in the Mekong region. It's also a major opportunity for climate change mitigation. We need better technology, better management, and better drivers."

Leena Klossner, vice president and deputy managing director, Nordic Development Fund

Green Road Freight

Millions of trucks travel along the many highways that connect the GMS countries, carrying about 80% of the freight moved in the subregion. Road freight is vital for trade and prosperity, helping connect farmers and factories with markets, both within the GMS and beyond. But the road transport sector faces sizable environmental and economic challenges.

Road freight is a large contributor to the 22% of energy-related carbon dioxide emissions from transport in the GMS (excluding the PRC). Air pollution from other emissions causes a range of environmental and human health problems. On the economic front, the small and medium-sized enterprises (SMEs) that dominate road freight in the GMS face high logistics costs. Fuel often accounts for about half of a trucking company's operating costs, and fuel price increases can cut deeply into profits. Truck fleets are often old and inefficient, and most drivers lack driving skills that can conserve fuel. Poor logistics management sees many trucks making return trips with empty loads. In the GMS, most SME truck companies do not have the financial means to upgrade their fleets or develop advanced logistics systems.

"The Green Freight Initiative has proved that our approaches to reduce fuel consumption are headed in the right direction."

Thibodee Harnprasert, adviser to the Federation of Thai Industries and transport company owner

To tackle these problems, which are common to many developing countries, green freight programs are underway around the world. These programs bring governments, the private sector, civil society, and transport companies together to find ways to move goods more efficiently to reduce negative climate, health, energy, and economic impacts. The programs aim for environmental and economic "win–wins" that can help countries meet climate change mitigation targets and implement green growth strategies.

↑ Aerodynamic panels being tested on a freight truck in Chonburi Province, Thailand (photo from the EOC).

From 2013 to 2017, the CEP's Green Freight Initiative helped 60 SME freight companies in the Lao PDR, Thailand, and Viet Nam to test ways to make their businesses more fuel efficient. Interventions included retrofitting aerodynamic technologies on trucks, low-rolling resistance tires, and piloting software for truck maintenance. Forty driving instructors were trained under an eco-driver training program for 300 truck drivers to learn more fuel-efficient and safer driving and maintenance practices.

Rigorous road testing under a range of conditions proved that fuel efficiency gains could be made from both the technologies and eco-driver training. Simple changes such as better tires can cut fuel costs by about 5%. Cost–benefit analyses showed that these technologies will repay the investment cost within a few years.

The CEP also investigated the reasons for empty return trips in the GMS. Studies show that online platforms integrating global positioning system technology can better connect freight forwarders and truck companies to maximize freighting opportunities. They also show, however, that trade imbalances within and between countries make it difficult to avoid empty backhauling.

"Viet Nam has a lot of potential to adopt green freight because transport technology here is in an early stage and logistics management is not strong."

Nguyen Huu Tien, deputy director general, Environment Department, Ministry of Transport, Viet Nam

The CEP looked at financing issues for green freight. Despite learning about fuel-saving benefits, many SMEs cannot afford the up-front investment costs for retrofit technologies, let alone buying new trucks. Setting up specialized energy service companies could help solve these problems. As not-for-profit entities, these companies can arrange access to affordable technologies for member SME freight companies through group purchasing discounts. As members, they would also get technical support services.

The Green Freight Initiative made the following important contributions to cleaner trucking in the GMS: it (i) helped prove the viability and value of fuel-efficient technologies and driver training; (ii) raised the awareness of transport ministries and truck companies about green freight issues and opportunities; (iii) provided deeper insights into financing and logistics challenges; and (iv) demonstrated a mechanism for freight companies, transport agencies, industry partners, and development organizations to collaborate on promoting green freight.

Although the Green Freight Initiative has closed, its partners continue to build on its work. All three participating countries are planning to integrate eco-driver training into national driving curricula. Thailand is looking to develop nationwide logistics software and other green freight projects using their own funding sources. Germany's GIZ has a €2.4 million European Union-funded project that builds on the Green Freight Initiative in the three countries, as well as expanding into Cambodia and Myanmar.

For the CEP, green freight continues to be a priority. During 2017, the CEP and the transport ministries of Thailand and Viet Nam worked on green freight being included as a Nationally Appropriate Mitigation Action for both countries under the United Nations Framework Convention on Climate Change. If successful, this would open substantial funding through international climate change financing. A green freight Nationally Appropriate Mitigation Action could help Viet Nam reduce transport emissions by 6% through interventions such as compulsory tire standards and eco-driving for truck drivers. The CEP also plans to develop large green freight investments as a priority activity under the program's third phase, starting in 2018.

Origins of the Green Freight Initiative

In 2010, a CEP study, *Carbon Neutral Transport Corridors*, examined transport sector contributions to greenhouse gas emissions in the GMS East–West Economic Corridor. The study found that emissions along the corridor, which connects Myanmar, Thailand, the Lao PDR, and Viet Nam, were 1.1 million tons in 2010, and could double in 20 years if the pattern of emissions continued. It found that road freight was responsible for 60% of emissions, despite making up only 30% of corridor transport activity.

The study identified two actions to mitigate emissions: reforestation investments to offset carbon emissions, and increasing fuel efficiency in road freight. It estimated that green freight could lessen emissions along the GMS East–West Economic Corridor by 23% by 2030. The second option was deemed more feasible, and the Green Freight Initiative—one of the CEP's flagship projects—was launched in 2012.

Source: Author.

Fuel Savings (averaged across the three countries)

Fuel-efficient technologies

Eco-driver training

Fuel-efficient technologies plus eco-driver training

Low rolling resistance tires

Green Freight Initiative Partners

Ministry of Public Works and Transport, Lao PDR
Ministry of Transport, Viet Nam
Ministry of Transport, Thailand
Federation of Thai Industries
Grutter Consulting
Clean Air Asia

ARTICLE

THAILAND

CLIMATE CHANGE

Green Freight Company Profile: Jira Charoen Ltd., Thailand

Jira Charoen, a family-owned road transport company, joined the Green Freight Initiative to help achieve its social and environment goals.

"We were confident that when we joined this project it would benefit not only our company but also the community," said the company's owner, Jetsanee Charoen Silp. "By improving the efficiency and quality of transportation services, we will take better care of society as well as decrease costs."

Jira Charoen is headquartered in Ratchaburi, a few hours to the west of Bangkok, with a second depot in Saraburi, a similar distance northeast of the capital. A sizable and successful company, Jira Charoen employs 200 staff and operates a fleet of over 150 vehicles, which ply routes throughout Thailand, carrying consumer goods and construction materials.

The company was one of the most active in the Green Freight Initiative. Its trucks were used to test fuel-efficient technologies and conduct software trials to improve freight logistics and vehicle maintenance systems. All its drivers were trained on eco-driving. As was the case for the other companies that participated in the Green Freight Initiative, Jira Charoen's test results were highly encouraging.

"The technologies and eco-driver training helped our company reduce transportation costs and be more competitive. We use less energy now and have better fuel consumption," said Silp.

As reflected by its motto "happy people work," Jira Charoen is committed to being a safe, enjoyable, and productive place of employment, something the Green Freight Initiative has contributed to.

↑ Staff from Jira Charoen Ltd. gather for a day of testing fuel-efficient truck technologies (photo from the EOC).

Owner Silp intends to continue pursuing green freight approaches for her company and hopes this effort will be supported by others in the transport sector: "We would like to see the further development of green freight for not only our company, but others, too, so together we progress and become more environmentally sustainable."

"We were confident that when we joined this project it would benefit not only our company but also the community."

Jetsanee Charoen Silp, owner, Jira Charoen Ltd., Thailand

Chapter Three

Landscapes and Livelihoods

Overview

The GMS has an impressive array of ecosystems and landscapes that include glacial mountains, extensive river systems, large tracts of pristine forests, vast wetlands, and rich coastal marine life. These make the GMS one of the world's most important biodiversity areas, and home to an incredibly diverse range of plants and animals, many found nowhere else on the planet.

But with growing populations and rapid economic development, biodiversity losses have been substantial across the subregion in recent decades. Large tracts of natural forest have been cleared for timber and agriculture. Species that are iconic to the GMS, such as the tiger, are on the verge of extinction because of habitat loss and hunting. Freshwater systems have been unsustainably fished, rivers greatly modified, and swamplands drained—and climate change is worsening the effects of these incursions.

The loss of natural capital and the ecosystem services they provide often affects local livelihoods, and undermines efforts to achieve environmentally sustainable economic growth. Protecting the subregion's ecosystems is a huge task, and has become an increasing priority for all six GMS countries.

Since its inception in 2006, the CEP has been at the forefront of efforts in the subregion to strengthen and enlarge protected area networks in the GMS. The program introduced and piloted biodiversity conservation corridors in seven transboundary biodiversity landscapes to ensure better forest connectivity between protected areas. These corridors provide vital habitats for many plant and animal species, and environmental services such as regulating and maintaining water and soil quality. Economic development threatens both.

The Biodiversity Corridors Initiative was the flagship work of CEP's 2006–2011 first phase. During that period, the CEP successfully brought together government agencies, hundreds of local communities, and leading conservation organizations to map out biodiversity conservation corridors, and test innovative and integrated livelihood and conservation interventions.

During the CEP's second phase, focus shifted from on-the-ground interventions in the corridors to supporting landscape assessments and planning in three priority landscapes: the Mekong Headwaters, Sino–Viet Nam Karst, and the Cardamom and Elephant Mountains. In doing so, the CEP moved beyond the biodiversity lens to a broader ecosystem services approach. This wide range of work included assisting joint biodiversity collaboration between countries in border forest areas, helping establish systems to reward local people for forest stewardship, and climate change planning. The CEP landscape initiatives have helped protect the subregion's valuable natural capital, and by ensuring that local communities are active partners and beneficiaries, they have directly contributed to poverty reduction.

Key Results

+ Successfully introduced the biodiversity corridor approach in the GMS, leading to the better protection and management of more than 2.6 million hectares of habitat in five countries.
+ Leveraged $98 million in additional investments for forest and biodiversity conservation, including $94 million under the ADB-supported Biodiversity Conservation Corridors Project.
+ Contributed to poverty reduction for over 30,000 local people through infrastructure and development funds in villages and training programs.
+ Developed landscape management plans and policies.
+ Strengthened biodiversity conservation collaboration between environment agencies and local communities, and between governments in the subregion.
+ Contributed to regional knowledge of livelihoods and biodiversity issues in landscapes through socioeconomic, biodiversity, and climate change assessments and monitoring.

↑ Coffee beans ready for harvest (photo from Shutterstock.com).

← Women harvesting tea leaves in Viet Nam (photo from the EOC).

Transboundary Biodiversity Landscapes

Cardamom and Elephant Mountains
Central Annamites
Eastern Plains Dry Forest
Mekong Headwaters
Sino–Viet Nam Karst
Tenasserim Mountains
Tri-Border Forest

Next Steps

The CEP's third phase will involve building on the landscapes and livelihoods work and prioritizing the sustainable management of areas with high ecosystem service values, economic growth pressures, and potential. This will include ecosystem valuations, sustainable land use planning and management strategies, and initiatives to restore degraded land.

The Mekong Headwaters

This landscape stretches 600 kilometers from the far north of Yunnan Province to the northern border provinces of Cambodia and the Lao PDR, and to the western parts of Myanmar's Shan State. It covers a large variety of ecosystems, ranging from mountains in its far north to subtropical forest in its far south. The landscape has the headwaters for five major rivers, including the Mekong. Its upper reaches in Yunnan act as a "water tower" by providing hydroelectricity to the PRC's east coast.

The CEP and the Yunnan Environmental Protection Department have partnered since 2007 to establish biodiversity corridors in Xishuangbanna Prefecture. This small southwest corner of the PRC is less than 20,000 square kilometers in area, but contains a quarter of the country's animal species, one-seventh of its plant species, and its largest subtropical rainforest. Xishuangbanna's habitat and biodiversity are under threat from rubber plantations and other monoculture investments.

The CEP began its work on Xishuangbanna's biodiversity conservation corridors by conducting biodiversity and socioeconomic assessments. These led to nine biodiversity corridors connecting six protected areas being identified and mapped, and two new nature reserves being created. Two corridors, Nabanhe–Mangao and Mengla–Shangyong, were prioritized for integrated conservation and development activities, and corridor management planning.

Support included livelihood training for communities in agroforestry and environment-friendly tea plantations. The CEP built village infrastructure, such as medical clinics and classrooms, and funded tree nurseries and reforestation (over 1.5 million trees have been planted since 2007). Village development funds were established in 28 corridor villages and these have provided cash loans to support the livelihoods of more than 400 families. At the planning level, the CEP created corridor management rules, a land use plan, and technical guidelines for forest restoration. Yunnan's provincial authorities recognized the importance of the biodiversity conservation corridors approach by incorporating it in their *Biodiversity Strategy and Action Plan, 2015*.

The CEP's interventions in Xishuangbanna created a strong collaboration between local communities and government agencies to enhance the prefecture's protected area network. Because of this collaboration, forest connectivity between

What is a Biodiversity Conservation Corridor?

A biodiversity conservation corridor provides habitat connectivity, particularly forest cover, between protected areas. The many protected areas in the Greater Mekong Subregion (GMS) range from large national parks to small wildlife sanctuaries.

Biodiversity corridors can greatly improve habitat for fauna and flora, as many species need to migrate beyond specific protected areas. Corridor areas usually already provide important forest habitats, but because of a lack of protection, they are under threat from economic development.

Corridor management practices, which have local people at the center of forest protection measures, maintain and enhance forest integrity, and help improve and expand protected area networks. Today, the GMS has more than 2.6 million hectares of biodiversity corridors.

Source: Author.

"CEP helped increase local people's awareness of environment and biodiversity conservation, and increased their self-management capacity."

Lianxian Zhu, vice director, Menghai Environment Protection Bureau, Xishuangbanna Prefecture, Yunnan

📷↖ The Three Parallel Rivers of Yunnan Protected Areas, PRC (photo from the EOC).

📷↑ "Eco-village" participatory planning in Xishuangbanna Prefecture, Yunnan Province, PRC (photo from the EOC).

protected areas is improving, and has benefited the livelihoods of over 1,000 households in the two corridors. Building on the CEP's work, Yunnan Province is now mobilizing its own resources to replicate the conservation and livelihood activities in the other seven biodiversity corridors.

With the CEP's support, environment officials from Yunnan Province and three northern provinces of the Lao PDR are working together to improve biodiversity conservation in their heavily forested border areas. The extensive old-growth forests there include rare rainforest ecosystems of international significance, and many iconic and endangered animals, such as the Asian elephant, which regularly migrates between the two countries. With support from the CEP, a joint protected area was created along the border, and a protection plan drawn up for the elephant population. In 2015, provincial environment agencies in the two countries signed a memorandum of understanding to formalize their collaboration on biodiversity conservation initiatives. For the whole of the Mekong Headwaters, the CEP worked with government partners in the Lao PDR, Myanmar, and Yunnan Province in 2016 and 2017 to draft a management strategy.

Achievements

+ Improved biodiversity conservation and forest connectivity in two priority corridors in Xishuangbanna, covering 18,000 hectares, and mapped out seven additional corridors.
+ Influenced the creation of the 200,000-hectare Sino–Lao Joint Protected Area, and two prefecture nature reserves in Xishuangbanna.

"CEP introduced international best biodiversity conservation concepts and experiences to Yunnan."

Zhou Bo, director, Department of Soil Environment Management, Yunnan Environmental Protection Department, Yunnan

+ Contributed to poverty reduction through village development funds (VDFs), livelihood training, and village infrastructure.
+ Developed corridor and landscape management plans and guidelines to steer long-term biodiversity conservation efforts.

ARTICLE

PRC

LANDSCAPES AND LIVELIHOODS

Manxing Eco-Village, People's Republic of China

It is late morning on a hot September day as our car winds around the edge of a valley and enters Manxing village. The narrow streets look paved in gold, but the illusion is dispelled when it becomes clear that they are carpeted in corn kernels, there to dry on the warm concrete.

This is Menghai County, in Xishuangbanna Prefecture. This southern corner of Yunnan Province is nearly the farthest southern point of the PRC, and the borders of Myanmar and Thailand are about 60 kilometers away.

The village's hundred or so houses are terraced on a hill, overlooking the small valley. Despite the heat, some villagers are at work, raking corn kernels, shelling nuts, sweeping yards, or stirring embers to boil water for tea. The village is quiet, though. All but the youngest children are in school, and most of the adults are away in the bigger towns, working in restaurant or construction jobs.

Manxing is by no means a wealthy place now, but life was much tougher just a decade ago, as it was for many rural villages in the prefecture. Most families were poorer then, making a basic living planting corn and sugarcane. "We only had dirt roads and they turned to mud in the rainy season, making it impossible for vehicles to come here," a villager said.

Development reached nearly every corner of Yunnan Province, no matter how isolated, in the 1990s. As elsewhere in the country, government support in Manxing initially prioritized basic infrastructure, such as paved roads and better housing. With modern roads, employment and trade opportunities gradually opened up for the villagers. Tea and other crops could be grown to generate some income, not just for subsistence.

The local produce now goes to distant markets in northern PRC, such as the watermelon that dominates the fertile valley floor just below the village.

While the economic situation slowly improved, environmental problems worsened. Forested areas were cut down for firewood or cleared for farmland. Wastewater treatment was nonexistent, and rubbish disposal often meant refuse was tipped into the nearest stream or gully. These environmental impacts extended much farther than Manxing, which is one of 40 villages in a 15,000-hectare strip of land between two nature reserves. The forest cover there has been slowly destroyed over the years, causing the loss of an important habitat. This has severely affected the animals, such as the endangered gaur, which need to move between the two nature reserves.

In 2009, CEP and Yunnan environment officials mapped out that strip of land as a priority biodiversity corridor. Manxing village leaders were then asked to participate in a project that would turn Manxing into a demonstration village to show how the village environment could be improved and the corridor protected. Local officials and villagers put together an eco-village plan, and through CEP and government funding for the next 3 years, a range of interventions helped achieve this goal.

Over 60 villagers were taught eco-farming, such as planting mixed tea and tree plantations and medicinal plant gardens. One villager, whose livelihood depended on gathering wild honey from the forest, was taught to build beehives and how to farm honey. Tree nurseries were set up and seeds collected. More than 40 hectares of degraded natural forest were replanted with local tree species. A village patrol team was set up to guard 2,000 hectares of forest.

In Manxing itself, 20 solar streetlamps and a waste collection system were installed. An artificial wetland was built below the village, enabling wastewater to be naturally filtered and safely dispersed. Retaining walls were built to stop erosion around the village. A village development fund was established to provide low-interest loans to help secure livelihoods.

↑ Coffee beans laid out to dry in Manxing village, Yunnan Province, PRC (photo from the EOC).

The villagers voiced their appreciation for the support that transformed their community into an eco-village. Some were glad about the cleaner environment, while others spoke of how their crop yields and incomes had improved due to eco-farming practices. The development fund was welcomed as being particularly helpful in times of need.

Although Manxing is now a successful eco-village, not all the interventions there can be replicated in other villages in the corridor at the same scale. Even so, local and provincial authorities are planning projects and mobilizing funds to ensure that the best practices are introduced throughout Xishuangbanna's biodiversity corridors in the coming years.

"The CEP project promoted the concept of sustainable development of the environment and natural resources. The project protected our ecosystem, and living conditions and the livelihoods of local people greatly improved."

Lianxian Zhu, vice director, Menghai Environment Protection Bureau, Xishuangbanna Prefecture, Yunnan

Sino–Viet Nam Karst

As its name suggests, the Sino–Viet Nam Karst's defining feature is its large limestone karst formations. This diverse and visually impressive landscape provides many niche habitats for rare species, including the world's only population of the Cao Vit Gibbon, one of the world's rarest apes.

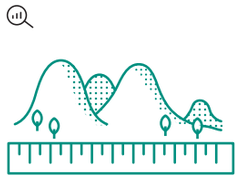
This landscape covers southern Guangxi Zhuang Autonomous Region, in south-central PRC, and extends into the northern Viet Nam province of Cao Bang. Large areas of this landscape have been converted to sugarcane plantations, with original plant species pushed back to the hills. This encroachment also makes it increasingly difficult for animal species to maintain healthy and wide-ranging populations.

Since 2009 the CEP has worked with environment officials in Guangxi and Cao Bang to establish biodiversity conservation corridors. These have enhanced biodiversity connectivity between the Bangliang Nature Reserve, in Guangxi's Jingxi County, and the adjacent Trung Khanh Nature Reserve, in Viet Nam's Cao Bang Province. A particular focus of this effort is the border forest areas, which are home to 26 Cao Vit Gibbons. Forest restoration efforts within the corridor are helping protect and expand the area of habitat for these critically endangered apes.

In Cao Bang, through extensive socioeconomic and biodiversity assessments, the CEP identified and mapped five biodiversity corridors that connect six protected areas, totaling 83,600 hectares. Four corridors have so far been approved by the provincial government. Two priority corridors, Pia Oak–Pac Bo and Cao Vit Gibbon–Halang, are the focus of integrated conservation and livelihood activities.

Within these corridors, the CEP worked with 28 villages in three communes. There is little farming space for these communities, and living conditions are difficult. Three commune development funds were established supporting poverty reduction for 288 households (1,428 people). The funds were also used for forest restoration, particularly in the Phong Nam commune, the pilot site for testing integrated conservation and livelihood interventions. Here, more than 80 hectares of important habitat were reforested, and community teams were mobilized to patrol 2,000 hectares of the Cao Vit Gibbon Protected Area. The CEP trained more than 120 villagers in animal husbandry, commercial tree plantations, agroforestry, interplanting, and rural environmental management.

↑ Limestone mountains in the hazy background behind a centuries-old building in Guangxi, PRC (photo from the EOC).



5,848,840 hectares

Area of the Sino–Viet Nam Karst landscape

Over the border, in Guangxi, nine corridors to connect nine protected areas were identified and mapped. These cover 592,000 hectares in four districts. Poverty reduction interventions included piloting development funds in five villages, which have so far provided loans to 339 households for sustainable livelihood activities, such as environmentally friendly farming practices. The CEP's socioeconomic and biodiversity assessments led directly to the creation in 2009 of the 6,500-hectare Bangliang Nature Reserve in a core area of the Cao Vit Gibbon habitat. Using mainly government funds, six reforestation projects were initiated to improve forest connectivity in the reserve.

In Guangxi and Cao Bang, the CEP's support led to extensive plans, strategies, and guidelines for improving landscape and corridor management. These included biodiversity corridor master plans for both Guangxi and Cao Bang; proposed corridor management rules for Cao Bang; and various technical guidelines for forest restoration, participatory land use planning, and commune development funds.

The CEP is helping environment officials in Guangxi and Cao Bang collaborate on biodiversity conservation in their border areas. Officials meet regularly, participate in joint training programs, and conduct activities to monitor the Cao Vit Gibbon. In 2015, a CEP-facilitated memorandum of understanding was signed between environment agencies on both sides to guide future joint activities. Although not directly supported by the CEP, one outcome was a joint management plan, finalized in 2016, for protecting Cao Vit Gibbons in transboundary areas. Domestic and donor funding of nearly $1.4 million was earmarked for this effort. The CEP worked with the Guangxi authorities in 2016 and Vietnamese authorities in 2017 to draft a management strategy for the Sino–Viet Nam Karst landscape.

↑ The Cao Vit Gibbon is the world's rarest ape and lives along the Viet Nam–PRC border (photo from the EOC).

Achievements

+ Improved forest connectivity in 675,700 hectares of biodiversity corridors.
+ Contributed to poverty reduction for 650+ households (over 3,200 people).
+ Influenced the establishment of the Bangliang Nature Reserve, in Guangxi, and a joint management plan for protecting the Cao Vit Gibbon population.
+ Produced a memorandum of understanding between Cao Bang and Guangxi.

ARTICLE

GMS

SINO–VIET NAM KARST

Village Development Funds in the Greater Mekong Subregion

↑ A man in Guangxi, PRC, became a pig farmer using a loan from a village development fund (photo from the EOC).

In Guangxi, near the border with Viet Nam, a concrete slab was laid in a small village to give its children somewhere to play basketball. A long way to the east, a Dai ethnic man in southern Yunnan Province was able to buy 500 chickens to start a new livelihood. Down south, in the Tenasserim Mountains, in western Thailand, local people gathered on a royal holiday to plant trees to help restore a damaged forest. These are just a few examples of how people are using village development funds (VDFs)—revolving funds that provide low-interest loans to local people in some of the poorest areas of the GMS—to improve livelihoods.

Since 2006, the CEP has set up VDFs in pilot villages in biodiversity conservation corridors to help the poorest households have access to cash in times of need, and to be able to seize livelihood opportunities when they arise. These isolated communities and their households have little or no access to formal lending: informal money lenders are an option, but the high interest rates that are charged often do more harm than good.

The CEP provided the seed capital to set up VDFs. Depending on the size of the village, fund amounts range from $5,000 to $30,000. Community members elect VDF committees, who are then trained in basic financial management. The rules for lending are clarified and beneficiary households identified. In some countries, all the seed capital can be lent out, while in others it is capped, for example at 60% in Viet Nam. The amount each household can borrow, the repayment period, and the interest rate also vary between countries. Interest is usually 2%–3% a month. On occasion, the funds are used for community projects such as improving village roads, but far more common are loans to households for rice production, cash crops, and livestock.

VDFs are one of the most valued poverty reduction interventions under the CEP's biodiversity corridors initiative. In Cambodia, the Lao PDR, and Viet Nam, more VDFs have been established since 2012 through the Biodiversity Conservation Corridors Project. Today, nearly 200 VDFs throughout the six GMS countries are helping prevent or reduce poverty for thousands of vulnerable households living in the biodiversity corridors.

"The money has really helped. I bought pigs with it and now farm them. Before, I worked in construction, but this is much better."

Villager in Genglao, Guangxi Zhuang Autonomous Region

ARTICLE

GMS

SINO–VIET NAM KARST

Cooperation on Transboundary Conservation

Ban Gioc–Detian Falls, on the border between Guangxi, PRC, and Cao Bang Province, Viet Nam (photo from the EOC).

Border areas have historically been a source of conflict and strife in the GMS. Nowadays, with over 20 years of continuing peace and growing prosperity, border areas are focus points for countries in the subregion to work together. To this end, governments and their development partners are working hard to better connect the GMS through transport infrastructure, customs procedures, and border management.

Biodiversity conservation collaboration is also focused on border areas. Most of the subregion's pristine forests and its richest biodiversity are found in mountainous, isolated areas that straddle the subregion's countries. Cooperation on biodiversity conservation has significantly increased in recent years with the support of CEP and other partners, including Fauna & Flora International and the World Wide Fund for Nature (WWF).

The PRC has taken a lead role in this effort. The country often uses its own financial resources to share its experiences on transboundary conservation and find areas for collaboration with neighbors such as the Lao PDR, Myanmar, and Viet Nam. For a decade, regular exchange visits have taken place between environment officials in Yunnan Province with their counterparts in the northern provinces of the Lao PDR. Guangxi officials have done the same with their counterparts over the border in Cao Bang, Viet Nam. This collaboration has been greatly strengthened by recent memorandums of understanding on transboundary conservation for more active interventions.

"The environment has no boundary and therefore we must collaborate to protect the biodiversity in these landscapes."

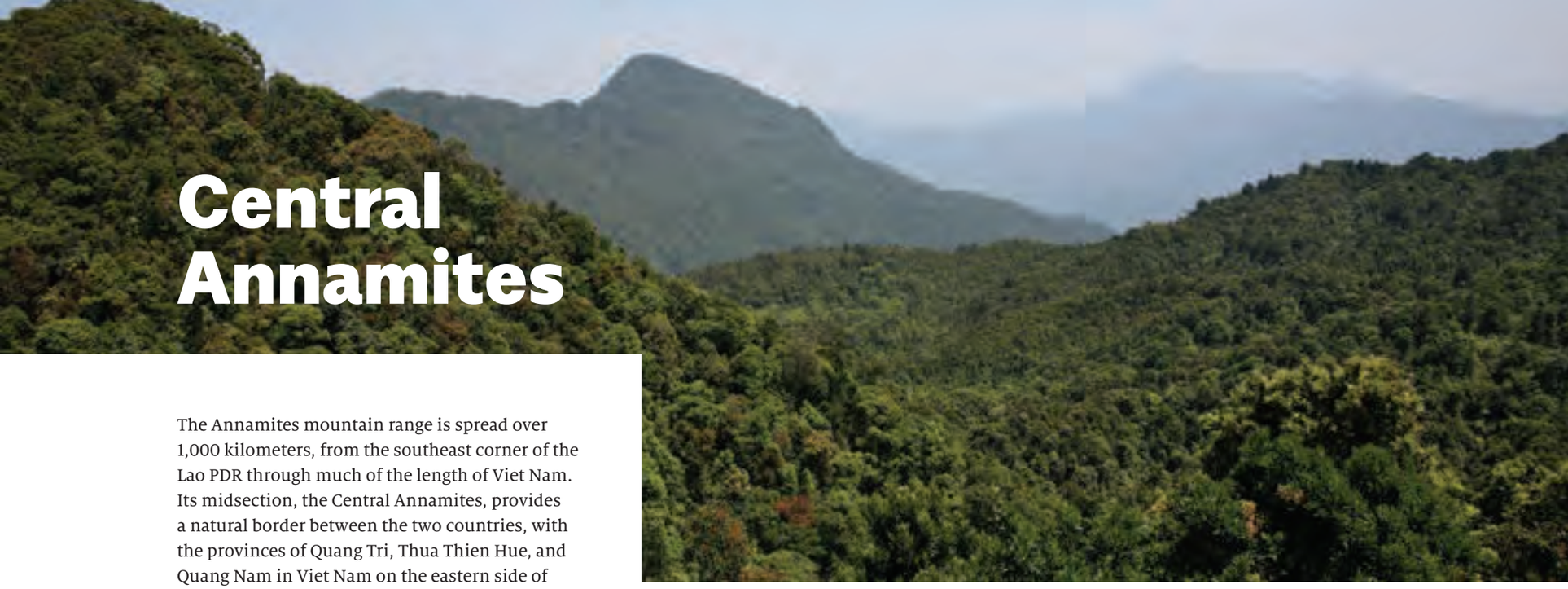
Sao Sopheap, director of cabinet, Ministry of Environment, Cambodia

In the Sino–Viet Nam Karst landscape, collaboration between Guangxi and Cao Bang is focusing on animal species, and particularly the Cao Vit Gibbon, whose entire global population is only found in a small area of forest along the border. Both are working together to learn about this critically endangered animal, and have developed a joint protection strategy with the support of Fauna & Flora International. Under a 2015 memorandum of understanding, the two governments plan to collaborate more on biodiversity conservation research, training, monitoring, and awareness raising.

In the Mekong Headwaters landscape, the Lao PDR and Yunnan Province are working closely in the 200,000-hectare Sino–Lao Joint Protected Area. This collaboration includes joint patrols and monitoring, and shared training events and public awareness activities. In 2014, officials and experts from both sides conducted surveys of Asian elephant populations living in their border areas, and they are finalizing a joint elephant protection plan.

In 2017, Cambodia and Thailand began working on a memorandum of understanding to collaborate on adjoining areas of the Eastern Forest Complex and the Cardamom Mountains. Both countries are also exploring the potential for establishing a transboundary biodiversity corridor.

As GMS countries pool their resources and deepen their collaboration on transboundary conservation, the outlook for many endangered animal species and forest ecosystems in these areas is looking up, though they still face many threats.



Central Annamites

The Annamites mountain range is spread over 1,000 kilometers, from the southeast corner of the Lao PDR through much of the length of Viet Nam. Its midsection, the Central Annamites, provides a natural border between the two countries, with the provinces of Quang Tri, Thua Thien Hue, and Quang Nam in Viet Nam on the eastern side of the divide.

This landscape is rich in unique biodiversity, including many endemic bird and animal species. The antelope-like Saola was discovered in the Central Annamites in 1992 after being thought extinct for over half a century. Although there is still substantial forest coverage in this landscape, much of it has been degraded or cleared through agriculture, logging, and hunting. On the Viet Nam side, the remaining forested areas, as well as supporting local livelihoods and biodiversity, play a critical role in providing quality water to more than 20 hydropower plants. These forests are home to many ethnic minorities, and these predominately highland communities are some of Viet Nam's poorest.

From 2006 to 2009, the CEP worked with the three provincial governments and the WWF to pilot the biodiversity conservation corridors approach in the Central Annamites. Following biodiversity and socioeconomic assessments, six corridors were identified to connect seven protected areas. The program then tested integrated conservation and livelihood activities in two corridors, in Quang Nam and Quang Tri, to improve livelihoods, harmonize land management, and restore and protect forest habitats.

There, the CEP worked closely with 34 communes where 90% of the households lived below the national poverty line. The CEP's livelihood training programs helped the communes develop more ecologically friendly and productive farming practices. Commune plantations, for example, were established on 500 hectares, and they provide income and timber for 570 households. Commune development funds (called "village development funds" elsewhere in the GMS), were set up to provide households with low-interest loans in times of need. The CEP created 17 of these funds, providing $70,000 in seed capital, which was used by over 300 households to buy medicine, livestock, and seeds, among other things. Community patrol teams were established and trained to help protect the forests. The program also organized participatory land use planning involving the authorities and communes.

Ecosystem restoration efforts included tree planting on 800 hectares of mainly degraded forest areas, and a further 500 hectares of underused land was turned into community plantations. Trainings in community-based forest management were conducted in the communes.

The success of the biodiversity corridor pilot initiative led to the Government of Viet Nam's taking a $30 million loan from the Asian Development Bank (ADB) in 2011 to scale up the CEP's work under the Biodiversity Conservation Corridors Project. The Global Environment Facility contributed a further $3.8 million in 2016.

📷↑ Forested hills of the Central Annamites in Quang Nam Province, Viet Nam (photo from the EOC).

Although the Biodiversity Conservation Corridors Project took over the CEP's work on biodiversity conservation corridors, the program continues to be engaged in the Central Annamites. Together with the WWF and Viet Nam's Ministry of Agriculture and Rural Development, the CEP is testing ways to improve the implementation of the country's payments for the forest environmental services scheme.

Key Results

+ Better forest protection and connectivity in six corridors covering 130,000 hectares.
+ Poverty reduced for over 3,500 local people through commune development funds, community plantations, and livelihood training.
+ Raised $34 million additional financing for biodiversity activities under the Biodiversity Conservation Corridors Project.
+ Developed a participatory forest monitoring system to improve the implementation of Viet Nam's payments for its Payments for Forest Environmental Services (PFES) scheme.

ARTICLE

VIET NAM

CENTRAL ANNAMITES

Game-Changing New Technology for Forest Protection in Viet Nam

Every day, tens of thousands of rural folks get together in small groups to patrol Viet Nam's forests. On their rounds they record evidence of illegal logging, hunting, and other forms of encroachment. They assess the condition of the forests that they are protecting, keeping an eye out for recent landslides and signs of animals.

For this work, they receive cash payments from provincial and district authorities that have been gathered from hydropower and water utility companies, and ecotourism operators. These rely on nearby forest watersheds being in good condition to naturally regulate the water resources and other ecological services that their operations depend on.

Since Viet Nam's ambitious Payments for Forest Environmental Services (PFES) scheme was launched in 2010, some 500,000 local people have been mobilized to protect 5.6 million hectares of forests in 43 provinces. Nearly all these forests are under some form of legal protection, but boots on the ground are still essential to prevent encroachments.

In the central province of Thua Thien Hue, members of 6,500 households patrol 115,000 hectares of mountain forest. Much of this is happening in A Luoi District in the Central Annamite mountains, close to the border with the Lao PDR. A Luoi is one of the pilot sites where the CEP is working with the WWF and Ministry of Agriculture and Rural Development to develop and test new monitoring approaches to improve Viet Nam's PFES scheme.

One of the major challenges facing the scheme is ensuring that participating households are properly compensated. Another is making sure that information about the condition of the forests they are monitoring is detailed and timely enough to influence forest management decisions. Examples include reporting on important forest areas that may urgently need greater protection or on flash flood damage to access roads that may require remedial action.

The CEP's pilot work is using the latest technology to overcome these challenges. Although this effort is in its early days, the signs are promising that it could be scaled up nationally, and so greatly

↑ Recently cleared forest in the highlands of Quang Nam Province, Viet Nam (photo from Shutterstock.com).

↓ A villager field-tests new forest-monitoring software in Thua Thien Hue Province, Viet Nam (photo from the EOC).

"With this new system we can better protect our forests, and importantly, we can do this more transparently and equitably."

Nguyen Xuan Hien, director, Forest Protection and Development Fund, Thua Thien Hue Province, Viet Nam

improve the PFES scheme. Until now, patrollers have used global positioning system (GPS)-enabled mobile phones to make a visual record. On returning to their villages, the patrol leader writes a monitoring report and e-mails this, as well as the images, to provincial authorities. With nearly 1,000 patrol groups sending monthly reports to the ministry's provincial headquarters, this means a mountain of work to sort, assess, and act on the evidence. Mistakes and delays can easily occur.

To tackle this problem, the CEP developed a web geographic information system (GIS) tool that will likely change the way the reporting is done. Equipped with a specially designed computer tablet, forest patrol groups take time-coded and GPS-defined photos at the starting point of their patrol. From then on, the route taken, including time and distance, is automatically recorded and mapped. Patrollers use the tablet to take pictures along the route, and add in notes and tick boxes to questions in required fields in the tablet's software. The questions cover all the essential forest condition information that the authorities need. Back in their villages (or the nearest Wi-Fi signal), the information is uploaded to the provincial database and automatically sorted.

This tool has many advantages. For the patrollers, the paperless system means they no longer fill out onerous reports and take handwritten notes along the route (often hard in a torrential downpour). They also have better evidence that they have fulfilled their duties. With proof and more timely information on who patrolled what area and when, provincial authorities are able to issue payments more quickly and fairly.

The tool also enables new patrol groups and new PFES areas to be registered quickly and accurately. With a centralized database of presorted information on forest conditions and trends, provincial authorities can make more informed decisions. By December 2017, 528 forest patrol groups had been trained in the new software at pilot sites in Thua Thien Hue and Quang Nam provinces.

High-level support for the monitoring tool is emerging. At a PFES review meeting held in Ha Noi in early December 2017, the deputy director of the Viet Nam Administration of Forestry, Nguyen Ba Ngai, expressed his strong support for the tool being scaled up nationwide.

Project staff and villagers on patrol analyze forest-monitoring information on a tablet in Thua Thien Hue Province, Viet Nam (photo from the EOC).

Village patrol teams being taught how to use new forest-monitoring technology in Thua Thien Hue Province, Viet Nam (photo from the EOC).

Applying the system in all PFES provinces would enable a national database to be created. This would provide the central government with unprecedented insights into what is happening on the ground in many of Viet Nam's most important forest areas. It would also help them fine-tune the national PFES system to operate at peak efficiency.

Tri-Border Forest

Located in the border triangle of Cambodia, the Lao PDR, and Viet Nam, most of this 2-million-hectare landscape is made up of lowlands with dry evergreen forests. The Mekong River runs through these lowlands on the landscape's western edge. There are small rainforests in the hilly areas of the northeast. Many rare and endangered species, such as the tiger, sun bear, gaur, and giant ibis, live in the Tri-Border Forest.

Its isolation has preserved this landscape's extensive forest cover, much of it pristine. But nearby highways are making it more accessible, and this has increased pressure not only on its timber resources but also on rare animal species. Hunting is a problem here, including poaching of the sun bear, whose gall bladder is popular in some traditional medicines. The Tri-Border Forest has important cultural and natural attractions, including the Mekong rapids, Si Phan Don (4,000 Islands), war relics, and the ancient Khmer Temple Wat Phou, a World Heritage Site.

In 2006, with support from the WWF, the CEP conducted socioeconomic and biodiversity assessments that led to three conservation corridors being identified and mapped in the southern region of the Lao PDR. These totaled 32,000 hectares and connected four protected areas. The CEP piloted integrated conservation and livelihood activities mainly in one corridor, a 11,000-hectare strip connecting the Xe Pian and Dong Hua Sao protected areas, located in Champasak and Attapeu provinces.

This priority corridor is rich in wetland habitats and biodiversity, with natural forest covering 94% of the pilot site and adjacent areas. The area provides an important source of nontimber forest products, which many local people depend on for their livelihood.

Eleven villages (6,678 people) were initially selected for pilot site activities. The villages were chosen because of their high incidence of poverty and a reliance on natural resources for their livelihood. The interventions focused on poverty reduction, land use planning, and forest restoration.

To contribute to poverty reduction, the CEP established 11 VDFs that provided low-interest cash loans to 361 households and trained 654 local people in alternative livelihoods. For example, local people in one corridor village in Champasak were taught how to grow mushrooms indoors. These are now sold in nearby districts and generate significant income. In a village near the Xe Pian protected area, the CEP helped set up ecotourism activities,

↑ The Si Phan Don archipelago, in the Mekong River, Champasak Province, Lao PDR (photo from Shutterstock.com).

Tri-Border Forest

2,002,420 hectares

544,000 people

40% of land in protected areas

13 key biodiversity areas

↑ A woman weaves a basket in Champasak Province, Lao PDR (photo from the EOC).

↗ A large tree in Champasak Province, Lao PDR (photo from the EOC).

such as elephant rides, and built small-scale infrastructure, including classrooms, a medical clinic, a tourist information center, and an ecolodge for tourists.

The CEP supported land use planning and mapping by the Lao PDR's National Land Management Authority to determine village boundaries and help clarify land tenure for villagers. About 150 land use certificates were issued to households. Forest restoration measures included establishing demonstration plots for agroforestry and enrichment planting and setting up tree and shrub nurseries, managed by locals. About 475 hectares of degraded forestland were replanted, and forest protection was enhanced by 78 village teams trained to patrol corridor forest areas and wetlands.

Since 2011, the Biodiversity Conservation Corridors Project has been scaling up the CEP's pilot work in this landscape.

Achievements

+ Identified and mapped 30,000 hectares of biodiversity corridors and improved forest connectivity in 11,000 hectares.
+ Contributed to poverty reduction for 6,000 people.

The Biodiversity Conservation Corridors Project

One of the biggest achievements of the Core Environment Program (CEP) to date has been the leveraging of $94 million in loans and grants to scale up the program's biodiversity conservation corridors. The Biodiversity Conservation Corridors Project, administered by the Asian Development Bank (ADB), has been operating in Cambodia, the Lao People's Democratic Republic (Lao PDR), and Viet Nam since 2011. It is funded by ADB, the Global Environment Facility, and the Strategic Climate Fund. In the Lao PDR, the project is working in the provinces of Attapeu, Champasak, and Sekong, core areas of the Tri-Border Forest transboundary landscape. The project's progress in the Lao PDR illustrates the influence of the CEP's pilot work:

+ $32.8 million funding
+ 352,939 hectares of biodiversity corridors
+ Provincial decrees issued to protect the corridors
+ 67 villages involved
+ 67 forest patrolling teams
+ 67 village development funds, benefiting 1,136 people
+ 848 households given livelihood improvement training
+ 3,400 hectares reforested
+ 65 village-level infrastructure projects completed or underway

Source: Author.

Tenasserim Mountains

"Since we established the corridor, wildlife has increased and migration has improved for [the] gaur, tiger, elephant and other species. The key to this success has been the participation of local people."

Songtam Suksawang, director of the National Parks Office, Ministry of Natural Resources and Environment, Thailand

The Khwae Noi River, in Sai Yok National Par, Kanchanaburi Province, Thailand (photo from Shutterstock.com).

The Tenasserim Mountains extend 1,700 kilometers between Myanmar and Thailand. The mountain chain, which has about 6 million hectares of forest, is one of the largest and most intact natural landscapes in the GMS. It is home to many important and endangered species, including the Asian elephant and tiger, as well as 20 other medium-sized and large mammals.

In Thailand, most parts of the Tenasserim landscape (the Western Forest Complex) is protected; the Myanmar side, although isolated and in good condition, is largely unprotected. In Thailand, two of the Western Forest Complex's important protected areas are connected by a dwindling, narrow strip of forest. From 2007 to 2011, the CEP and Thailand's Department of National Parks, Wildlife and Plant Conservation created a 70-kilometer-long biodiversity corridor to improve forest connectivity between them, starting at the southern tip of Sai Yok National Park and ending at the northern border of Maenam Phachi Wildlife Sanctuary.

Initial assessments showed that this 66,700-hectare corridor—home to 20 villages (12,453 people)—faces a wide range of threats, including plantations, tourism, housing developments, illegal forest use, mining, and poorly managed fishing and livestock raising. Many of the people living in the corridor have limited access to land for agriculture, and depend upon the forest and its products to support their livelihoods.

Pilot site activities were implemented with support focused on poverty reduction, land use planning and management, and the restoration and maintenance of ecosystems. Poverty reduction initiatives included VDFs established for the corridor's 20 villages. The CEP provided $112,000 in seed capital to set up these funds. The program created new conservation-based employment opportunities, such as nurseries for seedling production in four villages. More than 1,000 local people were involved in livelihood training in, among other things, producing and marketing herbal toiletries.

The CEP organized village meetings to create participatory land use zoning plans for the corridor; these were divided into maintenance zones, natural-regeneration zones, human-made restoration zones, and sustainable-use zones. The restoration work included 280 hectares of planted trees and 603 check dams built to better manage water flows during the rainy season.

Although the CEP's pilot work in the Tenasserim Mountains finished in 2011, the Government of Thailand is using its own resources to continue the pilot corridor activities. Based on the Tenasserim experience, the government developed a national plan to scale up the biodiversity-corridors approach in 21 other forest complexes in the country. So far, 176 corridors have been identified, and work on them has initial government funding of $500,000.

Achievements

+ Created more sustainable management of 66,700 hectares.
+ Contributed to poverty reduction for 4,438 people.
+ Influenced a national master plan for biodiversity corridors.
+ Influenced a cabinet resolution to support the biodiversity corridors approach.

Cardamom and Elephant Mountains

Located in southwest Cambodia and extending into eastern Thailand, the Cardamom and Elephant Mountains is one of the subregion's most species-rich areas. It is home to many endangered mammals and birds, and its forest habitat includes vast tracts of wet evergreen forests and coastal mangroves.

In 2006, with support from the Wildlife Alliance, Conservation International, and Fauna & Flora International, the CEP mapped out 936,522 hectares of biodiversity corridors to pilot integrated conservation and development activities. The corridor areas provide important habitat links with four protected areas, but hunting, agricultural expansion, and tourism have affected the areas' biodiversity. Other, more localized threats include mining, illegal logging, and hydropower.

The CEP's pilot activities in the corridor were carried out from 2006 to 2009. They focused on 20 villages in 8 communes, in Koh Kong Province, and 10 villages in Kompong Speu and Pursat provinces, all in Cambodia. The pilots focused on poverty reduction, land use planning and management, and ecosystem restoration.

Poverty reduction measures in the Cardamom Mountains included improving agricultural practices, such as paddy restoration, and using the System of Rice Intensification method to increase yields. Ecological chicken farming and composting were introduced. Community-based ecotourism (boating and trekking) was set up in two communes to open up new livelihood opportunities.

One of the ecosystem restoration projects was the establishment of a pilot restoration tree nursery on the outskirts of Chi Phat commune, where locals created a stockpile of 675,000 seeds. Over 1,300 hectares of corridor land was reforested. In total, 13 small-scale infrastructure projects were completed, including the construction of wells, community meeting halls, and ecotourism facilities. Since 2011, the Biodiversity Conservation Corridors Project has been building on CEP's pilot work in the Cardamom Mountains.

In early 2017, the Government of Cambodia issued a *prakas* (subdecree) legally recognizing 1.4 million of biodiversity corridors nationwide.

In 2015, the CEP and Thailand's Department of National Parks began planning biodiversity conservation corridors in the Eastern Forest Complex, on the Thailand side of the Cardamom landscape. This is the biggest remaining area of forest in northeastern Thailand, and a hugely important watershed for the country. Tourism, land conversion, and poaching are among the many threats facing the Eastern Forest Complex. Here, the focus is on a 260,000-hectare area in four eastern provinces. It contains five national parks and three wildlife sanctuaries. More than 468 species have been recorded there, including large elephant populations. Habitat loss near the protected areas is a big worry, and one result of this has been a sharp rise in conflicts between elephants and farmers. Through biodiversity and socioeconomic assessments, the CEP and the Department of National Parks identified and mapped five biodiversity conservation corridors connecting eight protected areas. Fourteen communities and 900 households live in these corridors. Ecosystem-based vulnerability and adaptation assessments were carried out in 2016 to help understand the impacts of climate change on these corridors and to find solutions. Work is ongoing to develop a corridor management and implementation plan.

↑ Bang Kayak mangrove forest, in Koh Kong Province, Cambodia (photo from Shutterstock.com).

Achievements

+ 1.4 million hectares of biodiversity corridors in Cambodia given legal recognition and now are under better protection, including 170,000 hectares in the Cardamom Mountains.
+ Leveraged $27 million in additional financing for scaling up the biodiversity corridor approach in Cambodia.
+ Contributed to poverty reduction for 6,400 people.
+ Initiated five new corridors in Thailand's Eastern Forest Complex.

Eastern Plains Dry Forest

The Eastern Plains Dry Forest landscape is in Cambodia's east, extending into Viet Nam, and has the last remaining tropical and subtropical dry broadleaf forests in the GMS. The area is famous for its large mammals, many of which are endangered. These include Asian elephants, gaur, bantengs, tigers, and clouded leopards. Shifting cultivation, mining, hydropower, and illegal logging have reduced biodiversity in the Eastern Plains Dry Forest.

In 2006, with support from WWF and the Wildlife Conservation Society, the CEP established a 108,000-hectare biodiversity conservation corridor connecting four protected areas in Cambodia's Mondulkiri Province. Pilot activities focused on 13 villages in seven communes, and were carried out from 2006 to 2009. The interventions focused on poverty reduction, land use planning and management, and ecosystem restoration.

Poverty reduction projects included support to establish a wild honey product line, which directly benefited 46 families. Agricultural initiatives contributed to livelihood improvements; these included training in rice farming and poultry, frog, and fish raising. A savings and loan scheme set up in two villages provided direct support to more than 320 families, and a homestay and bird-watching ecotourism initiative provided much-needed income in two villages.

The CEP's land use planning and management efforts included setting up 12 natural resource management committees in seven communes. These committees gained government recognition, and were successful in involving community members in the management and regulation of land use. Government-signed conservation agreements for community natural resource management were drawn up for two communes, covering nearly 5,000 hectares.

Since 2011, the Biodiversity Conservation Corridors Project has been building on the CEP's pilot work in this landscape and have significantly expanded the corridor coverage.

📷↑ Elephants at a rescue center in Mondulkiri Province, Cambodia (photo from the EOC).

📷→ A fisherman on the Nam Song River at dusk, Vang Vieng, Lao PDR (photo from the EOC).

Achievements

+ 1.4 million hectares of biodiversity corridors given legal recognition and now under better management, including 500,000 hectares in Mondulkiri and Kratie provinces, in Cambodia.
+ Leveraged $27 million in additional financing for scaling up the biodiversity corridor approach in Cambodia.
+ Contributed to poverty reduction for 6,500 people.

Chapter Four

Building a Knowledge Hub

Across the GMS, innovative initiatives are testing practical ways to improve environmental sustainability. However, the potential of these initiatives to exert an influence beyond projects to policy, for instance, are limited unless their information, lessons, and best practices are systematically mined, packaged, and disseminated.

The CEP is well-placed in the GMS to source and share the latest environmental management practices. Not only does the program have its own large portfolio of work in the six countries to draw upon, it also has ready access to a wide range of resources on the environment, including those of government agencies, nongovernment organizations, and ADB.

The CEP's Environmental Operations Center (EOC) had begun evolving into a regional knowledge hub on environmental management by 2012, when the program's second phase was initiated. The aim was to connect decision-makers and planners from across the GMS with more up-to-date and comprehensive information and knowledge. Since then, the EOC has steadily fulfilled this role.

In late 2012, the EOC launched a new website to be the hub of its knowledge work. The website went far beyond only promoting the CEP's portfolio; it also included statistics and map databases, and an online library hosting the latest environment news, events, and knowledge resources from across the GMS. A tools section was added to further assist planners. It features content such as the United States Agency for International Development's ecosystem service calculator and Southeast Asia START's climate model.

In 2015, the online GMS Information Portal was created to enable better functionality and to cope with the increasing content being added to the website. An online newsletter was published to more actively share the best content from the portal to over 10,000 environment stakeholders in the GMS and beyond. The portal and newsletter systematically aggregate and share GMS government knowledge resources and news. These were often overlooked in the past because of more readily available information from the media and development organizations. During the same year, the CEP also helped the Government of Myanmar build a national environment information portal.

In the 10 years since its launch, the CEP has stepped up its capacity building and knowledge exchange activities, such as workshops and symposiums. So far, the CEP's more than 500 regional and national knowledge events have brought together over 19,000 government officials and development professionals. These events include subregional forums on transboundary landscape management, natural capital, and payments for environmental services, to name just a few areas. Many of these events led to increased collaboration among participants on environmental issues.

The CEP's oversight body, the Working Group on Environment (WGE), is central to the program's knowledge exchange and learning opportunities. Its membership of senior environment officials are well placed to influence national agendas and priorities. The group gets together at the WGE annual and semiannual meetings. Both these meetings include thematic knowledge events where officials can share experiences and learn from each other in an informal setting. The CEP provides many more opportunities for the working group to participate in other regional and international events that can deliver important learning opportunities.

Since its inception, the CEP has mined its own projects to generate knowledge resources and tools for further use in the subregion. These included guidelines and training modules for assessing climate vulnerability and improved tools for spatial planning. To leverage their use, the CEP developed regional learning networks to bring together international experts and national practitioners. So far, the CEP has produced 82 publications and six films to share the program's knowledge and experiences.

Today, the EOC is widely recognized as an important knowledge hub in the GMS and beyond.

"The CEP plays a very important role in information sharing, and as a center for excellence for the subregion."

Sao Sopheap, director of cabinet, Ministry of Environment, Cambodia

The GMS Information Portal

http://portal.gms-eoc.org

- 50 statistical indicators
- 200 publications
- 10 tools
- 28 GIS datasets
- 1,500+ news items
- 400+ environment event listings

"The CEP offers the convening power and space for environment ministries to engage with each other."

Tracy Farrell, vice president, strategy and fundraising, Asia-Pacific Division, Conservation International

Key Results

+ Built regional awareness of environmental challenges, opportunities, and solutions.
+ Strengthened the environmental management capacity of 19,000+ stakeholders through more than 500 subregional and national knowledge events.
+ Established the EOC as a well-regarded knowledge hub on environment.
+ Facilitated greater collaboration on environment across sectors and countries through the GMS Working Group on Environment.

Next Steps

Enhancing the EOC as a knowledge hub will continue to be a major pillar of the program. Under its third phase, which begins in 2018, more resources and new initiatives are planned for generating and sharing knowledge. These include platforms on sustainable infrastructure and green technologies, natural resources and ecosystem services, and expanded learning networks, including on climate adaptation. The CEP also aims to develop its national support units into centers of excellence on these and other environmental topics to add value to the EOC's subregional focus.

82 CEP publications and six films produced

ARTICLE GMS

BUILDING A KNOWLEDGE HUB

Stimulating Knowledge Exchange Between Countries

The GMS countries share many common environmental challenges, and each country is testing solutions to suit its national priorities and contexts. This creates fertile ground for the six countries to exchange experiences and ideas. Sometimes, the spark for a country to try new approaches can be created simply by bringing people together to inspire and learn from each other, as is happening in the GMS.

The CEP provides many such opportunities through its knowledge events for environmental officials and development experts. The CEP network now includes many partners from throughout the subregion who have forged close working relationships with each other over the years.

The Working Group on Environment's annual meeting in 2015 is a good example of how this spirit of sharing and cooperation is working. At the meeting, Viet Nam made a presentation on the successful pilot of its national Payments for Forest Environmental Services (PFES) scheme. Under this scheme, more than half a million rural people receive cash payments from hydropower and water utility companies for patrolling and monitoring forest watersheds.

Inspired by the presentation, Cambodia's Working Group on Environment coordinator, Khieu Borin (*pictured above*), approached his counterpart from Viet Nam, Kim Ngoc, to learn more. In 2016, and with CEP support, Borin organized a national workshop on payments for ecosystem services (PES), which was attended by representative of ministries and development organizations. The momentum for PES has since gathered steam in Cambodia, with government plans underway to trial PES for important watersheds in Sihanoukville and Siem Reap provinces, and possibly to develop a national policy. This example shows that good ideas can catch on due to the willingness of GMS countries to exchange their experiences and knowledge.

→ Rural landscape at dusk, Cao Bang Province, Viet Nam (photo from Shutterstock.com)

ARTICLE GMS

BUILDING A KNOWLEDGE HUB

Building Partnerships Across the Subregion

In 2015, the CEP organized the 4th GMS Environment Ministers' Meeting in Nay Pyi Taw, Myanmar, with the theme "Increasing Investments in Natural Capital." The event highlighted the important role the CEP plays in forging partnerships for environmental sustainability solutions.

As well as formal meetings, thematic knowledge events were organized and served as venues for government officials to meet business leaders, representatives of youth organizations, and development experts from the GMS. One forum explored ways for government agencies and local communities to work together to protect transboundary biodiversity landscapes. In another forum, 30 executives met representatives from government, business associations, and development organizations to identify opportunities in the GMS for companies to meet the objectives of the triple bottom line of people, planet, and profits.

At another event, young people from the six GMS countries met officials to discuss the vital role the youth can play in promoting better protection of the environment and sustainable use of the subregion's natural capital. The perspectives from these events were brought together at the Natural Capital Dialogue, the meeting's main knowledge event. A key knowledge input to the dialogue was the CEP's report *Investing in Natural Capital for a Sustainable Future in the Greater Mekong Subregion*. More than 20 development organizations, including ADB, United Nations agencies, and government agencies contributed their expertise to the report.

At the 4th GMS Environment Ministers' Meeting, the voices of youth, business, and development partners reached national environment leaders through statements. The meeting raised the profile of approaches to maintain and protect natural capital in the subregion, and influenced national initiatives, for example, Viet Nam's natural capital partnership and online platform (www.naturalcapital.vn), which was supported by the CEP.

Greater Mekong Subregion Core Environment Program
10 Years of Cooperation

This publication was compiled to celebrate the first 10 years of the Greater Mekong Subregion Core Environment Program (CEP). It provides an overview of the environment issues the program has worked on, as well as its solutions, achievements, and future priorities. The articles and stories featured within aim to highlight the CEP's work, using the voices and perspectives of its partners and beneficiaries.

About the Asian Development Bank

ADB is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. Established in 1966, it is owned by 67 members—48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

About the Core Environment Program

The Core Environment Program (CEP) supports the Greater Mekong Subregion (GMS) in delivering environmentally friendly economic growth. Anchored on the ADB-supported GMS Economic Cooperation Program, the CEP promotes regional cooperation to improve development planning, safeguards, biodiversity conservation, and resilience to climate change—all of which are underpinned by capacity building. The CEP is overseen by the environment ministries of the six GMS countries and implemented by the ADB-administered Environment Operations Center. Cofinancing is provided by ADB, the Global Environment Facility, the Government of Sweden, and the Nordic Development Fund. Past cofinancing support was provided by the Government of Finland and the Government of the Netherlands.

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