



Technical Assistance Report

Project Number: 53390-001
Knowledge and Support Technical Assistance (KSTA)
December 2019

Greater Mekong Subregion Climate Change and Environmental Sustainability Program

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Asian Development Bank

CURRENCY EQUIVALENTS

(as of 30 November 2019)

Cambodia

Currency unit	–	riel (KR)
KR1.00	=	\$0.00025
\$1.00	=	KR4,065

Lao People's Democratic Republic

Currency unit	–	kip (KN)
KN1.00	=	\$0.00011
\$1.00	=	KN8,867

Myanmar

Currency unit	–	kyat (MK)
MK1.00	=	\$0.00066
\$1.00	=	MK1,507

People's Republic of China

Currency unit	–	yuan (CNY)
CNY1.00	=	\$0.14219
\$1.00	=	CNY7.033

Thailand

Currency unit	–	baht (B)
B1.00	=	\$0.03308
\$1.00	=	B30.225

Viet Nam

Currency unit	–	dong (D)
D1.00	=	\$0.00004
\$1.00	=	D23,203

ABBREVIATIONS

ADB	–	Asian Development Bank
CEP	–	Core Environment Program
GHG	–	greenhouse gas
GMS	–	Greater Mekong Subregion
SDG	–	Sustainable Development Goal
TA	–	technical assistance
WGE	–	Working Group on Environment

GLOSSARY

adaptation	–	an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities
climate resilience	–	capacity for a socio-ecological system to (i) absorb stresses and maintain function in the face of external stresses imposed upon it by climate change; and (ii) adapt, reorganize, and evolve into more desirable configurations that improve the sustainability of the system, leaving it better prepared for future climate change impacts
climate-smart landscapes	–	landscapes that operate on the principles of integrated landscape management, while explicitly incorporating adaptation and greenhouse gas mitigation into their management objectives

NOTE

In this report, "\$" refers to United States dollars.

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CONTENTS

	Page
KNOWLEDGE AND SUPPORT TECHNICAL ASSISTANCE AT A GLANCE	
I. INTRODUCTION	1
II. ISSUES	1
III. THE TECHNICAL ASSISTANCE	4
A. Impact and Outcome	4
B. Outputs, Methods, and Activities	4
C. Cost and Financing	5
D. Implementation Arrangements	6
IV. THE PRESIDENT'S DECISION	7
APPENDIXES	
1. Design and Monitoring Framework	8
2. Cost Estimates and Financing Plan	11
3. List of Linked Documents	12

KNOWLEDGE AND SUPPORT TECHNICAL ASSISTANCE AT A GLANCE

1. Basic Data		Project Number: 53390-001
Project Name	Greater Mekong Subregion Climate Change and Environmental Sustainability Program	Department/Division SERD/SEER
Nature of Activity Modality	Capacity Development, Policy Advice Regular	Executing Agency Asian Development Bank
Country	REG (CAM, LAO, MYA, PRC, THA, VIE)	
2. Sector		ADB Financing (\$ million)
✓ Agriculture, natural resources and rural development	Agricultural policy, institutional and capacity development	0.80
	Forestry	1.50
	Land-based natural resources management	0.90
	Rural flood protection	0.80
	Water-based natural resources management	1.00
	Total	5.00
3. Operational Priorities		Climate Change Information
✓ Addressing remaining poverty and reducing inequalities		Climate Change impact on the Project Low
✓ Accelerating progress in gender equality		
✓ Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability		ADB Financing
✓ Promoting rural development and food security		Adaptation (\$ million) 2.50
✓ Strengthening governance and institutional capacity		Mitigation (\$ million) 2.00
✓ Fostering regional cooperation and integration		
Sustainable Development Goals		Gender Equity and Mainstreaming
SDG 1.5, 1.b		Effective gender mainstreaming (EGM) ✓
SDG 2.4		
SDG 5.5		
SDG 6.3, 6.5		Poverty Targeting
SDG 7.2		General Intervention on Poverty ✓
SDG 9.1		
SDG 13.a		
SDG 15.1, 15.2		
4. Risk Categorization Complex		
5. Safeguard Categorization Safeguard Policy Statement does not apply		
6. Financing		
Modality and Sources		Amount (\$ million)
ADB		5.00
Knowledge and Support technical assistance: Climate Change Fund		3.00
Knowledge and Support technical assistance: Technical Assistance Special Fund		2.00
Cofinancing		0.00
None		0.00
Counterpart		0.00
None		0.00
Total		5.00
Currency of ADB Financing: US Dollar		

I. INTRODUCTION

1. In 2018, the environment ministers of the countries in the Greater Mekong Subregion (GMS) endorsed the Greater Mekong Subregion Core Environment Program Strategic Framework and Action Plan.¹ Building on the success of phases 1 and 2 of the Core Environment Program (CEP), the knowledge and support technical assistance (TA) aims to support the implementation of the action plan. The TA will create enabling conditions to generate knowledge and leverage investments in (i) climate and disaster resilience and low carbon transitions, (ii) natural resources and ecosystem services, and (iii) green technologies and financing.²

2. The TA is strongly aligned with Strategy 2030 operational priorities of the Asian Development Bank (ADB), including (i) tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability; and (ii) fostering regional cooperation and integration.³ It is also aligned with other operational priorities such as addressing remaining poverty and reducing inequities, accelerating progress in gender equality, promoting rural development and food security, and strengthening governance and institutional capacity. The TA is included in the country operations business plans of the GMS countries.⁴ The TA will help GMS countries implement nationally determined contributions under the Paris Agreement on Climate Change and the United Nations Sustainable Development Goals (SDGs), especially SDG 2, SDG 5, and SDG 13.⁵ Through enhancing capacities and enabling policies, demonstrating innovative activities, and catalyzing private sector opportunities, the TA will help develop climate-friendly projects in the GMS regional investment framework and help the GMS realize its overarching vision of an integrated, prosperous, and equitable subregion.⁶

II. ISSUES

3. **Depletion of natural assets and decline in environmental quality.** Economic growth and prosperity of GMS countries are largely dependent on intensive use of the subregion's abundant natural resources.⁷ However, the subregion is rapidly depleting its natural assets such as land, forest, water, and wetlands; and ecosystem services and environmental quality are declining. Degradation of the environment and destruction of infrastructure caused by extreme weather events result in capital losses and erode development gains in production, market linkages, employment generation, livelihoods, and social and gender equity. Further, a decline in ecosystem services, including a regulatory or buffering role against natural hazards, increases vulnerability to climate change and disasters.

¹ ADB. 2018. [Greater Mekong Subregion Core Environment Program Strategic Framework and Action Plan, 2018–2022](#). Manila.

² The GMS countries initiated the CEP in 2006 with the objective of mainstreaming environment and climate resilience in the GMS Economic Cooperation Program.

³ ADB. 2018. [Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific](#). Manila.

⁴ ADB. 2019. *Country Operations Business Plan: Cambodia, 2020–2022*. Manila; ADB. 2019. *Country Operations Business Plan: Myanmar, 2020–2022*. Manila; ADB. 2019. *Country Operations Business Plan: Thailand, 2020–2022*. Manila; ADB. 2019. *Country Operations Business Plan: Lao People's Democratic Republic, 2020–2022*. Manila; and ADB. 2019. *Country Operations Business Plan: Viet Nam, 2020–2022*. Manila.

⁵ United Nations Framework Convention on Climate Change. 2015. *Synthesis of intended nationally determined contributions as communicated by Parties*. Bonn.

⁶ ADB. 2017. Greater Mekong Subregion Economic Cooperation Program: Regional Investment Framework 2022. Manila. The TA first appeared in the business opportunities section of ADB's website on 18 October 2019.

⁷ ADB. 2018. [Greater Mekong Subregion Core Environment Program Environmental Performance Assessment, 2006–2016](#). Manila.

4. **Increase in climate change vulnerability and greenhouse gas emissions.** Nearly 41% of climate-induced disasters since 2000 occurred in the Asia and Pacific region, more than in any other region in the world. Cambodia, Myanmar, Thailand, and Viet Nam have been identified among the 10 most vulnerable countries in the world to climate change.⁸ Adverse impacts of climate change and transboundary climate risks in the GMS on rural infrastructure, communities, and ecosystems are projected to be severe. In Thailand and Viet Nam, for example, ADB has projected climate change to reduce rice yields by 50% and gross domestic product by 7% by 2050 if no concerted actions are taken.⁹ Greenhouse gas (GHG) emissions per capita in the GMS have more than doubled since 2001 and are increasing at a faster rate than in any other region, because of growing dependence on fossil fuels to meet energy and transport demands and continuing deforestation and land use changes. Indeed, GMS countries identified deforestation and land-use change, coupled with increasing energy use in agriculture, industry, and transportation, as the main factors for rising GHG emissions in the subregion (footnote 5).

5. **Degradation of natural landscapes and growing pollution.** The deterioration of natural resources and environmental quality has reduced GMS economies' resilience to climate risks. Natural asset losses in the GMS are valued at 10%–12% of annual gross domestic product.¹⁰ Fragmentation and degradation of habitats and landscapes, exacerbated by climate change, increase such losses. Habitat fragmentation can reduce biodiversity by 13%–75% and impair essential ecosystem functions and services by decreasing biomass and altering nutrient cycles.¹¹ Degradation of landscapes is especially rampant in border areas because of cross-border illegal exploitation of forest resources and population movements along porous borders. Transboundary approaches for landscape management, which consider physical features of the landscape along with internal and external socioeconomic and sociopolitical drivers that affect land and natural resource use, are critical to address challenges that extend beyond traditional administrative boundaries. Likewise, the push for industrial development and agricultural intensification has significantly increased air, water, and soil pollution. Exposure to air and water pollution costs about 9 million lives annually, mostly in developing Asia.¹² Fertilizers, pesticides, and sediment are the main sources of agricultural pollutants that degrade and contaminate soil, groundwater aquifers, and surface water; and directly impact the food chain. In addition, unsustainable management of waste (food waste, e-waste, and plastic waste) throughout value chains contribute to high levels of pollution in ecosystems, with adverse impacts on human health.

6. **Low adoption of innovative technologies and financing deficits.** Low technical know-how, limited adoption of climate-resilient and low carbon technologies, and limited funding have contributed to resource-use inefficiencies and vulnerabilities across GMS value chains. The GMS, more than other regions, lacks consistent and comprehensive information on using innovative technologies to address climate change and environmental sustainability, and institutions that can facilitate technology transfer. Further, current levels of investments in green infrastructure and technologies in GMS are well below the needs, and available financing to address climate and disaster risks is also extremely limited. The Association of Southeast Asian Nations Catalytic Green Financing Facility, established in April 2019, aims to mobilize \$1 billion to provide loans and necessary TA for sovereign green infrastructure projects such as sustainable transport, clean energy, and resilient water systems.

⁸ D. Eckstein, S. Kreft, and I. Melchior. 2016. *Global Climate Risk Index: Who Suffers Most from Extreme Weather Events? Weather Related Loss Events in 2015 and 1996–2015*. Bonn: Germanwatch.

⁹ ADB. 2017. *A Region at Risk: The Human Dimensions of Climate Change in Asia and the Pacific*. Manila.

¹⁰ ADB. 2015. *Investing in Natural Capital for a Sustainable Future in the Greater Mekong Subregion*. Bangkok.

¹¹ N. M. Haddard. 2015. Habitat fragmentation and its lasting impact on Earth's ecosystems. *Science Advances*. 1 (2).

¹² United Nations Environment. 2019. *Global Environment Outlook 6*. Nairobi.

7. Regional cooperation in the GMS is critical to address the challenges in (i) promoting enabling policies and regulatory frameworks; (ii) strengthening capacities of diverse stakeholders, including the private sector; and (iii) demonstrating advanced technologies and financing instruments. Effective management of climate change and environmental risks to communities, assets, and supply chains will also require innovative partnerships, with a focus on project incubation and scaling up, strategic planning and policy advice, and knowledge support. Regional cooperation is also crucial in adopting integrated solutions that bring together actions aimed at resilience building, GHG mitigation, and environmental sustainability.

8. The CEP phases 1 and 2, combined with the efforts of the other development partners, provide a sound basis for further promoting subregional cooperation on environmental knowledge sharing and dialogue; climate and environmental policy initiatives and analytical work for better governance, efficiency, and equity; and the search for potential climate change and environmental management transactions and inputs to prepare project concept papers and flagship knowledge products. Key achievements under CEP Phase 1 (2006–2011) included implementing a flagship project—the Biodiversity Conservation Corridors Initiative—to identify and protect core biodiversity areas under threat and improve the environmental planning capacity of GMS countries through conducting strategic environmental assessments.¹³ In Phase 2 (2012–2019), the CEP expanded assistance to cover broader landscape and planning support for economic corridors, environmental impact assessments, and land use modeling; reduce carbon dioxide emissions in road freight; and provide solutions to build climate resilience of rural communities.

9. Under both phases, the CEP has facilitated regional knowledge exchange and learning by working closely with ADB sector and country operational teams; agriculture, energy, and transport agencies in the GMS countries; and development partners.¹⁴ While CEP was credited with generating transformative effects in enhancing multisector multi-stakeholder engagement across the GMS, further work is needed to better integrate environmental and climate change considerations into development planning and investment projects to achieve an environmentally friendly and climate-resilient GMS Economic Cooperation Program.¹⁵

10. The GMS Working Group on Environment (WGE), at its 24th annual meeting in April 2019 in Kunming, People’s Republic of China, prioritized six themes and sought support from ADB and other development partners.¹⁶ The priorities include (i) building climate and disaster resilience; (ii) facilitating low carbon transitions; (iii) promoting climate-smart landscapes; (iv) enhancing environmental quality through pollution control and sustainable waste management; (v) deploying digital technologies for climate actions and environmental sustainability; and (vi) financing low-carbon and climate-resilient infrastructure and technologies, including demonstrating climate and disaster risk financing instruments.

¹³ ADB. 2005. [Core Environment Program and Biodiversity Conservation Corridors Initiative in the Greater Mekong Subregion](#). Manila.

¹⁴ ADB. 2018. [Greater Mekong Subregion Core Environment Program 10 Years of Cooperation](#). Manila.

¹⁵ ADB. 2018. [Core Environment Program and Biodiversity Conservation Corridors Initiative in the Greater Mekong Subregion Performance Evaluation Report](#). Manila.

¹⁶ GMS CEP. 2019. [Record of Discussion of the 24th Annual Meeting of the GMS Working Group on Environment](#). Kunming. The GMS WGE consists of senior government officials from the environment ministries of each of the six GMS countries. The WGE, under the framework of the GMS program, sets the strategic direction and provides inputs for implementation of GMS CEP Strategic Framework and Action Plan. WGE reports to the GMS ministers at the GMS ministerial meetings and the GMS summit. The organizational and reporting structure of GMS and WGE is in Appendix 4 of the GMS CEP Strategic Framework and Action Plan (footnote 1).

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

11. The TA is aligned with the following impact: climate compatibility and environmental sustainability of economic growth in the GMS improved (footnote 1). The TA will have the following outcome: climate resilience, green growth, and environmental quality in the GMS enhanced.¹⁷

B. Outputs, Methods, and Activities

12. The TA will take a holistic approach and enhance ADB's value addition by promoting high-level technologies, novel knowledge products, and integrated solutions. The TA will also support enabling policies to support private sector investments. By thoroughly assessing how each GMS country is responding to various challenges, the TA will deliver three outputs, while minimizing risks encountered in past and ongoing efforts, and drawing upon lessons and good practices from similar efforts in other countries.¹⁸

13. **Output 1: Climate and disaster resilience enhanced, and low carbon transitions facilitated.** This output will help countries accelerate adaptation and disaster risk reduction efforts through (i) creating a gender-responsive policy platform on climate and disaster resilience to support implementing national adaptation plans and national disaster risk reduction plans; (ii) strengthening government staff capacity to mainstream climate and disaster resilience in planning and to climate-proof infrastructure investments in priority vulnerable sectors such as agriculture, water resources, and transport; and (iii) supporting gender-responsive and socially inclusive studies on community- and ecosystem-based adaptation and disaster risk management initiatives, including early warning systems, to scale them up in larger investments. The TA will assess the role of indigenous adaptation practices and opportunities in enhancing community and ecosystem resilience and blending them with modern technologies. The TA will also (i) document lessons learned from activities implemented in GMS countries; (ii) study global and regional good practices; and (iii) demonstrate new or modified approaches and document lessons learned from them. The TA, in close cooperation with the private sector, will facilitate low carbon transitions through (i) identifying policies and measures to effectively implement climate investment plans for agriculture, energy, and transport, which are aligned with nationally determined contributions; (ii) strengthening capacities for monitoring, reporting, and verifying climate actions; and (iii) conducting demonstrations on low carbon agriculture and green freight, while exploring transactions in greening the tourism sector.

¹⁷ The design and monitoring framework is in Appendix 1.

¹⁸ As short-term investment priorities tend to override long-term environmental sustainability concerns, the TA will extend assistance to and involve planning and finance ministries, in addition to environmental ministries. As government interest in borrowing to address climate change and environmental issues is still limited in the GMS, the TA team will proactively collaborate with the private sector to increase its awareness of climate and environmental risks to long-term sustainability. Because of declining overseas development assistance for environmental protection in the GMS, especially by development partners that were involved in previous phases, the TA team will mobilize resources from a broader network of potential funding sources, including ADB's own trust funds. Building capacities of the GMS countries to effectively use environmental assessment, planning, and management tools is a long-term process that would require considerable additional resources and commitment by national development agencies. While the program's past focus on knowledge sharing and capacity building will continue, future efforts need also to focus on field demonstrations to strengthen technical and institutional capacities and assess options to create an enabling policy environment to mobilize and de-risk private sector investments.

14. **Output 2: Climate-smart landscapes promoted and environmental quality enhanced.** Aligned with the objectives of the United Nations Decade of Landscape Restoration 2021–2030 and the ADB Oceans Financing Initiative, this output will strengthen regulations and build capacities to adopt landscape approaches in managing natural resources, enhancing ecosystem services, and improving environmental quality.¹⁹ The sub-output on promoting climate-smart landscapes will deploy nature-based solutions to manage at least three transboundary landscapes through (i) improving land use management systems; (ii) designing innovative compensation mechanisms for ecosystem services and reducing emissions from deforestation and forest degradation; and (iii) enhancing the capacity of institutions and communities, including women and other vulnerable groups, in integrated landscape management through targeted training workshops on landscape conservation, forest fire management, and natural regeneration of forests assisted by communities. The sub-output on enhancing environmental quality through pollution control and waste management will (i) build institutional capacities for strategic environmental planning, environmental quality data management, and guidelines on air, water, and soil pollution control and remediation; (ii) provide policy support for implementing a circular economy and waste management; and (iii) conduct detailed studies and prepare concept papers for investments to address air and water pollution, including plastics.

15. **Output 3: Green technologies and financing instruments demonstrated.** This output will promote the use of innovative technologies and financing instruments in close collaboration with the private sector. The sub-output on deploying advanced technologies for climate action and environmental sustainability will identify good practices for strengthening technology policies and demonstrate the application of high-level digital technologies such as the Internet of Things,²⁰ artificial intelligence, robotics, and drones for (i) monitoring climate actions, (ii) monitoring and managing pollution, (iii) managing forests sustainably, and (iv) implementing early warning systems to facilitate adaptation. It will enhance capacities of communities, public institutions, and the private sector to use digital technologies. The sub-output on demonstrating innovative climate and disaster risk financing instruments will (i) assess enabling conditions to deploy innovative financing instruments, and access environmental finance through national entities, in partnership with international organizations and the private sector; (ii) demonstrate climate and disaster risk financing instruments (e.g., blended finance, community resilience credit lines, and insurance); and (iii) strengthen the capacity of financial institutions to support green technologies and infrastructure.

C. Cost and Financing

16. The TA is estimated to cost \$5.0 million, of which (i) \$2.0 million will be financed on a grant basis by ADB's Technical Assistance Special Fund (TASF 6); and (ii) \$3.0 million will be financed on a grant basis by the Climate Change Fund.²¹ The six GMS governments will provide counterpart support in the form of counterpart staff, office space, and other in-kind contributions. Based on the TA's progress and needs, additional funds may be provided annually or in alternate years, including from cofinancing sources and ADB-administered trust funds. The key expenditure items are listed in Appendix 2.

¹⁹ ADB. 2019. [ADB Oceans Financing Initiative: Accelerating Blue Investments in Asia and Pacific](#). Manila.

²⁰ The Internet of Things is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

²¹ Established by ADB: \$1.5 million from adaptation window and \$1.5 million from land use window of the fund.

D. Implementation Arrangements

17. ADB will administer the TA.²² The Southeast Asia Department through its Environment, Natural Resources and Agriculture Division will implement the TA in collaboration with the GMS WGE and the GMS Secretariat at ADB. Staff from resident missions will be closely involved in the implementation and invited to selected WGE meetings. In each GMS country, WGE focal point and a national government staff will oversee the implementation of all TA activities, through a letter of intent, with support from the consulting team. ADB will select, supervise, and evaluate consultants and provide staff to act as resource persons in the workshops. Consultants will screen all activities to ensure minimal or no adverse social or environmental impacts as per the ADB Safeguards Policy Statement (2009). Engagement of consultants and procurement of goods and equipment will follow the ADB Procurement Policy (2017, as amended from time to time) and its associated project administration instructions or staff instructions. Any goods and assets procured will be turned over or disposed following ADB procedures.

18. The TA will publish knowledge products, including gender-specific reports, targeted at government officials, researchers, and development partners for the WGE annual meetings and environment ministers' meetings. The TA will publish a limited number of copies of selected reports in English and the local language, as needed. The TA will develop climate change and environment information portals and the GMS secretariat will maintain them at the GMS website.²³ The TA will create online communities on social media platforms and deactivate these online communities within 3 months after the TA completion date. The implementation arrangements are summarized in the table.

Implementation Arrangements

Aspects	Arrangements		
Indicative implementation period	April 2020–March 2025		
Executing agency	Asian Development Bank		
Implementing agencies	Southeast Asia Department, Environment, Natural Resources and Agriculture Division, in collaboration with the GMS Working Group on Environment		
Consultants	To be selected and engaged by ADB		
	Firms (up to three): Quality- and cost-based selection (90:10)	International: 66 person-months National: 200 person-months	\$2,120,000
	Individual: Thematic coordinators (up to three), administrative assistant (one), and resource persons	International: 20 person-months National: 30 person-months	\$420,000
Disbursement	The TA resources will be disbursed following ADB's <i>Technical Assistance Disbursement Handbook</i> (2010, as amended from time to time). Disbursement of fund sources will be pro-rated.		

ADB = Asian Development Bank, GMS = Greater Mekong Subregion, TA = technical assistance.
Source: Asian Development Bank.

19. **Consulting services.** ADB will engage the consultants following the ADB Procurement Policy (2017, as amended from time to time) and its associated project administration instructions

²² In the event that the TA scope includes any activity that may trigger the optional provisions on pilot testing of project approach under TA operations, the TA will comply with applicable requirements for pilot testing of project approach.

²³ The GMS website is at <https://greatermekong.org/>.

or staff instructions.²⁴ The TA will engage consulting firm(s) for \$2.12 million using quality- and cost-based selection (90:10) to provide 66 person-months of international inputs and 200 person-months of national inputs in climate change, environmental science, economics, public policy, and related areas. The TA-financed consultants will procure works and goods, if any, for demonstration activities under the guidance of WGE focal points, in accordance with the ADB Procurement Policy (2017, as amended from time to time) and the Procurement Regulations for ADB Borrowers (2017, as amended from time to time).

IV. THE PRESIDENT'S DECISION

20. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$5,000,000 on a grant basis for the Greater Mekong Subregion Climate Change and Environmental Sustainability Program, and hereby reports this action to the Board.

²⁴ Terms of Reference for Consultants (accessible from the list of linked documents in Appendix 3). Output-based and lump sum contracts will be considered for consulting services where appropriate, with the concurrence of the Procurement, Portfolio and Financial Management Department of ADB.

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
3. Green technologies and financing instruments demonstrated	<p>By 2025:</p> <p>3a. At least 100 staff (30% women) acquire the capacity to select and test digital technologies for climate action and environmental sustainability (2019 baseline: 0)</p> <p>3b. At least two demonstrations on digital technologies tested in partnership with the private sector (2019 baseline: 0)</p> <p>3c. At least two innovative and gender-responsive environmental and/or disaster risk financing instruments demonstrated (2019 baseline: 0)</p>	3a–3c. Progress reports	
<p>Key Activities with Milestones</p> <p>1. Climate and disaster resilience enhanced and low carbon transitions facilitated (Q2 2020–Q3 2024)</p> <p>1.1 Climate and disaster resilience enhanced (sub-output 1)</p> <p>1.1.1 Establish a GMS-wide gender-responsive policy platform on climate and disaster resilience as a partnership mechanism to operationalize the national adaptation plans and attract private sector participation by Q4 2020.^c</p> <p>1.1.2 Conduct gender-responsive and socially inclusive studies on community-based adaptation and disaster risk management and ecosystem-based adaptation.</p> <p>1.1.3 Provide targeted training on climate proofing rural infrastructure, early warning systems, and disaster risk management.</p> <p>1.2 Low carbon transitions facilitated (sub-output 2)</p> <p>1.2.1 Provide policy support for implementing nationally determined contributions in agriculture, forestry and land use, and energy and transport sectors.</p> <p>1.2.2 Conduct gender-responsive and socially inclusive studies to promote the higher uptake of low carbon technologies, including green freight,^d in partnership with the private sector.</p> <p>1.2.3 Organize capacity building events targeting government officials, small and medium-sized enterprises, and commercial banks to catalyze public–private partnerships in agricultural and transport mitigation initiatives.</p> <p>2. Climate-smart landscapes promoted and environmental quality enhanced (Q2 2020–Q3 2024)</p> <p>2.1 Climate-smart landscapes promoted (sub-output 1)</p> <p>2.1.1 Provide policy and strategic planning support for integrated and inclusive landscape management in areas of land-use planning, REDD+, and community-based forest management.</p> <p>2.1.2 Demonstrate landscape-based solutions with climate and livelihood benefits, reflecting the differential needs and roles of males and females, and design investment projects for inclusion in the GMS RIF.</p> <p>2.1.3 Strengthen the capacity on payment for ecosystem services, REDD+, and other innovative financing mechanisms for sustainable landscape management.</p>			

<p>2.2 Environmental quality through pollution control and waste management enhanced (Sub-output 2)</p> <p>2.2.1 Provide policy and planning support on strategic environment assessment; environmental quality standards; economic instruments; and guidelines on air, water, and soil pollution control.</p> <p>2.2.2 Conduct gender-responsive and socially inclusive studies to develop GMS RIF investments on rural waste management and pollution control.</p> <p>2.2.3 Organize knowledge events to strengthen institutional and technical capacities on circular economy and sustainable waste management.</p> <p>3. Green technologies and financing instruments demonstrated (Q4 2020–Q1 2025)</p> <p>3.1 Digital technologies for climate action and environmental sustainability deployed (sub-output 1)</p> <p>3.1.1 Identify and prioritize advanced technologies to support mitigation and adaptation, pollution monitoring, and sustainable forest management.</p> <p>3.1.2 Conduct gender-responsive demonstrations on select technologies to test transferability, applicability, and viability.</p> <p>3.1.3 Strengthen capacity of public institutions, communities, and private sector to facilitate uptake of digital technologies.</p> <p>3.2 Innovative climate and disaster risk financing instruments demonstrated (sub-output 2)</p> <p>3.2.1 Assess enabling policy conditions to deploy innovative financing instruments and access environmental finance.</p> <p>3.2.2 Design and test innovative disaster risk financing instruments and other financing options relevant for sustainable infrastructure and uptake of green technologies.</p> <p>3.2.3 Build capacity of financial institutions and the private sector to preferentially support green infrastructure and reduce financial risks from climate change impacts.</p> <p>Other Activities</p> <p>Convene WGE annual meetings.</p> <p>Organize GMS environment ministers' meetings.</p> <p>Report periodically to WGE and development partners (annual reports).</p> <p>Develop impact stories and knowledge products, including gender-specific knowledge products, from demonstrations and capacity building workshops.</p>
<p>Inputs</p> <p>ADB: \$2.0 million (TASF 6) and \$3.0 million (Climate Change Fund)</p> <p>Note: The governments of GMS countries will provide counterpart support in the form of counterpart staff, office space, and other in-kind contributions.</p>
<p>Assumptions for Partner Financing</p> <p>Not Applicable</p>

ADB = Asian Development Bank, GMS = Greater Mekong Subregion, Q = quarter, REDD+ = reducing emissions from deforestation and forest degradation in developing countries, RIF = regional investment framework, TA = technical assistance, TASF = Technical Assistance Special Fund, WGE = Working Group on Environment.

^a ADB. 2018. [Greater Mekong Subregion Core Environment Program Strategic Framework and Action Plan, 2018–2022](#). Manila; and ADB. 2019. [Operational Plan for Priority 3 of Strategy 2030: Tackling Climate Change, Building Climate and Disaster Resilience, and Enhancing Environmental Sustainability](#). Manila.

^b The average among all participating developing member countries is 30%.

^c Gender-responsive policy platform duly considers differentiated needs of men and women in climate change adaptation and disaster risk management.

^d Green freight is aimed at reducing climate and health impacts of transport of goods.

Source: Asian Development Bank.

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Amount		Total
	ADB ^a	Climate Change Fund ^b	
A. Consultants			
1. Remuneration and per diem			
a. International consultants	700.0	920.0	1,620.0
b. National consultants	360.0	560.0	920.0
2. Out-of-pocket expenditures			
a. International and local travel	40.0	80.0	120.0
b. Reports and communications ^c	10.0	10.0	20.0
c. Miscellaneous administration and support costs ^d	15.0	30.0	45.0
B. Printed external publications	15.0	30.0	45.0
C. Goods (rental or purchase) ^e	20.0	50.0	70.0
D. Training, seminars, and conferences ^f	250.0	400.0	650.0
E. Demonstrations, studies, and surveys	420.0	840.0	1260.0
F. Contingencies	170.0	80.0	250.0
Total	2,000.0	3,000.0	5,000.0

ADB = Asian Development Bank, TA = technical assistance.

Note: The technical assistance is estimated to cost \$5.0 million, of which contributions from the Asian Development Bank and Climate Change Fund are presented in the table. The governments of the Greater Mekong Subregion countries will provide counterpart support in the form of counterpart staff, office space, and other in-kind contributions.

^a Financed by the Asian Development Bank's Technical Assistance Special Fund (TASF 6).

^b Administered by the Asian Development bank.

^c Includes publication-related costs (e.g., editing, layout, proofreading, and printing costs) of knowledge products. Limited print copies will be prepared and disseminated to training and/or workshop participants from the GMS and development partners.

^d Includes other administration and logistics costs. In recognition of valuable contributions made by partner organizations in the conduct of the event(s), representation expenses for meals and plaques and/or trophies may be provided.

^e Includes computers, drones, geographic information systems and modeling software, global positioning systems equipment, and environmental quality monitoring equipment.

^f Includes airfare, hotel accommodations, honoraria, daily subsistence allowance, miscellaneous travel expenses, and land transport for participants and resource persons, as well as related expenses of ADB staff as resource persons, and travel and related costs for secretariat and administrative support services. It also includes costs for venue rental, workshop kits, documentation, interpreters, photographers, and welcome reception.

Source: Asian Development Bank estimates.

LIST OF LINKED DOCUMENTS

<http://www.adb.org/Documents/LinkedDocs/?id=53390-001-TARreport>

1. Terms of Reference for Consultants

Supplementary Document

2. Sub-Output Descriptions