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STRATEGIC COUNTRY CLUSTER EVALUATION OF THE LOWER MEKONG RIVER BASIN ECOSYSTEM

(Prepared by the Independent Evaluation Office of the GEF)

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ACRONYMS LIST

ADB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
ASCC	ASEAN Socio-Cultural Community
BDS	Basin development strategy
CAWA	Climate Change Adaptation in Wetlands Areas
CCA	Climate change adaptation
CCM	Climate change mitigation
CDP	Carbon disclosure project
CEO	Chief executive officer
CF	Community forest
CIP	Commune investment plan
CLIP	Community livelihood improvement plan
CPA	Community protected areas
CPMU	Central project management unit
DIM	Direct implementation modality
DDF	District development fund
DIP	Development investment plan
EbA	Ecosystem-based adaptation
EbM	Ecosystem-based management
EU-SUPA	European Union's Sustainable Use of Peatland and Haze Mitigation in ASEAN
FAO	Food and Agriculture Organization of the United Nations
FGD	Focus group discussion
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	Greenhouse gases
GIS	Geographic information system
GMS	Greater Mekong subregion
GMS-FBP	Greater Mekong Subregion Forest and Biodiversity Program
IEO	Independent Evaluation Office
IFAD	International Fund for Agricultural Development
INRM	Integrated natural resource management
IPLC	Indigenous peoples and local communities
IUCN	International Union for Conservation of Nature
IWRM	Integrated water resources management
JICA	Japan International Cooperation Agency
JRC	Joint research centre
KFW	German Development Bank
KII	Key informant interview
LDCF	Least Developed Countries Fund
LMRB	Lower Mekong River basin
MAFF	Ministry of Agriculture, Fisheries, and Forestry
MARD	Viet Nam Ministry of Agriculture and Rural Development
MB	Mekong Basin
MEF	Ministry of Environment and Forests
METT	Monitoring and Evaluation Tracking Tool
MFA	Multifocal area
M&E	Monitoring and evaluation
MoE	Ministry of Environment
MoHA	Ministry of Home Affairs
MoNRE	Ministry of Natural Resources and Environment
MOWRAM	Ministry of Water Resource and Meteorology
MPI	Ministry of Planning and Investment
MRB	Mekong River Basin
MRB-IF	Mekong River Basin indicator framework

MRBS	MRC's Basin Development Strategy
MRC	Mekong River Commission
MTR	Mid-term review
NAPA	National adaptation programme of action
NbS	Nature-based solutions
NCDD	National Committee for Sub-National Democratic Development
NGO	Nongovernmental organization
NMCS	National Mekong Committee Secretariat
NPA	National protected area
OECD-DAC	Organization for Economic Co-operation and Development's Development Assistance Committee
PDO	Project development objective
PES	Payment for environmental services
PIR	Project implementation report
PMU	Project management unit
RBM	Results-based management
R2RB	Ridge to River Basin conceptual framework for this project
R2RBE	Ridge to River Basin ecosystem
REDD+	UN Program on Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
RG	Rapid gender assessment
SCCF	Special Climate Change Fund
SDG	Sustainable Development Goal
SEA	Strategic environmental assessment
SFM	Sustainable forest management
SLM	Sustainable Landscape Management
SMART	Specific, measurable, achievable, relevant, and time-bound
SNCF	Subnational climate fund
SOBR	State of the Basin Report
STAP	Scientific and Technical Advisory Panel
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
USD	United States Dollar
VN	Viet Nam
VRA	Vulnerability reduction assessment
WCS	Wildlife Conservation Society
WDPA	World Database on Protected Areas

Executive Summary

1. Since its inception, the Global Environment Facility (GEF) has provided financial support to protect and conserve terrestrial, marine, and freshwater ecosystems; adapt to and mitigate climate change; reduce land degradation; and reduce chemical waste throughout the Greater Mekong Subregion (GMS). This evaluation is a strategic country cluster evaluation of the Lower Mekong River Basin (LMRB).
2. The LMRB's productive and interlinked socioecological landscapes are fundamental for ensuring continued regional food security and local livelihoods. However, many of the region's political economies are incongruent with the United Nations Sustainable Development Goals (SDGs) and, as a result, this has led to increasing levels of waste and other negative externalities. This results in an uncoupling of interconnected hydrological networks, which in turn reduces the continued provision of vital ecosystem services and damages the integrity of the river's ecosystem for present and future generations. These threats are further compounded by changing climate scenarios that are increasing extreme weather events such as floods and droughts, which imperil regional food security, potable water supplies, and the future resilience of social, economic, and natural capital.
3. In light of these challenges, this evaluation was conducted to understand the impact of the GEF's support for and approach to addressing the challenges related to land degradation, hydrological connectivity, climate impacts, and biodiversity losses across the Mekong River basin's international waters. It also examines the degree to which the GEF contributed toward building social, economic, and ecosystem resilience in the LMRB and sustaining good practices and other outcomes. The evaluation's conceptual and analytical framework specifically focuses on the degree to which the GEF has contributed toward transformative changes and socioecological resilience across rural landscapes (typically linked to climate change) within the diverse hydrological networks that connect Cambodia, Lao People's Democratic Republic, and Viet Nam to the LMRB.
4. The evaluation's approach integrates the assessment of biodiversity conservation, integrated water resource management, and sustainable land and water management, which are fundamental for ensuring the resilience of productive landscapes. These provide evidence-based knowledge and good practices to help guide more coherent policy instruments, institutional arrangements, and decision-making tools that explicitly recognize the interdependency between human well-being and the resilient ecosystems that underpin human development.
5. The evaluation used a mixed-methods approach, drawing on a combination of evidence from 28 completed and ongoing projects, and primary data collection and field visits to assess the extent to which (a) GEF support at the country and regional levels has delivered on outcomes and impacts over time; (b) country-level programs and projects are aligned and consistent with the broader regional objectives over time; and (c) GEF agencies and executing partners have generated and used data, evidence, and learning in development and continuous improvement of various projects supported by the GEF.
6. GEF project financing across GEF replenishment periods 4, 5, 6, and 7 to finance the selected 28 projects totalled \$109,909,304. Overall, the GEF cofinancing ratio stood at 1:9. The selected projects addressed four of GEF's specific focal area strategies—biodiversity, climate change, international waters, and land degradation—as well projects that were designed to address issues that were best addressed by the multifocal area (MFA) framework. MFA projects accounted for the largest share (40 percent) of the relevant GEF portfolio in the LMRB followed by climate change (28 percent), international waters (21 percent), biodiversity (8 percent), and land degradation (3

percent). UNDP and FAO were the primary Implementing Agencies for the largest number (UNDP) and size (FAO) of project financed by the GEF over the years.

Key Findings of the Evaluation

Relevance

FINDING 1: All projects not only provided support to partner countries plans, strategies, and policies but also to regional bodies.

7. GEF projects were designed to add unique additional value through coherence, complementarity with other donors, and pragmatic and innovative approaches that not only addressed some of the most urgent issues in rural areas for the three countries, but also provided solutions to multiple LMRB challenges highlighted by regional bodies.

8. The findings also highlight GEF's unique added value of incorporating people-oriented approaches to improve project implementation. The focus on vulnerable groups, particularly women, indigenous people, and other marginalized groups (the poorest in the communities) helped lay a foundation in which governments, NGOs, and the private sector could potentially sustain some of the forward-looking investments stand out as distinctive achievements of GEF projects.

FINDING 2: The GEF has been an important and early contributor to several regional initiatives with ASEAN and the MRC.

9. The GEF was one of the first grant agencies to support efforts to confront major regional challenges by: i) addressing the loss of the LMRB's ecosystem regulatory and functional capacities; ii) demonstrating good SLM through more sustainable agroecological practices; iii) creating transboundary biodiversity and forestry linkages; and iv) supporting the ASEAN Peatland Management Strategy (APMS) 2006-2020.

10. The GEF has continued to address these major challenges more recently through creating enabling environments for transboundary cooperation and action to strengthen forest, biodiversity corridors and climate resilience; freshwater resource management and ecosystem health in bi-national river basins; and water security in the Mekong River Delta Transboundary Aquifer. It also has played an important role in promoting regional cooperation through two major peatlands projects, creating a network of protected peatland ecosystems in LMRB countries, which is in line with Aichi targets to increase awareness, while supporting surveys and economic valuations of priority peatlands.

FINDING 3: GEF project objectives were closely aligned and balanced with national priorities to reduce vulnerability of rural communities, including indigenous peoples, women, and other marginalized groups.

11. GEF funding responds to plans submitted by national partners; consequently, all GEF-supported projects addressed national priorities and were consistent with target-country climate change adaptation and SLM strategies aimed at reducing vulnerability of rural communities and achieving environmental and conservation goals. Most projects addressed specific vulnerabilities at local (community) levels by targeting the four main LMRB challenges identified in this report: a) promotion of ecosystem-based solutions for sustainable forests and wetlands management; b) strengthening biodiversity; c) promoting climate-resilient measures at community level that reduced vulnerability and enhanced livelihoods; and d) strengthening institutional and community capacities, especially engaging and empowering women in specific areas of ecosystem management and ecosystem-based adaptation (EbA).

FINDING 4: Project designs lacked guidelines for applying conceptual management tools such as ecosystem-based adaptation (EbA), ecosystem-based management (EbM), and failed to provide appropriate indicators to measure their effectiveness.

12. Projects that included a climate adaptation component attempted to build climate-resilient watersheds through EbA practices and EbM at the landscape level with nature-based solutions (NbS) to restore and maintain forest cover and watershed stability functions, while providing for sustainable livelihoods and ecosystem services. However, only a handful of these sufficiently integrated cross-cutting issues and knowledge sharing to afford a reasonable degree of protection for adjacent, but interconnected ecosystems whose functions could contribute to the resilience of target areas.

13. Conceptual management approaches like SLM, EbM, and EbA are not panaceas for the world's environmental problems, and unless they are applied by Implementing Agencies and Executing Agencies according to internationally accepted definitions and guidelines, they are unlikely to meet their full potential in the GEF context. Nonetheless, project designs failed to define these conceptual tools clearly and provide guidelines and indicators to test and measure their effectiveness. There is no evidence that any project measured the effectiveness of these approaches, nor adapted them as needed to context-specific realities on the ground.

Effectiveness

FINDING 5: Fewer than half of the projects, including GEF-7 projects, were adequately designed to measure the effectiveness of GEF support.

14. The performance of projects with poorly designed results frameworks—i.e., lacking causative results-chains leading to development impacts, lacking robust assumptions, missing baselines, and weak (nonSMART) outcome indicators as well as weak M&E systems, which limited the systematic application of adaptive management principles—were consistently rated as being below satisfactory. While several projects developed baselines and innovative metrics for measuring the effectiveness of the interventions, few M&E systems were sufficiently robust to drive adaptive learning for developing corrective actions to put the project back on track to meet its objectives. The effectiveness of M&E implementation, especially participatory monitoring, evaluation, and learning (MEL), was closely associated with a project's achievement of satisfactory or higher rating. One common characteristic of an effective project was the degree to which its results framework contributed toward applying adaptive management principles, thereby allowing for adjustments to help meet its expected objectives and outcomes as required throughout implementation.

FINDING 6: The most effective interventions were those whose design coupled long-term resilience building with immediate social and short-term economic outcomes and good technical backstopping.

15. The most effective interventions were those that were designed and implemented to couple long-term resilience building (e.g., ecosystem restoration), sustainable irrigation infrastructure, governance that engaged women and other marginalized groups, and enhanced capacities to implement new conceptual planning and operational tools (e.g., EbA, EbM, SLM) delivering immediate social and economic benefits (e.g., improved communal and family well-being, more equitable sharing of ecosystem services under substantial future environmental changes, improved family incomes). Packaging short-term benefits with longer-term interventions also enabled the inclusion of vulnerable households. While many of these transformative changes included a broad range of good practices and/or lessons for maintaining, restoring, and/or improving the resilience the

decades-old fragmentation of the LMRB's diverse ecosystem functions and services, the magnitude and spatial scales of those contributions in producing transformational change were limited.

FINDING 7: Few good local transformative outcomes were replicated or scaled up beyond their target areas and they were seldom mainstreamed to help strengthen policy coherence.

16. In most cases, lessons, good practices, institutional arrangements, and other outcomes were mainstreamed into development policies, strategies, and plans at the lowest operational levels. For example, half of the projects that offered good examples of transformative social, eco-systemic, and economic changes at the local levels (i.e., provincial, district, and communal/village) applying nature-based solutions (e.g., EbA, EbM, SFM, integrated water management practices) were mainstreamed into local development strategies and plans. However, these outcomes were rarely scaled up or extended to the national level. Exceptions were found for those cases when the timing of the GEF projects filled a needed gap for national priorities (e.g., climate change adaptation in Cambodia and the prioritization of a protected area in Viet Nam) or when there was interest by other donors to add value in the form of a grant or a large loan. However, good outcomes were rarely, if ever, scaled up and replicated outside the target areas. Furthermore, few projects were adequately designed to support evidence-based policy coherence options at multiple levels, or to promote equitable governance that could help take the voices of local people and stakeholders to high-level, central government—the decision makers.

FINDING 8: While local ownership of GEF projects was usually strong, with few exceptions, central-government ownership was weak, as was interest by the MRC in testing and replicating good practices that were pertinent to five-year action strategies.

17. Weak national-level ownership was an issue in over half the projects, and it may help explain the limited uptake of effective GEF project outcomes as evidence-based inputs for improving policies. However, this is a symptom that likely reflects deeper root causes of this finding, including project designs that paid insufficient attention to strengthening institutional ownership at the highest levels and developing innovative mechanisms for transferring, replicating, and scaling up effective local-level good practices at the national level.

FINDING 9: Most projects did not collect the necessary time-series information for evaluating the outcomes and effectiveness of area-based interventions, and the indicators used to measure progress towards area-based targets were insufficient.

18. Few projects employed quantitative indicators for measuring spatial changes in land use before, during, and after project implementation to measure effectiveness of different management approaches to achieve their ultimate area-based targets (e.g., conservation goals, EbA, or resilience building for socioecological landscapes). Instead, most projects focused on measuring inputs or outputs that provided only one link of causative results chains, or qualitative indicators (e.g., improved management) that are otherwise impossible to quantify.

19. Although GEF support to national and regional biodiversity focal area projects resulted in improved protected-area management effectiveness mainly focused on improving intersectoral governmental institutions' management capacities, they lacked quantitative metrics (e.g., SMART outcome indicators) for measuring the effectiveness of investments in equally important social and economic incentives, learning from implementation (via adaptive learning) to help sustain good results.

FINDING 10: The combination of institutionalizing good outcomes, local-level beneficiaries' appropriation of triple bottom-line impacts, adaptive learning, and the availability of sustainable financing mechanisms and or/exit strategies were key ingredients for sustaining GEF investments.

20. Most of the projects rated as moderately likely to be sustained shared several common ingredients: i) appropriation of multidimensional, holistic approaches that incorporated cross-cutting issues (e.g., social and economic incentives, integrated ecosystem-based management, gender equity, and sustainable financing mechanisms); ii) mainstreaming and institutionalizing key aspects of effective outcomes and good practices into evidence for local-level (provincial, districts, and communal) policies and/or strategies; iii) public and communal financial sustainability mechanisms (e.g., community payments schemes for water usage, revolving funds, and small funding support from local government included in project designs (rarely); and iv) continued support from NGOs or other donor investments. Partner countries allocated national funds to sustain GEF projects in less than a quarter of cases examined in this evaluation. NGOs or donor investments that continued building on the GEF's original model, especially for water resource-related projects, added considerable value (e.g., solar and wind-powered water pumps, water testing and treatment).

21. Barriers to sustaining GEF investments included weak ownership at the central levels, the poor performance record of replicating and scaling up good outcomes at the local levels, and the general absence of sustainable financing mechanisms and exit strategies in project designs.

Additionality and catalytic effects

FINDING 11: Many of the projects added unique value in which transformational changes resulted in catalytic effects.

All projects contributed in one way or another toward additionality. Their highest achievements were related to specific environmental additionality, as well as socioeconomic and innovation additionality where transformational changes resulted from achieving project outcomes.

Conclusions

Conclusion 1: The GEF is well positioned to continue contributing to transformative changes in collaboration with partner countries and regional organizations and to scale-up solutions that address the major challenges within the LMRB. More work needs to be done to achieve triple bottom-line impacts (social, economic, and environmental) and link them to improve policy coherence.

22. GEF-supported interventions have all contributed in one way or another toward transformative changes in natural resource management practices at the local level. GEF contributions demonstrating good practices at local levels include:

- (a). Building social, ecological, and economic resilience within hydrologically and interconnected, biodiverse landscapes through integrated watershed planning and participatory management interventions to restore and maintain forest cover and improve wetlands and protected-area resilience;
- (b). Improving access to water resources for irrigation and drinking, while providing solutions to address landscape fragmentation and improving family health with cleaner water supplies; and

- (c). Reducing social and ecological system (SES) vulnerability to extreme climate events by improving SES resilience through nature-based and physical infrastructure solutions. This has also reduced vulnerability by strengthening livelihood systems through agroecological and diversified farming activities and reducing pressure on wild river species with aquaculture and through communal forestry practices. Women have been empowered to adopt climate-resilient livelihoods through short-term incentives and in some cases, sustainable financing mechanisms.

Conclusion 2: GEF projects have addressed the loss of globally and regionally important biodiversity by integrating conservation with sustainable agriculture, aquaculture, forestry, and improved environmental management.

23. All GEF-supported projects reviewed for this evaluation addressed national and regional priorities, strategies and plans related to ecosystem-based climate change adaptation and sustainable landscape management for reducing the vulnerability of rural communities in LMRB countries. The diverse interventions aimed to protect water-catchment production and storage systems, carbon sequestration, and other ecosystem services that are critical for maintaining resilient socioecological systems.

Conclusion 3: GEF project objectives were closely aligned with national priorities, with a focus on reducing the vulnerability of rural communities, particularly indigenous peoples, women, and other marginalized groups.

24. Most projects prioritized the engagement of women and indigenous people in decision making at the local level and in implementing nature-based climate change adaptation initiatives. These actions improved food and water security, reduced wasted time traveling long distances to collect water, improved family health, and built ecosystem resilience to climate change. This process also improved beneficiaries' capacities to implement climate adaptation tools in globally and regionally important landscapes.

Conclusion 4: Despite good examples of transformative changes and ownership at the local levels, few projects were mainstreamed to improve policy coherence at the national level or replicated or scaled up beyond the target areas. Projects lacking good technical support and backstopping performed poorly in those cases where central-level capacity was weak.

25. With few exceptions, there was limited central government involvement in GEF projects and limited institutional support mechanisms that were capable of transferring, replicating, or scaling up good practices and positive outcomes observed at the local level into improved policies at the regional and national levels. In addition, as most of the GEF projects are planned with decentralized structures at local (district or province) level, their outcomes depend largely on how the central government channels the GEF's funds to planned activities at the lowest practical levels for implementation. Project performance was invariably affected by the lack of timely access to technical and financial support for implementation as well as the lack of availability of long-term sustainable financing mechanisms.

Conclusion 5: After over two decades of support to the LMRB, the design of recently approved projects lacks coherent theories of change, results frameworks, SMART indicators, and monitoring and evaluation (M&E) systems capable of driving adaptive learning to allow for corrective action.

26. Just over half of the projects were founded on coherent theories of change and results frameworks, while few M&E systems were sufficiently robust to drive adaptive learning to take corrective action for a project's path toward its objectives. Monitoring systems to assess progress on a timely basis and inform adaptive course correction and learning were frequently weak and

subjective, and annual project implementation reports did not promote timely adaptive management. When issues were identified, it was often too late to make the adjustments needed to put a project back on the path to meeting its objectives.

Conclusion 6: Conceptual approaches promoting ecosystem-based management were frequently missing clear definitions and guidelines on implementation. In addition, they were not holistic, as they seldom integrated broader scales of interconnected upstream and downstream ridge-to-river basin ecosystems.

27. Most projects focused on activities in the specific target areas stipulated in the project document. Rarely were other interconnected upstream or downstream ecosystems taken into consideration, despite their potential importance as drivers of target-area resilience (e.g., water recharge and storage, critical habitat for the completion of life cycles of globally important species). However, several projects discovered midway or late in their implementation process that these ecosystems are vital for the resilience and well-being of human and ecological systems in the intervention areas.

Conclusion 7: Considerable knowledge is available for addressing ecological, economic, and social drivers that affect the MRB's resilience. However, with some exceptions, many of the good outcomes and lessons produced by multilateral, bilateral, and regional entities, as well as lessons from almost three decades of GEF support, remain compartmentalized. This impedes the collective action required for testing and scaling up good approaches for addressing the most urgent LMRB challenges effectively.

28. Despite the wealth of reports and other communication products, the systematization and translation of available knowledge into good practice is absent. This has prevented good outcomes from being tested in other areas and poor ones from being eliminated. This has also resulted in the impacts of ecosystem-based approaches, ecosystem-based management, sustainable land management, and other initiatives being localized as the projects failed to integrate them with evidence-based, central-level policy. The limited sharing of good practices has manifested in (1) the absence of exit strategies and adoption of good examples of sustainable financing mechanisms, especially the scaling up of good practices with the private sector; (2) the repetition of weak project designs; and (3) the limited mainstreaming of good outcomes into regional toolboxes for testing and implementation in different national and sociocultural contexts.

Recommendations

Recommendation 1: The GEF should coordinate with partner LMRB countries, other multilaterals, bilaterals, and regional bodies (e.g., the Mekong River Commission [MRC], the Association of Southeast Asian Nations [ASEAN]) on the strategic regional priorities of the MRC's basin development strategy. This could be achieved through various GEF programs and projects with a coordination component.

Recommendation 2: To support longer-term sustainability, the GEF Secretariat and agencies should design and implement mechanisms for testing, replicating, and scaling up successful local outcomes and mainstream them at the national level. This would include dissemination of good practices and working in close coordination with local, provincial, and central governments to broaden and sustain the impacts of GEF investments.

Recommendation 3: The Scientific and Technical Advisory Panel (STAP), in consultation with the GEF, should provide technical advice on internationally agreed-upon definitions and guidelines for implementation of ecosystem-based conceptual approaches and management tools (e.g., ecosystem-based adaptation, ecosystem-based management, nature-based solutions, ridge to river basin) to

support consistent understanding and implementation on the ground. Future GEF projects should include robust theories of change and indicators that measure the effectiveness of these conceptual approaches and management tools.

INTRODUCTION

1.1 Evaluation purpose, scope, and objectives

29. The Independent Evaluation Office (IEO) of the Global Environment Facility (GEF) has undertaken a series of strategic country cluster evaluations (SCCEs) to ascertain its strategy-wide impacts. This evaluation is the first to be conducted in the Lower Mekong River Basin (LMRB).

30. The LMRB's productive and interlinked socioecological landscapes are fundamental for ensuring continued regional food security and local livelihoods. However, many of the region's political economies are incongruent with the United Nations Sustainable Development Goals (SDGs) and, as a result, this has led to increasingly negative externalities and wastes resulting from high throughput.¹ This results in an uncoupling of interconnected hydrological networks which, in turn, reduces the continued provision of vital ecosystem services and damages the integrity of the river's ecosystem for present and future generations. These threats are further compounded by changing climate scenarios that are increasing extreme weather events such as floods and droughts, which imperil regional food security, potable water supplies, and the future resilience of social, economic and natural capital.

31. In light of these challenges, this evaluation was conducted to understand the impact of the GEF's support for and approach to addressing the challenges related to land degradation, hydrological connectivity, climate impacts, and biodiversity losses across the Mekong River basin's international waters. It also examines the degree to which the GEF contributed toward building social, economic, and ecosystem resilience in the LMRB and sustaining good practices and other outcomes. The evaluation's conceptual and analytical framework specifically focuses on the degree to which the GEF has contributed toward transformative changes and socioecological resilience across rural landscapes (typically linked to climate change) within the diverse hydrological networks that connect Cambodia, Lao People's Democratic Republic (Lao PDR), and Viet Nam to the LMRB.

32. The evaluation's approach integrates the assessment of biodiversity conservation, integrated water resource management, and sustainable land and water management practices,² which are fundamental for ensuring the resilience of productive landscapes. They provide evidence-based knowledge and good practices to help guide more coherent policy instruments, institutional arrangements (both formal and informal), and decision-making tools that explicitly recognize the interdependency between human well-being and the resilient ecosystems that underpin human development.

1.2 Evaluation criteria, cross-cutting issues, and evaluation questions

33. Drawing on a combination of evidence from completed and ongoing projects and primary data collection, the evaluation aimed to assess the extent to which (a) GEF support at the country and regional level has delivered on outcomes and impacts over time; (b) the country-level programs and projects are aligned and consistent with broader regional objectives over time; and (c) GEF

¹ Throughput is the flow of raw materials and energy from the global ecosystem's sources of low entropy (mines, wells, fisheries, croplands) through the economy, and back to the global ecosystem's sinks for high entropy wastes (atmosphere, oceans, dumps); Daly, H. and J. Farley (2011). *Ecological Economics: Principles and Applications*, Second Edition.

² For example, cutting off the free supply of water that these natural ecosystem factories produce will have serious impacts on both present and future generations.

agencies and executing partners have generated and used data, evidence, and learning in the development and continuous improvement of various projects supported by the GEF.

34. The specific scope of the evaluation was defined as follows:

- (a). **Temporal** – covering a period of GEF projects up to 2022, with a focus on programming cycles GEF 4–7;
- (b). **Thematic** – land-based activities within the ridge to river–basin ecosystem (R2RBE), including multifocal projects (but excluding coastal and/or marine-based support);
- (c). **Geographic** – regional and country-level projects in Viet Nam, Cambodia and Lao PDR; and
- (d). **Strategic** – contribution to the regional action plans for the Mekong River basin.

35. The evaluation focused on the Organization for Economic Co-operation and Development Development's Development Assistance Committee (OECD-DAC) evaluation criteria of relevance, effectiveness, coherence, and sustainability, and an alignment with pertinent international conventions ratified by partner countries and the SDGS, all of which were addressed through the following evaluation questions:

- (a). How has the GEF positioned itself through its portfolio of actions in the region and in the individual countries to be relevant to country and regional priorities? What distinctive competence and/or value does the GEF demonstrate in the area of integrated ridge to river–basin management?³
- (b). To what extent does the evolution of the GEF program at the regional level and in the three countries reflect country and regional priorities, and continuation of priorities from previous programming cycles?
- (c). What outcomes and impacts can be attributed to the interventions at the country and regional levels, particularly resilience outcomes (i.e., transformational changes)?
- (d). How have results frameworks and systematic adaptive management contributed to transformational changes at the regional and national levels?
- (e). To what extent has the GEF contributed to more inclusive governance, as well as strengthened local, regional, and national capacities to sustain the GEF's investments; enabled executing agencies to engage with civil society and the private sector in their respective countries; and developed nature-based resilience solutions for climate change and ecosystem services?
- (f). To what extent have the lessons and recommendations, drawn from GEF-4 to GEF-6 projects and Scientific and Technical Advisory Panel (STAP) guidance, been incorporated in the design of GEF-7 Mekong basin projects, aiming to provide innovative pathways for transforming the resilience of the ecosystem functions that underpin human development?

36. During the examination of these evaluation questions, the evaluation has also sought to gather evidence for the degree to which the project addressed cross-cutting issues, such as inclusive governance (i.e., gender, indigenous peoples and civil society institutions), food security, the integration of interconnected ecosystems in the project design, connectivity, sustainable financing

³ The R2RB conceptual framework takes an integrated geospatial watershed management approach that recognizes the interconnectivity of ecosystems in the highest points of the LMRB down to the Mekong River basin.

mechanisms, engagement with the private sector, ownership, and evidence-based policy responses for driving transformative changes.

1.3 Evaluation framework and methodology

37. Following the inception phase, an evaluation matrix was produced to map the evaluation questions and areas of inquiry, indicators, and data sources to enable the evaluation to address the evaluation questions systematically. This evaluation matrix (found in annex 1) formed the framework of the evaluation and was used to guide the data collection and analysis.

38. Before embarking on project-level data collection and analysis, the evaluation sought to characterize the nature of the support provided by the GEF within the scope of the evaluation, using GEF portal data on financial support to various implementing partners. Given the relatively small portfolio covered within the scope of the evaluation (28 projects – see Annex 1), these projects provided the basis for an initial desk review of available documentation based mainly on midterm and terminal evaluations (see data collection methods below). The purpose of the desk review was to develop an overall understanding of the projects supported by the GEF in the region and identify key themes and lines of enquiry in accordance with the data requirements of the evaluation matrix.

39. The desk review was followed by the selection of a subsample of projects that were then subject to a “deep dive” consisting of more in-depth data collection and analysis through field-based key informant interviews (KIIs) and focus group discussions (FGDs). Table 1 provides a list of the projects selected as candidates for the deep-dive studies.

Table 1: “Deep-dive” sample of GEF projects

Regional / Country	Project name and project reference	Status	GEF Agency	Executing Agencies	Focal area
Regional	9232 Sustainable Peatland Ecosystems Management in Mekong Countries	GEF-6 – Ongoing	International Union for Conservation of Nature (IUCN)	National Government Agencies (Cambodia: Ministry of Environment (<u>MoE</u>); Ministry of Agriculture, Forestry and Fisheries (<u>MAFF</u>)/ Lao PDR: Ministry of Natural Resources and Environment (<u>MoNRE</u>); MYA: Ministry of Environmental Conservation and Forestry), FREDIA, Global Environment Centre	Multifocal area
Lao PDR	5489 Climate Adaptation in Wetlands Areas (CAWA)	GEF-5 – Closed	Food and Agriculture Organization (FAO)	<u>MoNRE</u> , IUCN	Climate change
Lao PDR	4554 (also appears as 4454) Effective Governance for Small Scale Rural Infrastructure and Disaster Preparedness in a Changing Climate	GEF-5 - Closed	United Nations Development Programme (UNDP)	<u>MoNRE</u> - Department of Disaster Management and Climate Change (DDMCC)	Climate change
Cambodia	3404 Promoting Climate-Resilient Water Management and Agricultural Practices	GEF-4 – Closed	UNDP	Ministry of Agriculture, Fisheries and Forestry (<u>MAFF</u>); Ministry of Water Resource and Meteorology (<u>MOWRAM</u>); NGOs and ExCom of 2 pilots provinces	Climate change

Cambodia	4945 Collaborative Management for Watershed and Ecosystem Service Protection and Rehabilitation in the Cardamom Mountains, Upper Prek Thnot River Basin	GEF-5 – Closed	UNDP	Ministry of Agriculture, Forestry and Fisheries (<u>MAFF</u>)	Land degradation
Cambodia	5419 Reducing the Vulnerability of Cambodian Rural Livelihoods through Enhanced subnational Climate Change Planning and Execution of Priority Actions	GEF-5 – Closed	UNDP	Ministry of Environment (<u>MoE</u>)	Climate change
Viet Nam	9265 GEF-AF-Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project (9265)	GEF-6 – Ongoing	World Bank	MPI, MoNRE, Ministry of Agriculture and Rural Development (MARD)	Multifocal Area
Viet Nam	5005 Integrating Biodiversity Conservation, Climate Resilience and Sustainable Forest Management in Trung Truong Son Landscapes of Viet Nam	GEF-5 – Closed	Asian Development Bank	Ministry of Natural Resources and Environment (MONROE)	Biodiversity, climate change, land degradation

1.4 Data collection methods

40. Data collection followed a mixed-methods approach, combining desk review of key documents, KIIs, community discussions and focus groups, and site visits to enable the evaluators to triangulate information and perspectives from multiple sources, drawing on quantitative and qualitative data.

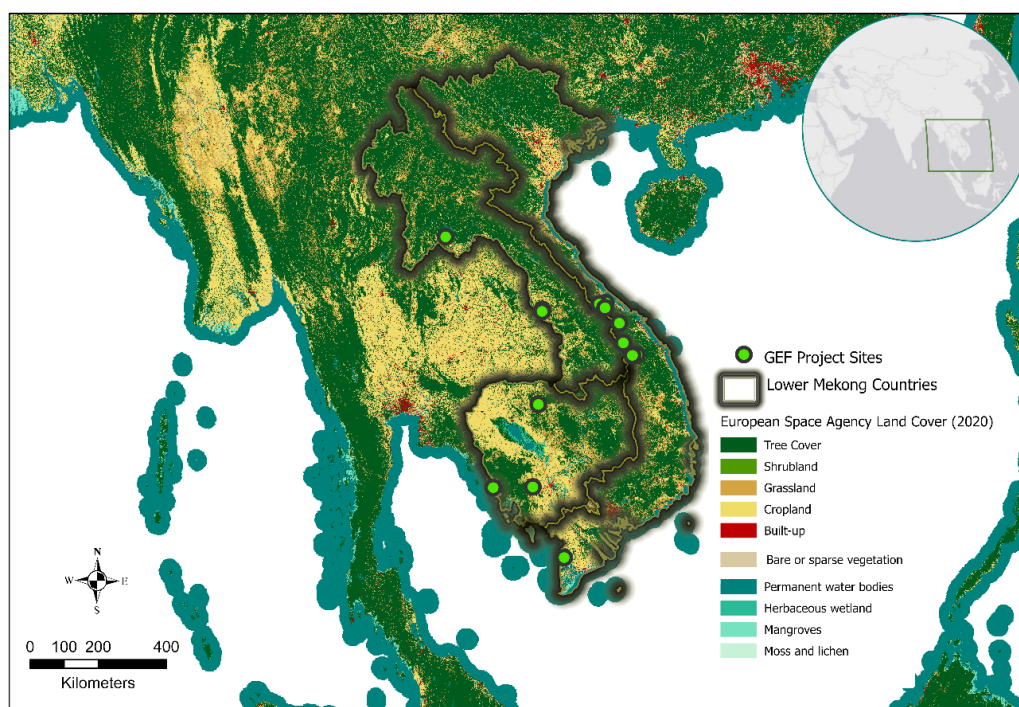
1.4.1 Secondary data collection

41. Secondary data were mainly collected at the project level, as described above. In particular, it comprised a review of project documents, STAP reports, terminal evaluations, and midterm reviews (MTRs), as well as available project implementation reports (PIRs) undertaken by the GEF Agencies in the host countries of the 28 projects selected. The aim of the meta-review was to map the key lessons and significant recommendations in these reports and highlight any pattern emerging from these, using the evaluation matrix as the framework for analysis.

1.4.2 Primary data collection

42. Qualitative data were collected through field visits to eight project sites spanning different provinces in three countries in the Mekong region (Viet Nam, Cambodia, and Lao PDR) where GEF-funded projects have been implemented (Figure 2). Annex 4 provides a description of the field mission schedule, including field team composition, timing, and locations visited in each country. A detailed list of stakeholders consulted is given in annex 3.

Figure 1: Map showing locations of project sites visited by evaluation teams in Viet Nam, Cambodia, and Lao PDR. (Source: GEF IEO, European Space Agency, ESRI basemap)



43. In addition to collecting primary qualitative data through KIIs and FGDs, site visits were conducted during the field mission with the aim of conducting first-hand observations of the quality of the GEF-funded projects and the engagement of beneficiaries and government institutions.

44. In the design and conduct of data collection, the evaluation sought to ensure sensitivity to gender, as well as to indigenous peoples and ethnic minorities in local communities. This included ensuring data disaggregation, considering the sensitivity of interview questions, paying attention to the composition and demographics of the field team, scheduling data collection activities at appropriate times and places for these groups to be able to participate, and using appropriate language and sensitivity to group dynamics within FGDs.

Key informant interviews

45. In-depth stakeholder consultations were held to elicit opinion or explore in more detail specific aspects emerging from the literature review and initial analyses. The evaluation used semi-structured interview tools based on the evaluation questions and judgment criteria. Key stakeholder groups were identified, with key partners providing support to identify individuals and introduce the evaluation. Additional relevant key informants were added through a snowball (also known as chain or network sampling) technique⁴ as the evaluation progressed. Table 2 provides an overview of number of KIIs conducted by country.

Focus group discussions with beneficiaries/ targeted communities

46. A crucial element in the stakeholder consultation process was community and beneficiary interviews and feedback. A sample of beneficiary/target communities was selected in districts and

⁴ Snowball sampling is a nonprobability sampling method that begins with one or more study participants, and then continues on the basis of referrals from those participants. The process continues until the desired sample, or a saturation point is reached.

localities in which the sampled projects were implemented (see annex 4 for locations). The initial target set during the inception phase of the evaluation was to conduct at least 30–40 individual interviews and 4–5 small focus groups with beneficiaries/target communities of the selected projects for deep dive in each country. As shown in Table 2, the evaluation consulted with 220 individuals through 10 focus groups, with an additional 79 individual interviews with beneficiaries; community members; provincial, district, and national government representatives; and nongovernmental organizations (NGOs). A detailed list of stakeholders consulted is provided in annex 3.

Table 2: Overview of stakeholders consulted

Overview on FGD and KII respondents – all countries			
	Male	Female	Total
KIIs			
Viet Nam	9	8	17
Lao PDR	22	4	26
Cambodia	32	4	36
Total number of respondents	57	12	79
FGDs			
Viet Nam	14	4	18
Cambodia	38	34	72
Lao PDR	29	22	51
Total number of respondents	81	60	141

47. Figure 2 provides a breakdown of the gender-disaggregated stakeholders while Figure 3 presents the percent composition of the organizations to which they belonged.

Figure 2: Number of stakeholders reached by category and gender

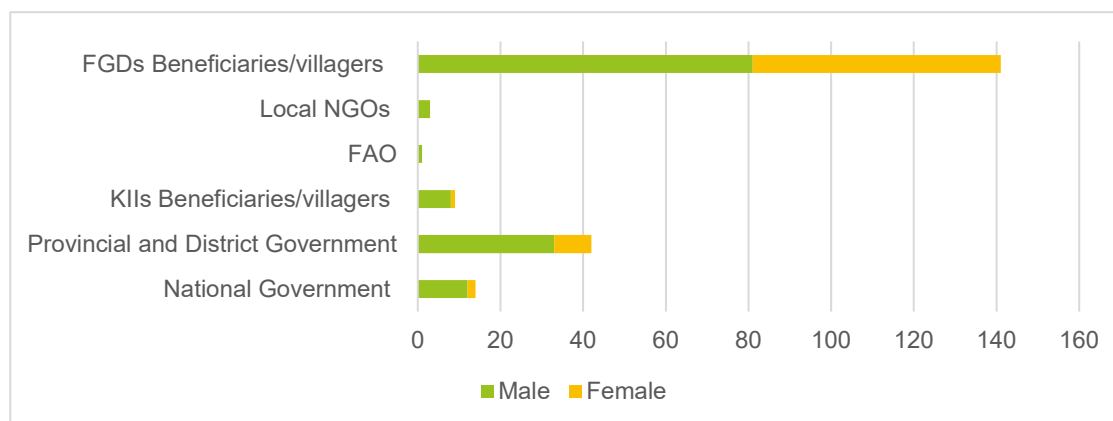
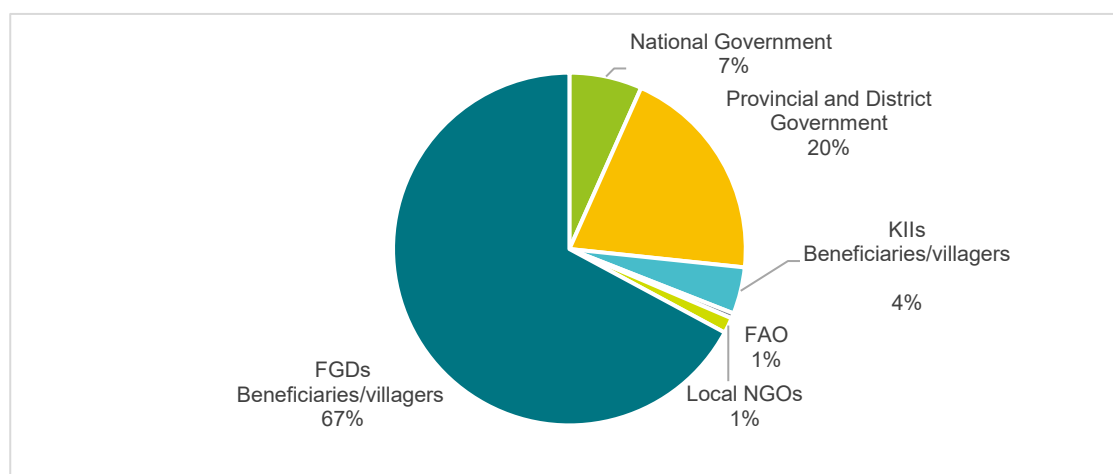


Figure 3: Proportion of stakeholders reached by category



1.4.3 Geospatial analyses

48. Geospatial analyses based on satellite remote sensing were conducted for several projects to assess the contribution of GEF interventions in addressing forest degradation and deforestation, lowering fire frequency, and reducing unsustainable land use and landcover change. Satellite data-analysis techniques, such as change detection, time-series analysis of biophysical indicators, and proxy variables, were used for these analyses. Annex 6 provides an overview of the results from these analyses.

1.5 Limitations

49. For the 28 projects that were subject to desk review, only 16 projects had evaluation reports available: 9 had MTRs as the latest evaluation report available, and 10 had terminal evaluations. Fortunately, annual PIRs were available for all projects and in those cases where formal evaluations were unavailable, the evaluation used the PIR ratings to track changes and, where possible, effectiveness of a specific project. While some PIRs were more useful for highlighting a project's achievements than were findings from interviews, a quarter of the former were judged to be highly subjective after tie visits and interviews. Other limitations related to the varying levels of details available in the evaluation reports by the Implementing Agencies, as well as severe weather conditions that prevented site visits to several projects in each country, and in one case, the lack of cooperation by the Implementing Agency and government in providing official approval for KIIs and FGDs to be conducted in one country. However, each limitation was mitigated by the evaluation team by finding alternative, albeit not optimal, solutions.

1.6 Structure of this report

50. Section 2 provides an overview of the social, environmental, and economic dimensions of the LMRB, key challenges that the countries and the region are currently facing, and some of the regional and national strategies that are currently planned or being implemented to respond to these challenges. The third section provides an overview of the GEF's support to the LMRB through the selected GEF-supported projects. Section 4 presents some of the key findings of the evaluation related to the relevance of that support, its effectiveness, and the degree to which the GEF's support has been sustained through improved policies and landscape management of critical ecosystems. The findings also highlight innovative practices and the degree to which they have been replicated in other areas. Finally, section 5 presents conclusions and recommendations for both ongoing and future support by the GEF in the LMRB and some of the key lessons from the various initiatives.

CONTEXT

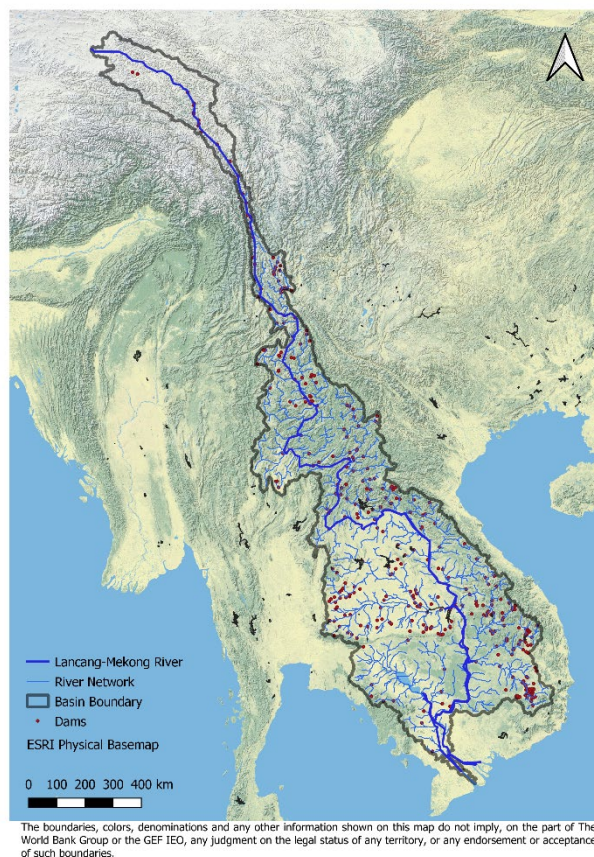
1.7 Overview of the Mekong River basin

51. The Mekong River basin (MRB; also known as Lancang-Mekong River basin, Figure 4) is a highly dynamic landscape with an immense endowment of natural resources. Its rich mosaic of hydrological networks has connected people, economies, and biodiversity, providing a wide range of invaluable ecosystem functions and services for over 300 million people in Cambodia, China, Lao PDR, Myanmar, Thailand, and Viet Nam for millennia. Although the future of today's young and increasingly well-connected population has multiple avenues of growth and opportunity available to them for the new millennia (MRC 2019), the MRB's landscapes extending from the highest mountains, to the lowest-lying wetlands, and into the South China Sea are at a crossroads because of sharp changes in the MRB's hydrology and the capacity for the basin's ecosystems to meet the demands of future generations.

52. The MRB's productive socioecological landscapes store and release water within some 795,000 km² (307,000mi²) of mountainous forests, gently undulating landscapes, tributaries,⁵ and lakes and wetlands that stretch nearly 4,909 km (3,050 mi²) from the Tibetan Plateau through China, Myanmar, Lao PDR, Thailand, Cambodia, and Viet Nam. The Mekong's nutrient-rich waters drive agricultural and rice production in vast agricultural areas considered to be the breadbaskets of Southeast Asia, thus contributing to regional food security and subsistence needs. The Mekong's annual quantitative surface water balance also supplies drinking and irrigation water for tens of millions of inhabitants (Linh et al. 2021), while the LMRB provides food, shelter, and diverse habitats for the highest concentration of biodiversity per hectare of any river in the world, ranking second only to the Amazon in terms of its global contribution to biodiversity.

53. Not surprisingly, the Mekong River depends not only on the conservation of upstream water bodies but also on ecosystems and biodiversity of pervading forests. Both the Trung Truong Son Forest, which extends from western Lao PDR to central Viet Nam, and the forest system in Siem Reap, Cambodia play important roles as carbon sinks offsetting pollutive activities around the Mekong River, recharging groundwater and Tonle Sap, the largest lake in SE Asia, while protecting communities in the low-lying regions. Although protecting the MRB's multiple and diverse ecosystem services is vital for reducing socioecological vulnerabilities to the impacts of natural and climate-driven disasters, these ancient socioecological connections are increasingly threatened as a result of

Figure 4: Map showing the Mekong River basin (grey boundary line) and hydrological networks. (source: Adapted from <http://www.mekongflows.com/>).



⁵ The Mekong has another point of origin: the Tonle Sap Lake in Cambodia, where life springs from the lake mostly in the form of a massive fish population that migrates to the far reaches of the Mekong system, both upstream and downstream.

unsustainable development practices that are negatively transforming the capacity of LMRB ecosystems. For example, upstream activities are affecting downstream activities and the efficiency of the delivery of many ecosystem services, while population growth and economic development are driving changes in land use and land cover of the transboundary LMRB's international waters, posing a serious threat to the integrity of the river system.⁶

54. Global experiences have clearly demonstrated that there is a significant drop in the rate at which socioecological systems recover after nature's free water services are cut off, polluted or contaminated with salt water. As climate change continues to threaten this fragile ecosystem, the need to build socioecological bridges and restore the vital linkages that enable people to adapt to the significant changes taking place throughout the LMRB is now more urgent than ever.

55. Seasonal monsoons, daily tides, and runoff from the land have driven and maintained relatively predictable water balances throughout the MRB for millennia. These flow patterns are not only critical for sustaining the freshwater ecosystems that provide food security, income, and subsistence-level survival from agriculture and fisheries; they also sustain the social fabric and vibrancy of culturally diverse societies that include marginalized women and indigenous people living between the ridges and lowland areas of the river basin.⁷

1.7.1 The importance of MRB as a biodiversity hotspot

56. The MRB possesses some of Earth's richest biodiversity and is recognized as a global biodiversity hotspot, with around 13,500 vascular plants, over 400 mammal species, 1,200 birds, 500 reptiles, and 300 amphibians. About 7,000 of the plants and many other species are endemic to the region, with endemism higher in mountain regions, including the Annamite Mountains, the highlands of southwestern China and northern Viet Nam, and Myanmar's northern highlands.⁸ Twenty-five hundred new species have been discovered there since 1997, and 115 in 2016 alone.⁹

57. The MRB is comprised of 12 habitat types traversing diverse hydrological networks originating in mountainous highlands connecting tributaries, subterranean streams, peat swamps, crater lakes, and the coastal zones. The main ecosystem functions of the Mekong's environmental assets are to supply food and other resources (water, medicines, fibre, wood, etc.), and provide aesthetic and cultural benefits.¹⁰

58. The rugged and complex topography and variable regional climate of the region is responsible for the diverse terrestrial and freshwater ecosystems that support the region's rich species diversity (figure 5). The region's freshwater ecosystems are frequently labelled as the world's most productive because the abundance of freshwater fish is higher than any other river basin on the planet. According to some estimates, an astounding 200 billion fish a year have been spawned in this area. Deep pools reaching down 260 feet serve as refuges for some of the world's largest and most endangered freshwater fish species.¹¹ Other notable aquatic biodiversity includes the Irrawaddy dolphin; some of the world's largest and most famous freshwater fish, including the Mekong giant catfish, giant barb, and giant freshwater stingray, and the richest non-marine turtle fauna in the world. New species continue to be discovered and described in the region, with 2,200 new species

⁶ Linh et al. 2021.

⁷ Historically, the monsoons and multiple ecosystem services such as seasonal fish migrations that have generated seasonal incomes and subsistence for millions of people living between the ridges and micro watersheds that drain into the river basin (Baran et al. 2008).

⁸ EU (2022). Chapter 4. The Greater Mekong. In: Larger Than Tigers | Inputs for a strategic approach to biodiversity conservation in Asia – Regional reports. pp 296-300.

⁹ WWF Greater Mekong. Available at: https://asiapacific.panda.org/our_work/greater_mekong/

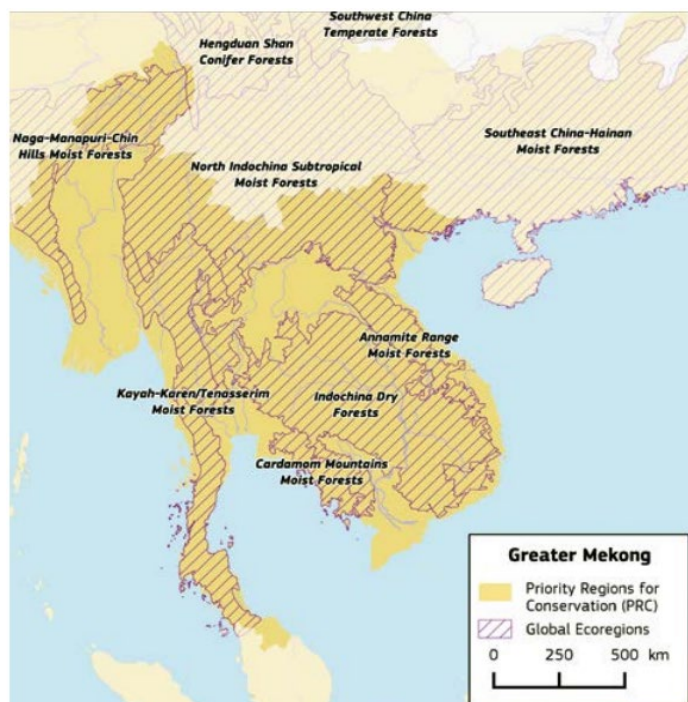
¹⁰ Mekong River Commission. (2021). Mekong strategy for basin-wide environmental management for environmental assets of regional importance 2021–2025. Vientiane: MRC Secretariat. DOI: 10.52107/mrc.ajutqu

¹¹ <https://www.circleofblue.org/2023/world/perspective-giant-catch-in-the-mekong-reveals-mysteries-of-biodiversity-hot-spot/>

identified between 1997 and 2014, including new species of freshwater turtle, a new bovid (Saola, discovered in 1992) and a new monkey, the Burmese snub-nosed monkey.¹²

59. One study¹³ found that the main channel and large tributary mollusc biodiversity in the LMRB is dominated by gastropods and bivalves; of the 98 taxa, 49 percent have already been assessed in the IUCN Red List, 1 of which is “near threatened,” 10 are “data deficient”, and 5 are “alien” species. The combination of physical–chemical (e.g., river width, river depth, surface area of watersheds) and climatic conditions are the key drivers of the observed patterns. Other important variables such the nutrient and sediment loads, and micro/meso habitat types should be considered in the analysis as well in further studies.¹⁴

Figure 5: Priority regions for conservation and Global 200 Ecoregions in Greater Mekong¹⁵(Source: EU)



60. The available data indicate that rice and fisheries¹⁶ are the major sources of protein and food security for the LMRB’s people, based on the contribution to a protein-demand indicator (World Bank 2018), which gauges the degree to which regional and country protein demands are met by contributions from the river basin.

61. The Mekong supports the world's largest freshwater fishery¹⁷ and millions of people depend on important riverine fisheries for their income and subsistence. As part of their critical life cycles,¹⁸

¹² EU (2022). Chapter 4. The Greater Mekong. In : Larger Than Tigers | Inputs for a strategic approach to biodiversity conservation in Asia – Regional reports. pp 296-300.

¹³ Sor et al. (2021). Patterns of Mekong Mollusc Biodiversity: Identification of Emerging Threats and Importance to Management and Livelihoods in a Region of Globally Significant Biodiversity and Endemism. *Water* 2020, 12(9), 2619; <https://doi.org/10.3390/w12092619>

¹⁴ Sor et al. (2021). *Op cit.*

¹⁵ EU (2019). *Op cit.* [<https://images.app.goo.gl/rCkGWSgSAcve3sSv5>]

¹⁶ National protein demand was calculated by the MRC analysis using FAO data on average daily protein consumption per capita in each of the LMRB countries. This was scaled up for the whole population to arrive at an annual national protein demand. Available dietary protein levels of rice and fresh fish were taken from FAO Food Balance Sheet estimates for the region. These were 7 grams of protein per 100 grams for rice and 10.6 grams per 100 grams for fish. Using these figures and LMRB production figures for rice and fish, it was possible to arrive at an estimate for total protein supply derived from the LMRB resources, and an equivalent share of national protein demand was derived from this.

¹⁷ Surveys from freshwater fish catches in the Lower Mekong are estimated at around 2.1 million tons per year, equivalent to 18 percent of the global freshwater fish catch (Kiguchi 2016). Kiguchi reported daily animal protein consumption supplied by freshwater fish of around 50 percent in Cambodia, around 40 percent in Lao PDR, and around 13 percent in Viet Nam in 2003, which is extremely high when compared with the global average of around 5.6 percent. Kiguchi also indicates that recent data estimate the annual economic value of catches by the Mekong Basin fisheries at between \$2.1 billion and \$3.8 billion, and between \$4.2 billion and \$7.6 billion at retail prices.

¹⁸ Kiguchi (2016) identified three distinct and interconnected migration systems in the lower Mekong River Basin, each involving multiple species.

multiple species, including those that are threatened, move with the changing seasonal conditions between the Mekong, oxbow lakes, and other nursery and reproductive wetland habitats (Baran et al. 2008). For example, seasonal river flows driven by wet/dry season differences in the Mekong's water volume and seasonal flooding allows important migratory fish to move into tributary niches,¹⁹ thus supporting the livelihoods of an estimated 65 million people.

62. The Mekong River Commission (MRC 2018) conducted an analysis of the economic value of water-related sectors attributed to LMRB countries and found that economic income from fish capture was greatest in Thailand and Viet Nam, while rice economy was highest in Viet Nam. However, fisheries and aquaculture in the LMRB fell short of meeting the population's annual protein demands in all countries, and the available data indicate that there is a significant shortfall (Figure 6). Figure 7 also shows the deficit in fish protein compared with demand, while Viet Nam has a shortfall in rice production compared with the demand.

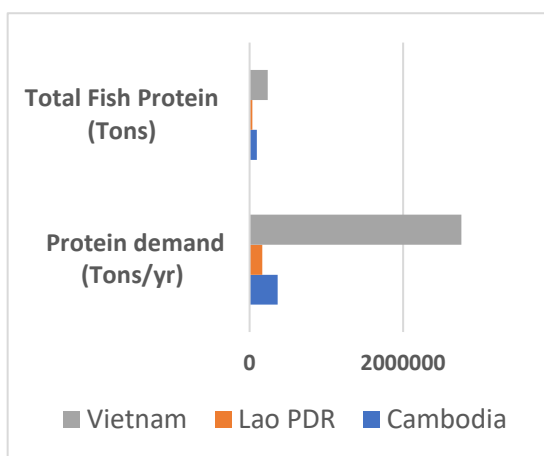


Figure 6: Total fish protein production versus national demand by country.

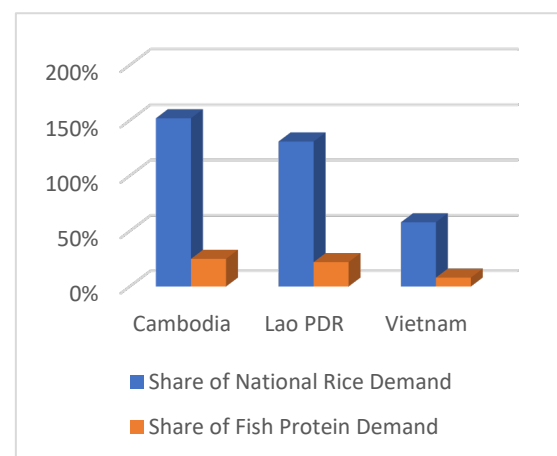


Figure 7: Share of fish protein and rice demand met by country

1.8 Key challenges for the Mekong region

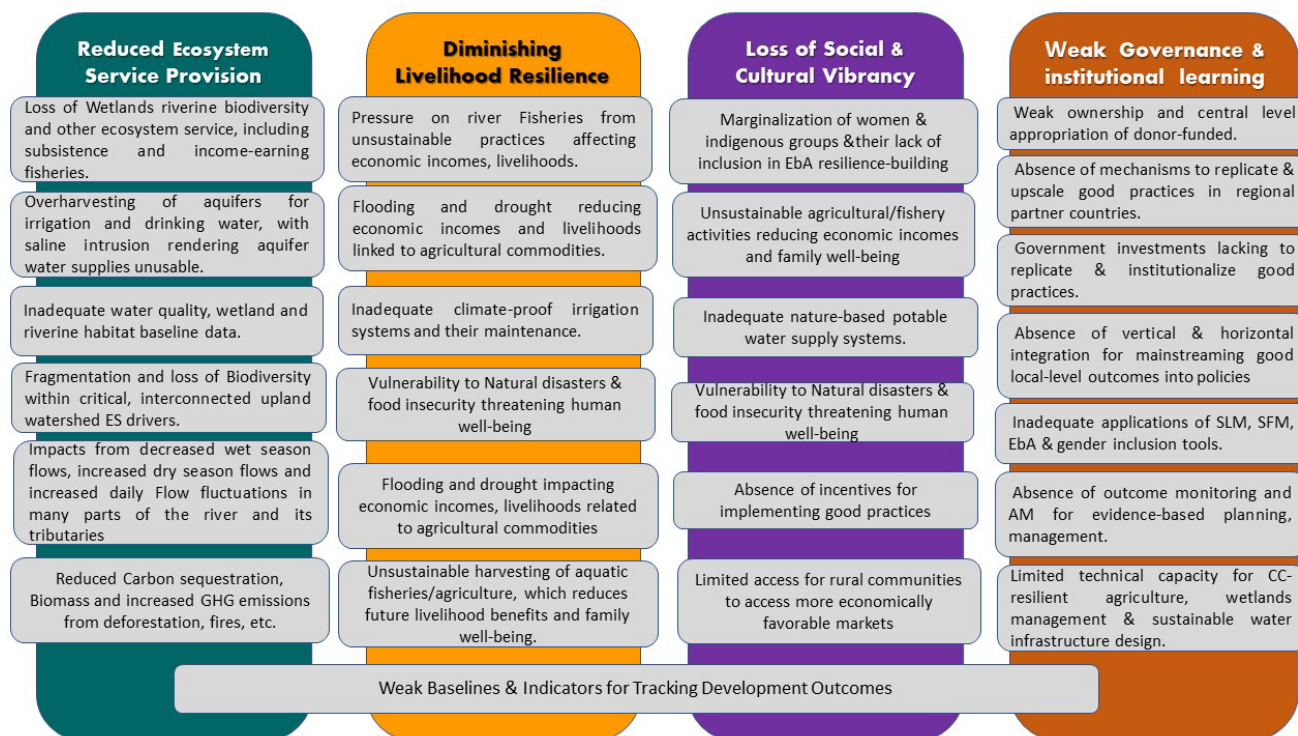
63. The LMRB countries face multiple and particularly acute challenges, which are largely linked to four broad categories: reduced provision of ecosystem services; diminishing resilience of subsistence and livelihoods; inequitable societal sharing of ecosystem services, especially for marginalized groups (women, as well as indigenous people living near project sites); and weak inclusive governance processes and knowledge sharing to improve planning, management, and decision making.

64. As shown in Figure 8, water availability—both water quality and quantity—are central elements in three of the categories, while some of the root causes of these issues are related to weak governance processes. Unsurprisingly, the restoration of fragmented hydrological networks and other interconnected productive landscapes holds the key to ensuring the required levels of resilience to confront climate change and the loss of other ecosystem services. These challenges are increasingly driving a sense of urgency among stakeholders for the region to address long-term

¹⁹ <http://www.mekongflows.com/>

societal needs to have secure access to water, food, natural resources, and energy to reduce their increasing vulnerabilities to unsustainable practices and the effects of changing climate.

Figure 8: Social, environmental, economic, and institutional challenges related to river basin management in the lower Mekong (Source: GEFIEO based on multiple sources)

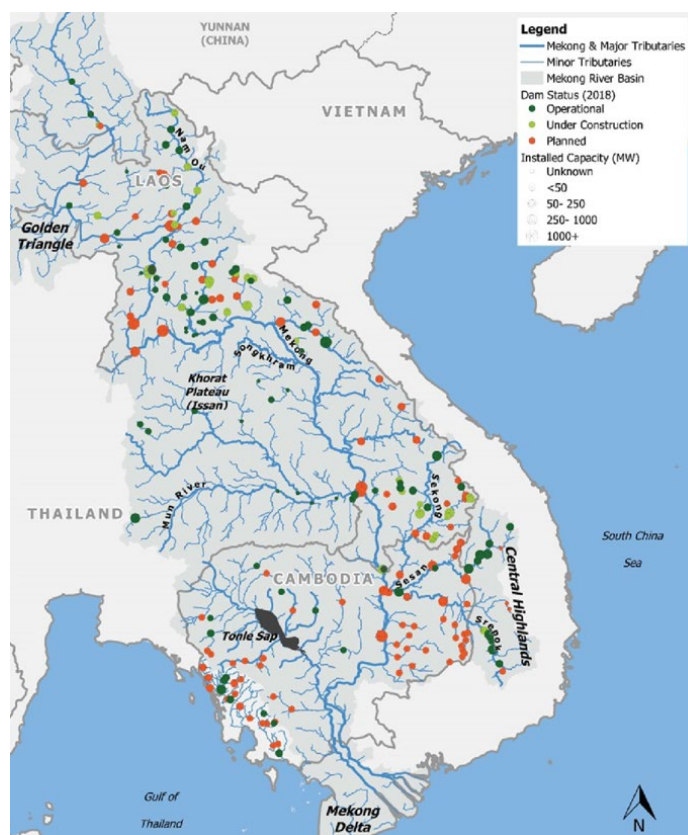


Box 1: Nature-based solutions (NbS) are defined by the UN as “actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits.” Source: UN (2017). Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment.

65. Multiple development projects and societal demands for the Mekong’s ecosystem services have driven a high-tech river engineering solution boom at the expense of nature-based solutions (see box 1) throughout the basin. For example, intensive agriculture,²⁰ monoculture plantations, land conversion, and other unsustainable activities (e.g., logging and mining) are driving some of the highest rates of deforestation in the world (Netzer et al. 2019). These resilience-destabilizing practices are uncoupling linkages between upland and downstream hydrological networks²¹ and ecosystem services throughout the LMRB.

66. In addition, the continuous expansion of hydroelectric dams throughout the Mekong River basin (figure 9), which represents the most serious modern challenge for the entire MRB to deliver safe and regular water supplies to future LMRB generations is already facing changing climatic and unpredictable hydrological conditions. The dams have significantly altered the LMRB’s historically predictable river flow patterns and retained unknown amounts of life-supporting nutrients (e.g., phosphorus, trapped in sediments behind the dams) that drive all forms of downstream aquatic life. Therefore, these dams threaten the MRB’s rich biodiversity that supports ecosystem dynamics throughout the river basin. For example, interventions aiming to provide flood protection, water storage and river training are being compromised by unsustainable floodplain development (urbanization, industrialization, and full-year irrigation).

Figure 9: 2020 status of lower mainstream and tributary dams within the LMRB hydrological networks (<https://www.stimson.org/2020/2020-status-of-lower-mekong-mainstream-and-tributary-dams>).



²⁰ Agriculture is responsible for most of the water abstraction from the Mekong River and its tributaries, while industry and domestic water supply abstractions are minor. About half the population in the Mekong Basin (30 million) are involved in agriculture and over 10 million hectares of the total cultivated land in the Lower Mekong Basin are used to produce rice. Irrigation in the LMRB covers approximately 27 percent of its area and consumes an estimated 41.8 billion m³ of freshwater. In contrast, the estimated present of water demand for domestic and industrial uses in the LMRB is only about 2.9 billion m³ and 80 percent of this amount is used in Thailand and Viet Nam.

²¹ The MRC (2021) reports that hydrology is significantly changing in the upper part of the basin. Dry season flows are increasing and flood season flows are decreasing because of increasing storage for hydroelectricity generation throughout the year. Sediment transport has been significantly reduced since the construction of the Upper Mekong hydropower cascade. Other industrial activities, such as sand mining, result in risks to wetland and floodplain productivity, riverbank erosion, and delta-forming processes.

67. The regional political economy of hydropower consumption and production and resulting trade-offs is not only limited to local and subnational levels, but also takes place at regional and international levels. Consequently, the negative environmental and food security impacts are being absorbed at the local or subnational level, and these are not captured in classical economic calculations that rarely include natural capital, societal, and other longer-term costs. Instead, the most immediate and tangible benefits are primarily accrued at the national or regional level in other countries.

68. Furthermore, many of these practices are incompatible with the SDGs. One of the consequences is that they weaken the capacity for natural systems to bounce back after natural disasters and they compromise natural water production in the mountains, with an impact on downstream use by rural people who depend on water and other ecosystem services. They also exacerbate the alteration of predictable seasonal precipitation patterns²² that are increasingly influenced by changing climate conditions. This in turn disrupts the seasonal recharge and release of freshwater stored in elevated forested areas, aquifers, and hydrological networks throughout these landscapes.

1.8.2 Impact of habitat fragmentation and diminished ecosystem functions on food security and livelihoods

69. Without human interventions, almost the entire region would originally have been forested. However, by 2015 forest cover was reduced by just over half of its original coverage, or 884 310 km². This has resulted in widespread erosion of important catchment slopes, higher surface water runoff, less groundwater recharge, and reduced carbon sequestration from forests, which indirectly results in serious declines in precipitation. Indeed, a recent study²³ has shown that tropical forests play a critical role in the hydrological cycle and can influence local and regional precipitation. These land use changes also enhance the sensitivity of tropical ecosystems to fire-climate extremes.²⁴ Couple this with findings by WWF, who noted that the area is among those that are most likely to be affected by global climate change, and the severity of the problem with deforestation and resulting loss of ecosystem functions and their capacity to meet the needs of future generations underscores the urgency for donors, countries, and regional bodies to take concerted efforts to work synergistically instead of incongruently.

70. An economic study of the benefits of fisheries, rice, and hydropower in the region indicated that the economic value of hydropower is significantly smaller than that the two major sources of food security (fish and rice production) for the LMRB countries.²⁵ Fluctuations in downstream volumes of the Mekong's flow in both the wet and dry seasons have affected the rice production and fish harvests that millions of subsistence-dependent households and livelihood earners depend on.²⁶ For example, upstream dams that feed into the river are reducing freshwater flows and compromising predictable seasonal surface and groundwater water recharge in the three target countries. They are also blocking migratory fish from completing critical stages of their life cycles in the Mekong's tributaries and wetlands. Dams are widely reported to trap chemical elements (e.g., phosphorus) that are essential for the survival of all forms of aquatic life.

²² The rapid increase in hydropower development is also likely to expose downstream countries to irreversible and negative transboundary social and environmental impacts that, when coupled with El Niño effects, will enhance the incidence of droughts and salinity intrusion in the Vietnamese Mekong Delta and transboundary aquifers.

²³ Smith, C., Baker, J. C. A., & Spracklen, D. V. (2023). Tropical deforestation causes large reductions in observed precipitation. *Nature*. <https://doi.org/10.1038/s41586-022-05690-1>

²⁴ Kumar, S., Getirana, A., Libonati, R., Hain, C., Mahanama, S., & Andela, N. (2022). Changes in land use enhance the sensitivity of tropical ecosystems to fire-climate extremes. *Scientific Reports*, 12(1). <https://doi.org/10.1038/s41598-022-05130-0>

²⁵ MRC 2018.

²⁶ Linh et al. 2021; MRC 2016[a], 2021.

71. In coastal areas, mangroves are being cleared and replaced with fuelwood forests (e.g., acacia), tourist development areas, and other development activities. As the mangrove's functional role of preventing riverbank erosion and slowing saltwater intrusion declines, the reduced volumes of freshwater reaching downstream areas create the perfect storm for tidally driven seawater to penetrate with less resistance further up the river. This has resulted in a perverse cycle whereby poorly managed groundwater is being overexploited, accelerating land subsidence in the Mekong Delta, and increasing salinization of aquifers that supply drinking and irrigation water.²⁷

72. Sand mining by politically connected companies has also been blamed for widespread collapses of riverbanks and it has been demonstrated to be the Delta's biggest contributor to saline intrusion.²⁸ As a result of greater saltwater intrusion, groundwater-dependent irrigation and drinking water aquifers have become more brackish²⁹ and as groundwater levels are also being drawn down, land in the Mekong Delta has subsided significantly.

73. Hydropower, sand mining, and the clearing of mangroves are some of the Mekong's major challenges. Not surprisingly, the present situation faced by marginalized people in rural landscapes of Lao PDR,³⁰ Cambodia,³¹ and Viet Nam³² makes them particularly vulnerable to climate perturbations,³³ water-related poverty,³⁴ and environmental degradation from development in water and nonwater sectors.³⁵ However, the challenges and the resulting impacts are just symptoms of deeper root causes facing Mekong countries. Fragile formal and informal institutions and governance, as well as policy incoherence with the SDGs and international agreements, are key issues that the GEF has worked to improve with the partner countries over the past three decades. Finally, the "selective" enforcement of existing legislation that frequently favors powerful private-sector interests who often oppose local efforts to work towards sustainable development is another key challenge in the region.

1.8.3 Gender issues, indigenous peoples, and local communities in the LMRB

74. People have lived in the Greater Mekong region for over 4,000 years, and indigenous peoples and ethnic minorities continue to live off the land based on traditional custom, to the extent that they are able to.³⁶ However, ethnic minorities, indigenous groups, and the poor often face insecure access to land, and vulnerability to the negative effects of environmental changes, climate change, and resource depletion. Thus, efforts to tackle environmental challenges in the LMRB must emphasize the inclusion, and recognition of the needs and vulnerabilities of indigenous peoples and local communities (IPLC).

²⁷ Linh et al. 2021; MRC 2016[a], 2021

²⁸ Hackney et al. (2020). River bank instability from unsustainable sand mining in the lower Mekong River. *Nature Sustainability*, 3(3), 217-225. doi:10.1038/s41893-019-0455-3; Also, <https://news.mongabay.com/2022/08/mining-the-mekong-land-and-livelihoods-lost-to-cambodias-thirst-for-sand/>

²⁹ Ibid.

³⁰ Over 70 percent of livelihoods in Lao PDR are associated with natural resources. The vast majority of Lao people are still poor, and there has been an increase in the number of climate hazard-related events over the past 20 years. Climate threats have differing impacts on physical infrastructure and ecosystems, depending on location and topography (GEF 4454 terminal evaluation).

³¹ Approximately 85 percent of Cambodia's population lives in rural areas and depends upon rice cultivation as their primary means of subsistence or livelihood. Agriculture contributes 32 percent of Cambodia's economy and absorbs almost 60 per cent of the total labor force (GEF 4434).

³² Climate change impacts are impeding the Mekong Delta's inclusive growth and poverty reduction efforts as poor and marginalized groups will incur the greatest burden.

³³ Temperatures are projected to increase, sea levels will rise, and rainfall/runoff patterns are expected to change, resulting in greater hydrological variability. Further, the risk of both flooding and drought is expected to increase, with low-lying areas downstream particularly at risk.

³⁴ Poverty reduction in the Mekong region remains a major challenge in the medium term and it is indispensable for sustainable development. Consequently, interventions within the water-related sectors should contribute to reducing poverty, while avoiding or minimizing harm to those whose livelihoods depend upon natural resources.

³⁵ MRC 2016; 2021. Assessments and scenario modelling by the MRC show that ongoing degradation of water quality, fisheries biodiversity, wetlands and environmental assets is likely to continue, with developments not only in the water sectors but beyond (e.g., industrialization, urbanization, deforestation, etc.).

³⁶ Open Development Mekong (2016): *The Mekong*. <https://opendevdevelopmentmekong.net/topics/the-mekong/>

75. Throughout the LMRB region, socioeconomic inequalities and demographic differences are increasingly linked to unequal vulnerabilities and exposures to environmental risks.

Socioeconomically disadvantaged groups are often put at higher risks of environmental effects.

76. An analysis of the region's political economies found that the people most affected by large-scale infrastructure with transboundary impacts on water governance are routinely excluded from participation in decision-making processes at subnational, national, and international levels.³⁷ However, it is fundamental to address the distinct needs and vulnerabilities of different socioeconomic groups and demographics (including women and IPLC) if the SDGs are to be achieved in the LMRB. This will require a focus on equity and inclusion, inequalities which the GEF has set out to address through its support.

77. Gender also has an effect on the impact of environmental changes in the LMRB region. Both women and men contribute to water resources development, and are impacted in different ways. In rural areas of the LMRB, women typically assume major water-related responsibilities. For example, the reduced availability of rice and fish due to water and related issues often has more impact on women, as they tend to be responsible for growing and preparing food. Furthermore, during floods and droughts, women are more vulnerable than men due to their higher dependence on natural resources and because of the social barriers that limit their adaptive capacities.³⁸

1.9 Regional and national strategies to respond to the challenges

1.9.1 Evolution of regional strategies and priorities related to the MRC and ASEAN³⁹

78. As a financing mechanism in support of several multilateral environmental agreements, the GEF aims to contribute to transformational change and achieve global environmental benefits on a larger scale. Its 2020 strategy highlighted its role in:

- (a). **Addressing the drivers of environmental degradation** by supporting partnerships of committed stakeholders around solutions to complex environmental challenges;
- (b). **Supporting innovative, complementary and scalable activities**, i.e., across multiple countries, regions, and sectors through policy, market, or behavioral transformations; and
- (c). **Delivering impactful environmental benefits** through cost-effective solutions that tackle major environmental challenges.

79. The Mekong River Commission (MRC) is mainly foreign funded, is one of the main knowledge brokers in the region, and is, at least as perceived by those who fund it, as playing the leading role in the management of the Mekong Basin's water resources. There is considerable discussion regarding the politics of knowledge sharing in the Mekong River basin, which requires balance between expert scientific knowledge and centuries of local empirical knowledge passed down by farmers, fisherfolk, and ordinary people who make a living through understanding the interdependence and interconnectivity between the land, forests, and hydrological networks within the Mekong Basin.⁴⁰ For better or worse, engagement to date has mirrored development-driven participation that

³⁷ Denney L, E.P. Jackson, Yeophantong and C. Adams (2021) Inclusion in decision-making around transboundary water governance in the Mekong subregion. https://www.latrobe.edu.au/_data/assets/pdf_file/0005/1323077/V-Feb-15_Revised-Regional-PEA.pdf

³⁸ Mekong River Commission: Gender. Available at: <https://www.mrcmekong.org/our-work/topics/gender/>

³⁹ Association of Southeast Asian Nations.

⁴⁰ Käkönen and Hirsch (2009) The Anti-Politics of Mekong Knowledge Production. In Mole, F., T. Foran and M. Käkönen (eds.), *Contested Waterscapes in the Mekong Region: Hydropower, Livelihoods and Governance*, pp. 333-365. London: Earthscan.

arguably contributes to the depoliticization of the available knowledge in support of a particular governance agenda.⁴¹

80. The GEF has provided financial support to improve biodiversity, adapt to/mitigate climate change, reduce land degradation, and reduce chemical wastes throughout the Greater Mekong subregion since 1999,⁴² (when it funded the first Mekong River Basin Water Utilization Project.)⁴³ This support aimed to help the member states of the MRC⁴⁴ to implement key elements of the 1995 Agreement on Cooperation for Sustainable Development of the Mekong Basin. Through this project, the GEF's support focussed on preparation of rules and mechanisms to improve sustainable water management in the MRB, and promote reasonable and equitable water utilization and water quality management by the countries of the MRB and protection of its environment, aquatic life, and ecological balance. The GEF Council has approved the GEF-8 strategy, which includes a dedicated program in the Indo-Malaya region to be funded through its integrated programs.

81. In 2011, the MRC was tasked by its members to implement an integrated, cross-sectoral, comprehensive, and state-of-the-art study on sustainable management and development of the Mekong River, including an assessment of the impact of diverse development activities on environment, human well-being, and the economy. The study resulted in the first Basin Development Strategy (BDS) which envisioned "an economically prosperous, socially just, and environmentally sound Mekong Basin."

82. The second BDS built upon the previous strategy, establishing strategic priorities with an intention to increase regional benefits, reduce regional costs, minimize adverse transboundary

Box 2: In the **1995 Agreement on Cooperation for Sustainable Development of Mekong Basin** signatories (Governments of Cambodia, Lao PDR, Thailand, and Viet Nam) committed to developing a long-term Basin Development Plan and Strategy, creating and maintaining procedures for data sharing, water-use monitoring, and maintenance of flows and water quality. To implement the provisions of the agreement, the inter-governmental river basin organisation, the Mekong River Commission (MRC), was established.

impacts, and provide water-related security in an equitable manner through cooperation, focussing on tributary hydropower development, and expansion of irrigated agriculture. More specifically, its priorities were to:

- Reduce remaining <u>knowledge gaps</u> to minimize risks;	- Improve national water resources development;
- Optimize basin-wide sustainable development and cost and <u>benefit sharing</u> ;	- Enhance <u>information management, communication and tools</u> ;
- Strengthen the protection of <u>mutually agreed environmental assets</u> ;	- Increase <u>cooperation</u> with partners and stakeholders; and
- Strengthen basin-wide procedures and national implementation capacity.	

⁴¹ *ibid.*

⁴² The first GEF-supported project (GEF 615) was the Mekong River Basin Water Utilization Project, which aimed to help the member states of the MRC (Cambodia, Lao PDR, Thailand, and Viet Nam) implement key elements of the 1995 Agreement on Cooperation for Sustainable Development of the Mekong Basin (Agreement). The GEF's support envisioned the preparation of "rules" for water utilization (in particular, minimum in-stream flows on the Mekong) and protocols for information exchange, notification, and consultation in accordance with the Mekong agreement.

⁴³ GEF 615.

⁴⁴ MRC is the intergovernmental organization responsible for implementing the Mekong Agreement in partnership with its members: Cambodia, Lao PDR, Thailand, and Viet Nam.

83. The plan that was subsequently developed for the strategy (Mekong River Commission Strategic Plan 2016–2020, published in 2018) outlined a series of key result areas, with specific outcomes aimed at achieving the multi-country impact that would be necessary to address the main MRB-wide needs: food and livelihood security; resilience against floods and droughts; energy security; and improved navigation. Challenges addressed include: environmental degradation from developments in water and nonwater sectors; hydropower impacts in the Upper and Lower basin; climate change adaptation; and water-related poverty reduction.

84. The overall vision of the latest MRC BDS encompasses climate resilience into its vision statement, which is to achieve “an economically prosperous, socially just, environmentally sound, and climate resilient Mekong River Basin” by 2040. Its strategic priorities reflect the five dimensions of the 2018 State of the Basin Report (SOBR), the Mekong River Basin Indicator Framework (MRB-IF), and relevant targets of the SDGs (Figure 10).

Figure 10: SDGs with targets most directly relevant to regional water resources development and management in the Mekong River basin

MRB-IF Dimension	SDGs
1. Environment: Maintain the ecological function of the Mekong River basin.	  
2. Social: Enable inclusive access and utilisation of the basin’s water and related resources.	    
3. Economic: Enhance optimal and sustainable development of water and related sectors.	   
4. Climate change: Strengthen resilience against climate risks, extreme floods and droughts.	 
5. Cooperation: Strengthen cooperation among all basin countries and stakeholders.	

85. The third BDS represented a major strategic shift from previous strategies, going beyond water resources planning to encompass operational management, including the transboundary coordination of operations of dams and other water infrastructure. It also covered a longer, ten-year period than its predecessors. It was prepared with contributions and reviews from each MRC member country’s National Mekong Committee Secretariat (NMCS) and national line and implementing agencies and relevant regional organizations, initiatives, and programs such as the Association of Southeast Asian Nations (ASEAN), the private sector, and development partners, as well as broader stakeholder groups that included civil society organizations.

86. ASEAN has cooperated closely for nearly half a century with its member states and partners to promote environmental cooperation. Most recently, ASEAN leaders adopted the ASEAN Socio-Cultural Community (ASCC) Blueprint 2025, which strives to promote and ensure balanced social development and sustainable environment that meet the needs of the peoples at all times through coordinated efforts on key priority areas as outlined in the ASCC Blueprint 2025: (i) conservation of

sustainable management of biodiversity and natural resources, (ii) promotion of environmentally sustainable cities, (iii) response to climate change, and (iv) sustainable consumption and production.

87. The Peatland Thematic Working Group supported by the GEF is one outcome of the ASEAN Centre for Biodiversity,⁴⁵ which continues to identify and implement regional policies that promote the protection of wetlands and other ecosystems, as well as sustainable development initiatives. ASEAN continuously makes collective efforts in environmental protection through policy dialogue and harmonization, research, capacity building, technical assistance, scaling up and replication of good practices across ASEAN countries, and awareness raising.

1.9.2 National strategies and priorities

88. The GEF has worked closely with each country to ensure that its support is directed to strengthen national strategies, assist countries in meeting their commitments to international agreements, and to the extent possible, support policies that are pertinent to both targets. The relevant focal areas were those that were designed to support biodiversity, land degradation and climate change through sustainable water and land management to help enhance, restore, or maintain natural capital and the continuous delivery of ecosystem services with through testing and applying nature-based solutions, as well as improved policy options and incentives to sustain behavioral changes and resilience in targeted focal areas.

89. Key policies and strategies for Viet Nam, Cambodia, and Lao PDR are included in annex 2. In the following section, we discuss how the key objectives of the portfolio of projects supported by the GEF in the region relate to the environmental challenges and priorities in the LMRB region. The relevance of projects to these national strategies and priorities were consistent with target country strategies for climate adaptation and sustainable landscape management, despite certain shortcomings regarding private sector engagement.

GEF SUPPORT IN THE MEKONG REGION

1.10 Characteristics of the GEF portfolio in the Mekong region

90. The following overview is based on analysis of a portfolio of 28 GEF projects identified as relevant to the scope of this evaluation. The main source of the data presented below was the GEF portal (April 2022). GEF project financing⁴⁶ across GEF replenishment periods 4, 5, 6, and 7 to finance 28 projects totalled \$109,909,304. The following subsections present an effort to map the key objectives of this GEF support in relation to these 28 projects, addressing the most urgent of the LMRB region's challenges. They also provide an overview of GEF project financing and cofinancing levels, and key characteristics of the GEF portfolio, including the geographic focus, focal areas, Implementing Agencies, and executing partner types, as well as an overview of the status of project implementation.

1.10.1 The degree to which portfolio projects addressed LMRB challenges

91. As previously illustrated in Figure 8, the challenges related to river basin management in the lower Mekong can be categorized under four overarching themes:

- (a). Reduced ecosystem service provision;

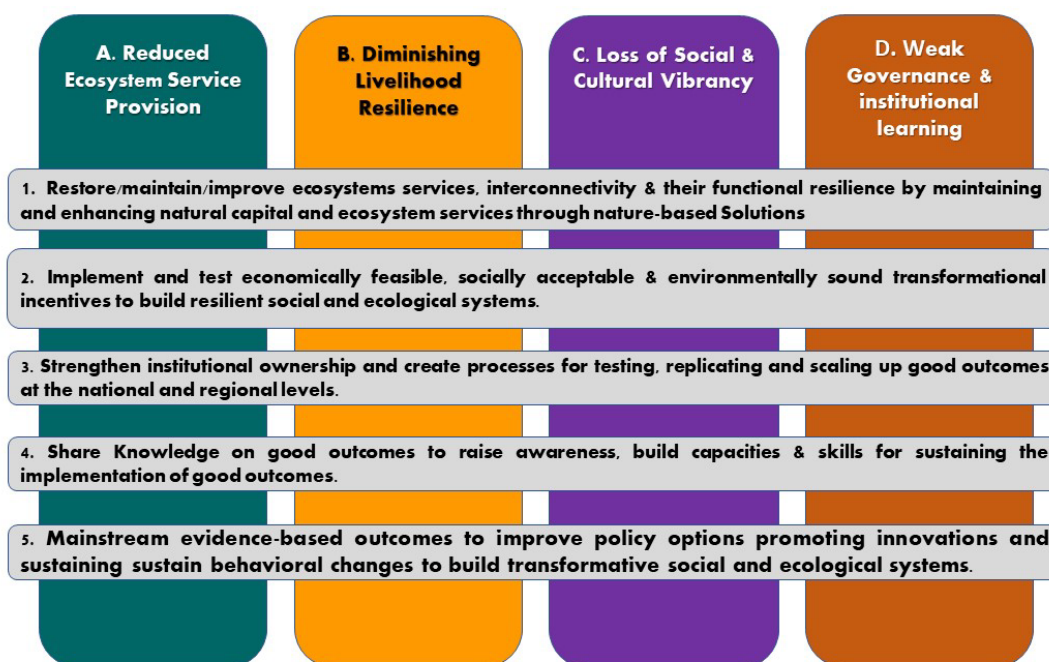
⁴⁵ <https://www.aseanbiodiversity.org/>

⁴⁶ GEF project financing refers to a grant or concessional financing provided from any GEF-managed trust fund to support the implementation of any full-size project, medium-size project, enabling activity, or program. This excludes cofinancing, agency fees, and project preparation grants.

- (b). Diminished livelihood resilience;
- (c). Decreased social, cultural, and economic benefit sharing; and
- (d). Weak governance and institutional learning.

92. Figure 11 summarizes five, multipronged approaches that the GEF employed to address the four main LMRB thematic challenges.

Figure 11: Relationship between LMRB challenges and GEF projects that addressed them. (Source: GEF IEO analysis)



93. Table 3 outlines specific challenges under the four overarching themes, providing a key for table 4, which maps the objectives of each of the 28 GEF projects against the four themes and the specific challenges.

Table 3: Key to mapping table of specific challenges

Overarching theme	#	Specific challenges
Reduced ecosystem service provision	1	Overharvesting of aquifers for irrigation and drinking water, with saline intrusion rendering aquifer water supplies unusable
	2	Loss of critical LMRB wetlands and ecosystem services (e.g., biodiversity, greenhouse gas (GHG) sequestration, etc.)
	3	Inadequate baseline data on water quality and wetlands and riverine habitat
	4	Fragmentation and reduced resilience of interconnected upland watersheds
	5	Resilience loss from altered water recharge and changed river flows in many parts of the river and its tributaries
	6	Biodiversity loss due to unsustainable practices
	7	Reduced carbon sequestration and biomass, and increased GHG emissions from deforestation, fires, etc.
	8	Increased vulnerability to climate impacts and natural disasters
	9	Reduced forest cover and connectivity with other critical ecosystems

Diminished livelihood options	10	Diminished livelihood benefits and family well-being due to unsustainable harvests of aquatic fisheries/agriculture
	11	Flooding and drought affecting economic incomes and livelihoods related to agricultural commodities
	12	Inadequate climate-proof irrigation systems
Decreased sociocultural and economic benefit sharing	13	Marginalization of women and lack of inclusion in climate and ecosystem-based adaptation (EbA) resilience
	14	Unsustainable activities in aquatic fisheries reducing incomes and family well-being
	15	Unsustainable agricultural activities reducing incomes and family well-being
	16	Decreased food security due to reduced water availability
	17	Gender inequalities
	18	Indigenous people inequalities
	19	Increased vulnerability (e.g., vulnerability reduction assessment (VRA) indices)
	20	Inadequate potable water supply systems
	21	Absence of incentives for implementing good practices
Weak governance and institutional learning	22	Lack of government investments in replicating and institutionalizing good practices and required maintenance
	23	Weak vertical and horizontal integration for local/regional replication, scale-up up from good local practices
	24	Policy, institutional, and legal bottlenecks for replicating and scaling up effective local-level interventions
	25	Weak central-level ownership, appropriation scale-up, and replication of donor-funded good practices
	26	Reduced levels of private sector engagement in governance
	27	Low levels of gender inclusion in each beneficiary group
	28	Low representation of indigenous people in governance structures (% and/or absolute number)
	29	Increased impunity of well-connected beneficiaries who dominate governance structures
	30	Weak links between good practices (e.g., EbA, ecosystem-based management (EbM) measures) and policies, legal frameworks, and enforcement
	31	Policies lacking new project-related evidence-based good practices
	32	Weak capacity to implement EbA and other tools

Table 4: Mapping of GEF project objectives to specific challenges in the Mekong region

GEF project ID	GEF project title	Country name	Focal area name	Project objective	Overarching theme of targeted challenges	Targeted specific challenges (See table 3 for key)
10539	Sustainable Forest and Forest Land Management in Viet Nam's Ba River Basin Landscape	Viet Nam	Multifocal	Conserve forest biodiversity and maintain or improve the flow of ecosystem services through sustainable forest management embedded in a coordinated landscape-level approach across Ba River basin	Reduced ecosystem service provision; decreased sociocultural and economic benefit sharing	2,3,5,7
10520	Enhancing Sustainability of the Transboundary Cambodia - Mekong River Delta Aquifer	Regional	International waters	Strengthen environmental sustainability and water security in the Lower Mekong Basin by focusing, for the first time, on improved governance and sustainable utilization of the Cambodia-Mekong River Delta Transboundary Aquifer	Reduced ecosystem service provision; weak governance and institutional learning	2, 3, 5, 7
10514	Integrated Water Resource Management and Ecosystem-based Adaptation (EbA) in the Xe Bang Hieng River Basin and Luang Prabang City	Lao PDR	Climate change	Promote integrated management of sites in the Mekong River Basin for increased climate resilience of Savannakhet Province and Luang Prabang communities vulnerable to floods and droughts, which are expected to worsen under future scenarios	Reduced ecosystem service provision	1,2,3,4,5,6,8
10483	Additional Financing for the Cambodia Sustainable Landscape and Ecotourism Project	Cambodia	Biodiversity	Improve management of protected areas, and to promote ecotourism opportunities and non-timber forest product value chains in the Cardamom Mountains-Tonle Sap landscape	Reduced ecosystem service provision; decreased sociocultural and economic benefit sharing	4, 6, 21, 22
10499	Lao PDR Landscapes and Livelihoods Project	Lao PDR	Multifocal	Improve sustainable forest management and enhance livelihoods opportunities in selected landscapes in Lao PDR	Reduced ecosystem service provision; diminished livelihood options	4, 5, 6, 7, 8, 9, 10, 11
10245	Integrated Sustainable Landscape Management in the Mekong Delta of Viet Nam	Viet Nam	Multifocal	Support the transformation of rice-dominated landscapes in the Mekong Delta towards sustainable, adaptive, and resilient models of production and landscape management that deliver multiple environmental and social benefits	Reduced ecosystem service provision; diminished livelihood options; decreased sociocultural and economic benefit sharing	1, 2, 3, 4, 5, 6, 8, 10, 11, 14, 15, 16, 19, 21
10193	Fostering Water and Environmental Security in the Ma and Neun/Ca Transboundary River Basins and Related Coastal Areas	Regional	International waters	Enable Viet Nam and Lao PDR to address freshwater resource management and ecosystem health in the transboundary Ma and the Neun/Ca river basins and coastal zones by creating an enabling environment for transboundary cooperation and action	Reduced ecosystem service provision; weak governance and institutional learning	1, 2, 3, 5, 6, 14, 16, 24, 26
9927	Building Resilience of Cambodian Communities Using Natural Infrastructure and Promoting Diversified Livelihood	Cambodia	Multifocal	Address the challenges of water resources management as a contribution to the water, food, energy, ecosystem security nexus by restoring and protecting mangroves, making the business case for natural infrastructure in order to build resilience and improve livelihoods in the Prey Nob region	Reduced ecosystem service provision; diminished livelihood options	1, 3, 7, 6, 10, 11

9781	Integrated Natural Resource Management (INRM) in the Productive, Natural and Forested Landscape of Northern Region of Cambodia	Cambodia	Multifocal	Promote integrated landscape management for the conservation and sustainable use of biodiversity natural resources and ecosystem services in the northern region of Cambodia	Reduced ecosystem service provision	1, 4, 5, 6, 8, 9
9265	GEF-AF-Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project	Viet Nam	Multifocal	Original Project Development Objective(s) - Parent Enhance tools for climate-smart planning and improve climate resilience of land and water management practices in selected provinces of the Mekong Delta in Viet Nam GEF Project Development Objective(s) (Additional Financing) Strengthen research and innovation capacity of research institutions and communities for developing and applying climate-smart and climate-resilient natural resources management practices in selected provinces in Viet Nam's Mekong Delta	Reduced ecosystem service provision	1, 2, 3, 5, 6, 8
9232	Sustainable Management of Peatland Ecosystems in Mekong Countries	Regional	Multifocal	Sustainably manage peatland ecosystems in targeted countries, conserve biodiversity, and reduce GHG emissions, by: 1. Assessing and documenting peatland ecosystems; 2. Strengthening capacity and the enabling policy and legal framework for sustainable peatland management at local, national, and subregional levels; and 3. Demonstrating sustainable peatland management practices that conserve biodiversity, reduce GHG emissions, and strengthen sustainable livelihoods for local communities	Reduced ecosystem service provision; diminished livelihood options; decreased sociocultural and economic benefit sharing	2, 5, 7, 8, 9, 6
5824	Sharing Knowledge on the Use of Biochar for Sustainable Land Management	Global	Land degradation	Demonstrate and promote the adoption of sustainable landscape management (SLM) practices involving the use of innovative organic amendments, based on biochar, that improve the capture and efficient use of nutrients, enhance productivity, improve climate resilience, support rural livelihoods, and contribute to watershed management	Reduced ecosystem service provision; diminished livelihood options; decreased sociocultural and economic benefit sharing	1, 4, 5, 6, 8, 9, 10, 11, 14, 15, 16, 19, 21, 22
5489	Climate Adaptation in Wetlands Areas (CAWA)	Lao PDR	Climate change	Environmental/Adaptation Objective: Reduce climate change vulnerability of the local communities and threats to the wetland landscapes upon which they depend within wetlands surrounding the two Ramsar-designated sites of Lao PDR Project Development Objective: Replicate lessons learned in the two wetlands regarding community-based vulnerability risk assessment and strategies for climate change adaptation and disaster risk management, based on principles of landscape approach, EbA, and sustainable use, elsewhere in Lao PDR, in the greater Mekong region, and beyond	Diminished livelihood options; reduced ecosystem service provision	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
5419	Reducing the Vulnerability of Cambodian Rural Livelihoods through	Cambodia	Climate Change	Improve subnational administration systems affecting investments in rural livelihoods through climate-sensitive planning, budgeting, and execution	Weak governance and institutional learning; reduced ecosystem service provision	1, 2, 3, 7, 8, 24, 25, 26

	Enhanced subnational Climate Change Planning and Execution of Priority Actions					
5318	Strengthening Climate Information and Early Warning Systems in Cambodia to Support Climate Resilient Development and Adaptation to Climate Change	Cambodia	Climate change	Strengthen climate-observing infrastructure and increase capacity to utilize climate and environmental information for responding to climate hazards and planning adaptation to climate change	Diminished livelihood options; weak governance and institutional learning; reduced ecosystem service provision	4, 5, 6, 7, 8, 9
5005	Integrating Biodiversity Conservation, Climate Resilience and Sustainable Forest Management in Trung Truong Son Landscapes	Viet Nam	Multifocal	Maintain and restore forest biodiversity, ecosystems, and related watershed processes, enhance forest carbon stocks, and strengthen climate resilience at a landscape scale in the Central Annamite region of Viet Nam	Reduced ecosystem service provision	4, 5, 6, 7, 8, 9
4945	Collaborative Management for Watershed and Ecosystem Service Protection and Rehabilitation in the Cardamom Mountains, Upper Prek Thnot River Basin	Cambodia	Land degradation	Restore and maintain forest cover and watershed stability functions while providing for sustainable livelihoods and ecosystem services in the Upper Prek Thnot watershed.	Reduced ecosystem service provision; diminished livelihood options; decreased sociocultural and economic benefit sharing	1, 4, 5, 6, 8, 9, 10, 11, 14, 15, 16, 19, 21, 22
4826	Developing National Biodiversity Strategy and Action Plan and Mainstreaming Biodiversity Conservation into Provincial Planning	Viet Nam	Biodiversity	Integrate convention on biological diversity (CBD) obligations into national planning processes through enabling activities	Reduced ecosystem service provision; weak governance and institutional learning	6, 4, 8, 9, 23, 26, 27, 32
4652	GMS Forest and Biodiversity Program (GMS-FBP) - Creating Transboundary Links Through a Regional Support	Regional	Multifocal	Part of the Core Environment Program and Biodiversity Conservation Corridor Initiatives (CEP-BCI) being implemented in the Greater Mekong subregion (GMS) countries. CEP-BCI's Development Objective is to improve biodiversity conservation and climate resilience across the GMS.	Reduced ecosystem service provision; weak governance and institutional learning	6, 4, 8, 9, 21, 22, 23, 28
4650	GMS-FBP: Strengthening Protection and Management Effectiveness for Wildlife and Protected Areas	Lao PDR	Multifocal	Increase capacity for effective protected-area management, wildlife conservation, and control of illegal wildlife trade through an SFM/REDD+ and multiple benefits approach	Reduced ecosystem service provision; diminished livelihood options; weak governance and institutional learning	6, 4, 8, 9, 23, 26, 27, 33
4554	Effective Governance for Small Scale Rural	Lao PDR	Climate change	Improve local administrative systems affecting the provision and maintenance of small-scale rural infrastructure (including	Reduced ecosystem service provision; weak governance and institutional learning	1,2,3,4

	Infrastructure and Disaster Preparedness in a Changing Climate			water and disaster preparedness) through participatory decision making that reflects the genuine needs of communities and natural systems vulnerable to climate risk		
4434	Strengthening the Adaptive Capacity and Resilience of Rural Communities Using Micro Watershed Approaches to Climate Change and Variability to Attain Sustainable Food Security	Cambodia	Climate change	Build adaptive capacity of rural communities and reduce their vulnerability to climate change and variability through integrated micro watershed management and climate-resilient agriculture practices to ensure food security in Cambodia	Reduced ecosystem service provision; diminished livelihood options; decreased sociocultural and economic benefit sharing	5,6,7
3873	Developing and Demonstrating Replicable Protected Area Management Models at Nam Et - Phou Louey National Protected Area	Lao PDR	Biodiversity	Test, in selected areas of the Nam Et Phou Louey National Protected Area (NEPL NPA), targeted activities for sustainable natural resource use and protection of selected species threatened by human interaction, including managing anticipated impacts from road infrastructure development inside the NPA	Reduced ecosystem service provision; weak governance and institutional learning	6, 4
3627	SFM: Promotion of Sustainable Forest and Land Management in the Viet Nam Uplands	Viet Nam	Multifocal	Project grant goal: Focus mainly on assessment, capacity building, and pilot testing of SLM/SFM and payment for environmental services (PES) options Global Environmental objectives: Enhance land and forest use through the use of combined SLM and SFM techniques, helping to improve livelihoods and offer more opportunities for income generation in a durable way Development objective: Preserve forest resources and reduce land degradation, through the application of SFM and SLM techniques and the promotion of diversification strategies and institutional strengthening, in allocated or rented forest land of the uplands	Reduced ecosystem service provision; diminished livelihood options; decreased sociocultural and economic benefit sharing; weak governance and institutional learning	2,6,7
3404	Promoting Climate-Resilient Water Management and Agricultural Practices	Cambodia	Climate change	Enhance adaptive capacity, at the national, institutional, and local levels, to climate change-induced changes in water resources availability for the agricultural sector in Cambodia	Reduced ecosystem service provision; decreased sociocultural and economic benefit sharing; weak governance and institutional learning	4, 5, 6, 4, 5, 6, 15, 16, 19, 20, 22, 23, 32
2762	SFM Viet Nam Country Program Framework for Sustainable Forest Land Management (COUNTRY PROGRAM)	Viet Nam	Multifocal	Halt and reverse the trend of forest and forest land degradation, restore and maintain the function of forest ecosystems to realize local and global environmental benefits, and increase the capacity of institutions to support, and land users to invest in, sustainable forest land management	NA	
2751	SFM Rehabilitation and Sustainable Use of Peatland Forests in South-East Asia	Global	Multifocal	Global Environmental Objective: Reduce the rate of degradation of peat swamp forests and support their rehabilitation to maintain biodiversity, carbon storage, and climate regulation functions Development Objective: Reverse the loss and degradation of peatlands in Southeast Asian countries in order to avoid	Reduced ecosystem service provision	2,4,5,6,7

				negative impacts on socio-economy, health and environment through capacity building and sustainable peatland management practices		
2416	Mainstreaming Biodiversity in Agricultural and Land Management Policies, Plans and Programs	Lao PDR	Biodiversity	Provide farmers with the necessary incentives, capabilities and supporting institutional framework to conserve agrobiodiversity within the farming systems of Lao PDR.	Reduced ecosystem service provision; weak governance and institutional learning	6,12,25

1.10.2 GEF project financing and cofinancing levels

94. GEF project financing refers to a grant or concessional financing provided from any GEF-managed trust fund to support the implementation of any full-size project, medium-size project, enabling activity, or program. This excludes cofinancing, agency fees, and project preparation grants. While cofinancing refers to financing that is additional to GEF project financing, and that supports the implementation of a GEF-financed project or program and the achievement of its objective(s).⁴⁷ Table 5 presents the levels of GEF project financing in relation to levels of cofinancing, for the 28 projects in the portfolio. It shows that the GEF was funding a higher proportion of total project amounts for early projects, when little cofinancing was available. The GEF's contribution to the total amount has decreased in later phases, when increased levels of cofinancing were committed. Overall, the GEF cofinancing ratio stood at 1:9. It must be noted that these data present the expected cofinancing at project CEO approval stage and does not represent the actual cofinancing received by completed projects.

Table 5: GEF financing and cofinancing levels (n=28)

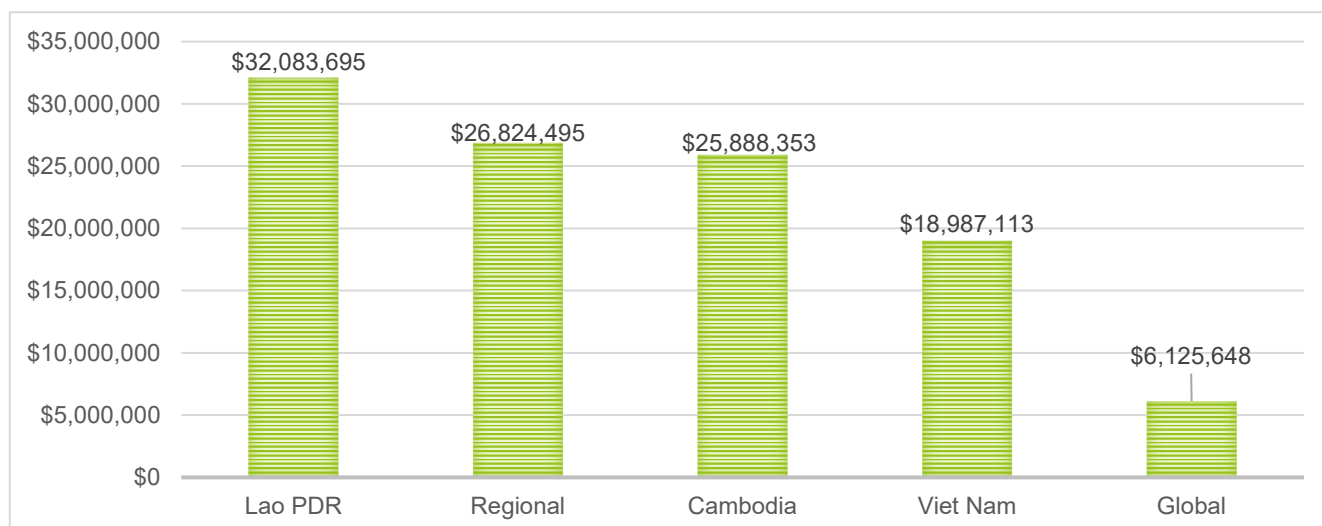
GEF Replenishment Period	GEF Project Financing Amount	Cofinancing Amount (Commitments at CEO stage)	GEF Project Financing as % of Total (GEF + Cofinancing)
GEF - 4	\$9,947,709	\$23,603,426	30%
GEF - 5	\$39,444,293	\$209,399,093	16%
GEF - 6	\$12,861,162	\$409,315,447	3%
GEF - 7	\$47,656,140	\$334,838,086	12%
Grand Total	\$109,909,304	\$977,156,052	10%

Geographic focus

95. Four projects within the portfolio had a regional coverage (including two or three of the countries under focus, amongst other countries in wider Asia), while 22 projects were focused on one of three countries (Lao PDR, Viet Nam, or Cambodia). Two projects had a more global focus, with only one MRB country involved. As shown in Figure 12, the highest share of GEF project financing went towards projects in Lao PDR (29.2 percent of total funding), followed by regional projects (24.4 percent), Cambodia (23.5 percent), Viet Nam (17.3 percent), and the two global projects (5.6 percent).

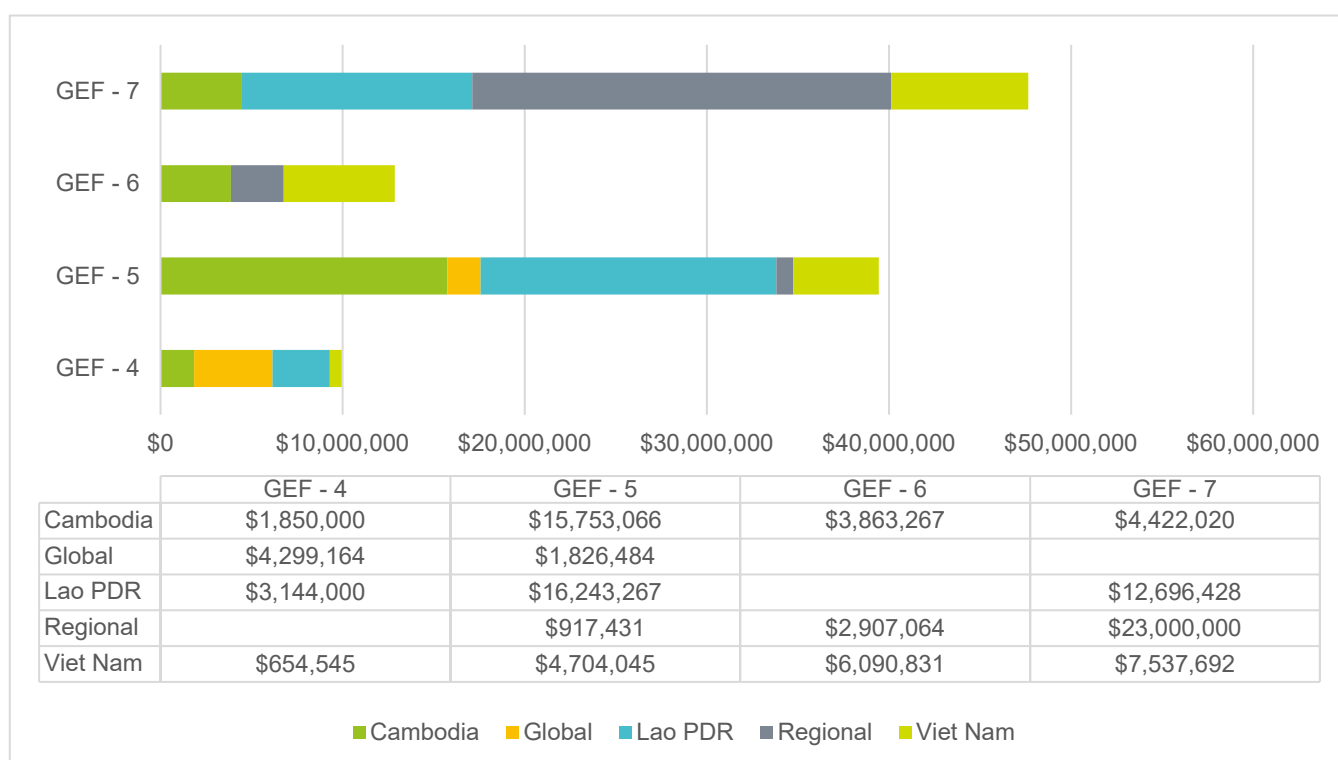
⁴⁷ GEF (2018) Guidelines on Cofinancing (FI/GN/01) Approved June 26, 2018.

Figure 12: Project financing amount by country/region (n=28)



96. Looking at the evolution of geographic focus across the GEF replenishment periods, as shown in Figure 13, funding to regional projects did not appear in GEF-4, but they have been increasingly funded since GEF-5, with a significant increase under GEF-7 (6.9 percent increase in comparison to GEF-6). The largest investments to country-based projects in Lao PDR and Cambodia were found under GEF-5, whilst investments to projects in Viet Nam have been on a smaller scale but consistently increasing across GEF replenishment periods.

Figure 13: Project financing amount by GEF replenishment period and country/region (n=28)



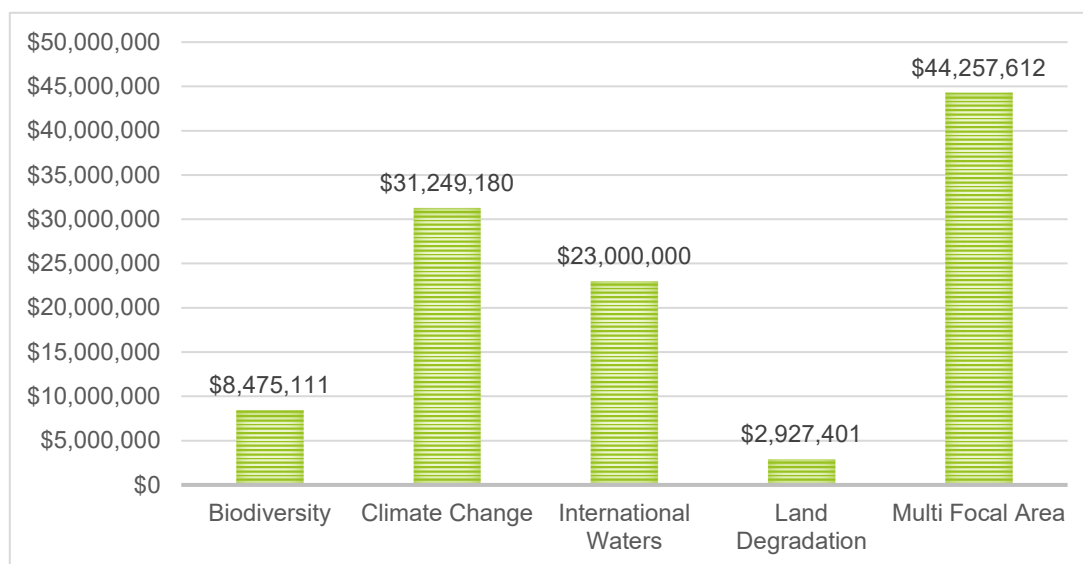
Focal areas

97. The selected projects addressed four of GEF's specific focal area strategies—biodiversity, climate change, international waters, and land degradation—as well projects that were designed to address issues that were best addressed by the multifocal area (MFA) framework. MFA projects are

designed to promote synergies that aim to deliver multiple environmental benefits;⁴⁸ they address cross-cutting environmental issues and drivers that cannot be ascribed to a single focal area, as well as when issues linked to multiple focal areas occur within the same geographical unit.⁴⁹ MFA projects also aim to help recipient countries tackle the underlying drivers of environmental degradation.

98. MFA projects accounted for the largest share (40 percent) of the relevant GEF portfolio in the LMRB (Figure 14) followed by climate change (28 percent), international waters (21 percent), biodiversity (8 percent), and land degradation (3 percent).

Figure 14: Project financing amount by focal area (n=28)



99. Figure 15 shows how funding of the GEF's focal area strategies in the LMRB has evolved and fluctuated. For example, after GEF-4, MFA funding became increasingly important through GEF-7, whereas climate change was the most highly funded area under GEF-5, which was the period in which the three countries developed their respective national climate change strategies. International waters⁵⁰ has received the greatest amount of funding for any one focal area within a single GEF replenishment period, reflecting an important shift that addresses many of the regional challenges faced by the LMRB.

⁴⁸ Independent Evaluation Office of the GEF (2018) *Sixth Overall Performance Study of the GEF*. Sixth GEF Assembly, June 24-29, 2018. Da Nang, Viet Nam. p5.

⁴⁹ *Op cit.*

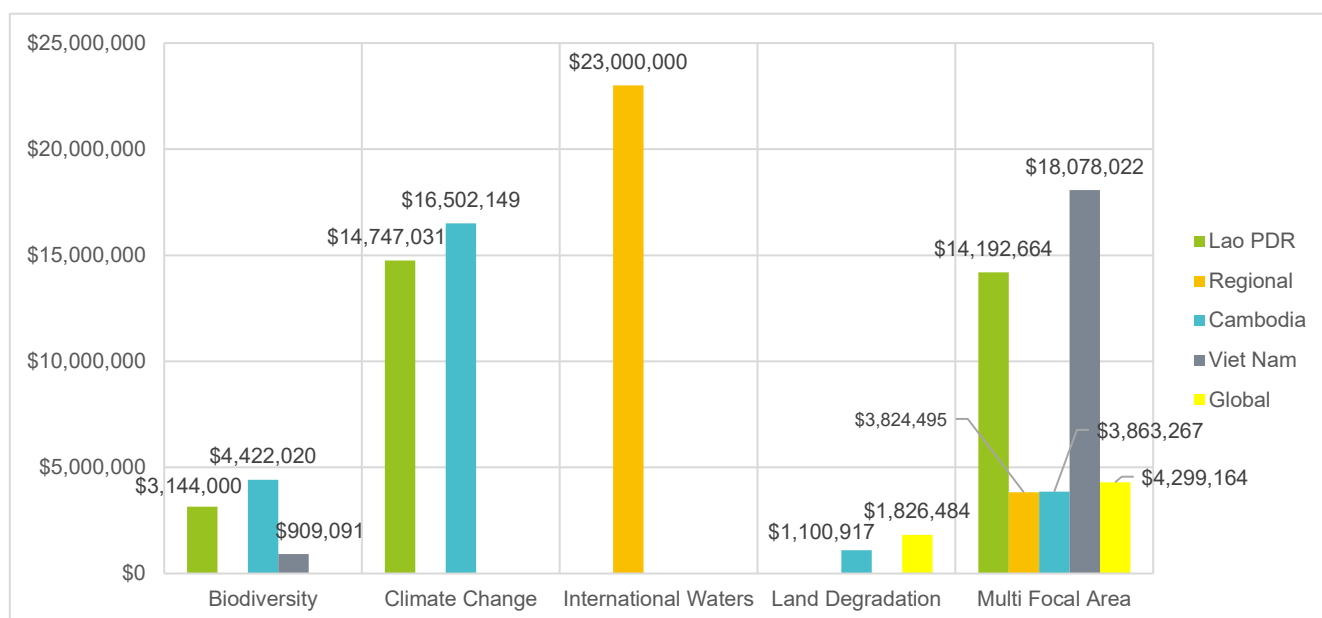
⁵⁰ Although the international waters allocation is relatively low, within the subset of programs in the region, it has received the highest allocation.

Figure 15: Project financing amount by GEF replenishment period and focal area (n=28)



100. Figure 16 examines the selected portfolio projects by thematic focal area and geographic focus (country/ regional/global). GEF financing of regional projects concentrated predominantly on international waters (\$23 million), followed by multifocal areas (\$3.82 million). Global projects, which included one or more of the three countries relevant to our portfolio, had an MFA approach (\$4.29 million), with a smaller amount of funding going to projects with a land degradation focal area (\$1.82 million). For country-based projects in Cambodia and Lao PDR, climate change was the dominant focal area of GEF financing (\$16.5 million and \$14.7 million, respectively). However, for Viet Nam, projects were mostly within multifocal areas (\$18 million), with a smaller pot of funding for biodiversity projects (\$909,000).

Figure 16: Project financing amount by focal area and country/region (n=28)



Implementing Agencies

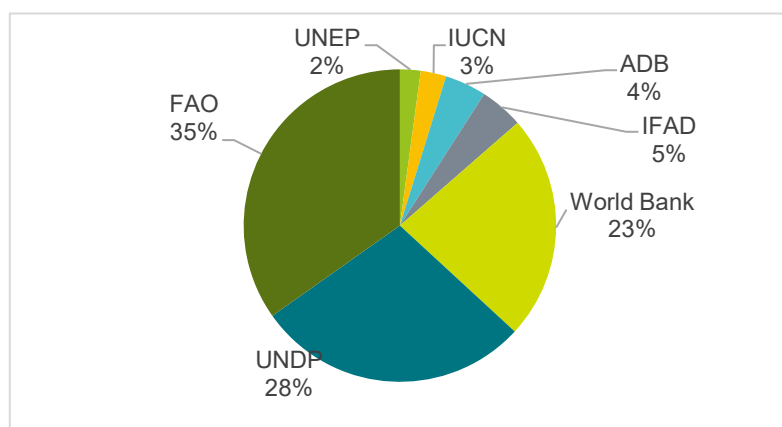
101. Over the past 15 years, the GEF has worked with eight GEF Implementing Agencies, referring to the partner agency leading the program or project. These agencies include the Asian Development Bank (ADB), United Nations Development Programme (UNDP), the Food and Agriculture Organization of the United Nations (FAO), the United Nations Industrial Development Organization (UNIDO), the International Union for Conservation of Nature (IUCN), the World Bank, the International Fund for Agricultural Development (IFAD), and the United Nations Environment Programme (UNEP).

102. Within the selected portfolio for the evaluation (28 projects), UNDP and FAO were the primary Implementing Agencies for the largest number (UNDP) and size (FAO) of project financed by the GEF over the years (table 6 and figure 17). The portfolio excluded industrial and pollution abatement projects, resulting in the exclusion of projects with UNIDO as the GEF Implementing Agency.

Table 6: Number of projects and project financing amount by lead agency

GEF Agency	Number of Projects	Total GEF Project Financing Amount
FAO	5	\$38,246,530
UNDP	10	\$31,155,670
World Bank	6	\$25,584,515
IFAD	2	\$4,953,709
ADB	2	\$4,712,385
IUCN	1	\$2,907,064
UNEP	2	\$2,349,431
Grand Total	28	\$109,909,304

Figure 17: Proportion of total project financing amount by lead agency (n=28)



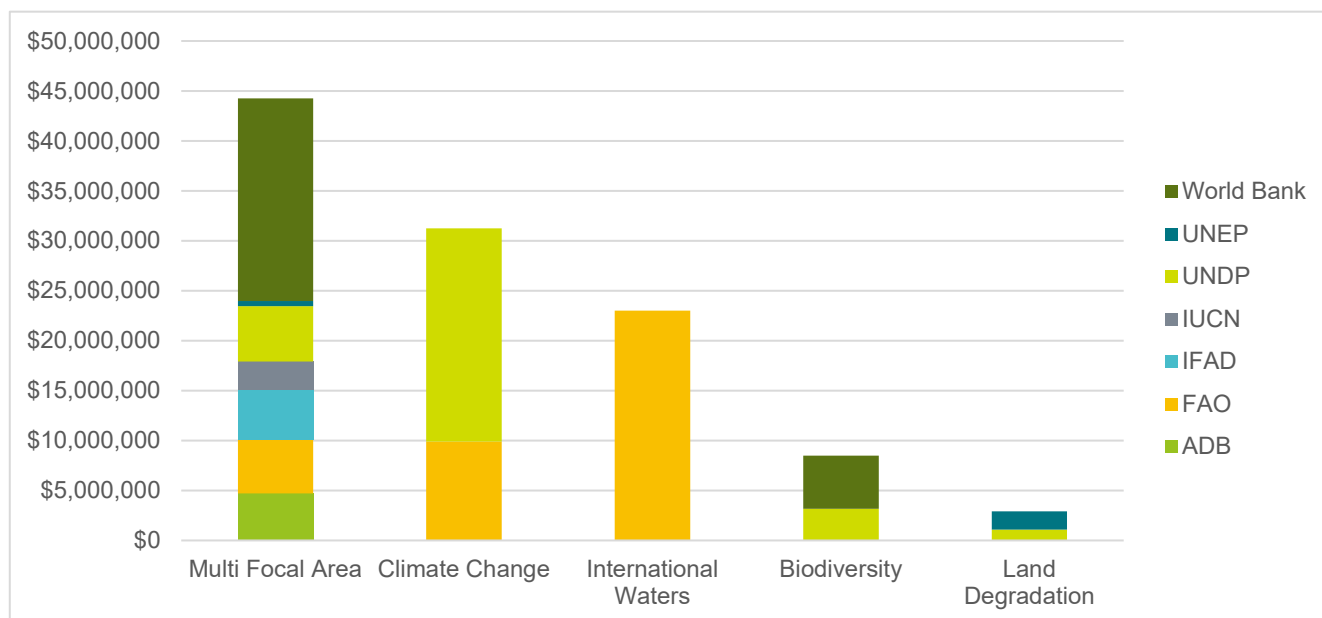
103. Analysis of the portfolio projects by GEF agencies and focal areas found that:

- GEF-funded projects with the ADB, IFAD, and IUCN as Implementing Agencies have been entirely in multifocal areas.
- With the World Bank as Implementing Agency, GEF project financing has primarily been in multifocal areas (79 percent), followed by the biodiversity focal area (21 percent).
- With FAO as Implementing Agency, the GEF has funded projects in the international waters focal area (60 percent), followed by climate change (26 percent) and multifocal areas (14 percent).
- With UNDP as Implementing Agency, GEF project funding has predominantly had a climate change focus (69 percent), followed by multifocal areas (18 percent), biodiversity (10 percent), and land degradation (4 percent).

- (e). With UNEP as Implementing Agency, GEF-funded projects have been predominantly within land degradation (78 percent) and multifocal areas (22 percent).

104. The analysis of the portfolio projects by Implementing Agency and focal areas did not show strong patterns over time (figure 18).

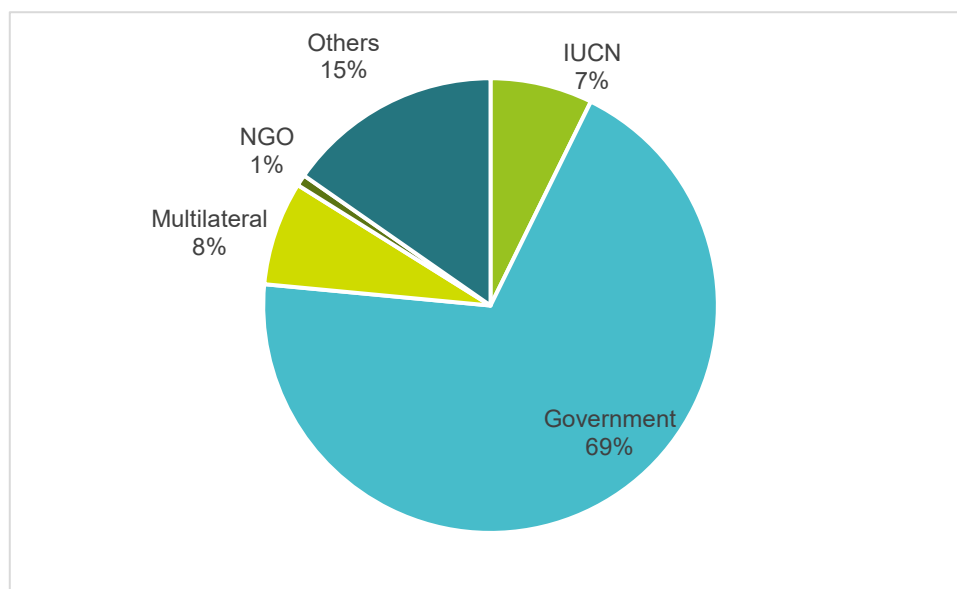
Figure 18. Total project financing amount by focal area and lead agency (n=28)



Executing partners

105. The agencies work with executing partners; primarily these have been government actors, usually the core ministries dealing with natural resource management and environment (ministries responsible for agriculture, water resources, environment, and forests). As shown in Figure 19, 69 percent of total project financing of the portfolio has been channelled through projects using government actors as executing partners. Other executing partners include multilateral agencies and NGOs (for example, the ASEAN Secretariat & Global Environment Centre, the Wildlife Conservation Society, and the MRC).

Figure 19 Share of total project financing amount by executing partner type (n=28)



Project status

106. Of the 28 projects within the scope of this evaluation, 29 percent were ongoing at the time of the evaluation.⁵¹ Three of these projects had been approved in GEF-5, three in GEF-6, and two in GEF-7. All projects with a “project implemented” or “financially closed” status had been approved under GEF-4 or GEF-5.

107. The inclusion of both closed and ongoing projects allowed the evaluation to assess the extent to which previous GEF replenishment phases incorporated recommendations and lessons learned from previous projects, as well as the degree to which they incorporated those lessons and recommendations in the design of ongoing GEF projects. It also allowed the evaluation to assess the continuity of regional and country priorities within GEF projects and subsequently, to examine the relationship between projects that incorporated lessons and recommendations, and the overall performance rating of those projects.

Table 7: Project status by GEF replenishment period

GEF Phase	Number of Projects by Project Status					Total
	CEO Endorsement Cleared	Council Approved	Financially Closed	Project Implemented	Under Implementation	
GEF - 4		1	5			6
GEF - 5			1	7	3	11
GEF - 6	1				3	4
GEF - 7	2	3			2	7
Total	3	4	6	7	8	28

⁵¹ Using GEF data from April 2022.

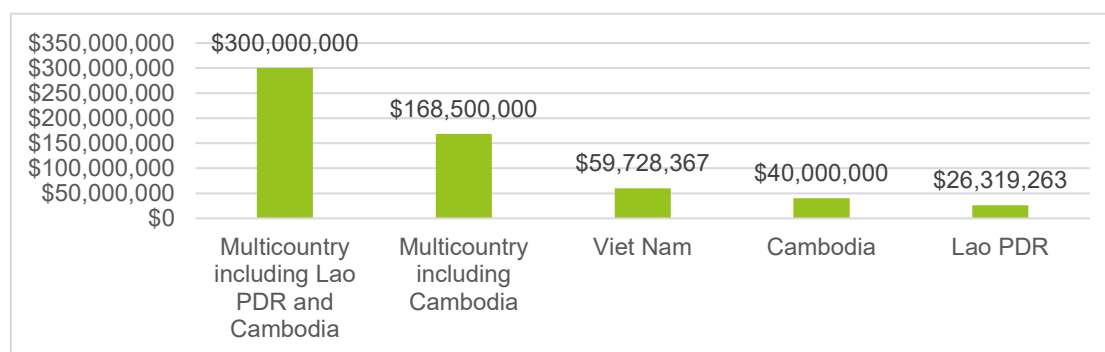
1.11 GEF support in relation to other donors to the Mekong River basin

108. Several multilateral and regional organizations work and provide funding in relevant sectors of climate change, biodiversity, forest management, irrigation, and agriculture in Cambodia, Viet Nam, and Lao PDR. These include the Asian Development Bank, the World Bank (both of whom are also GEF agencies), the Green Climate Fund, the United States Agency for International Development, and the International Fund for Agricultural Development. Below we summarize the relevant investments of these organizations.

109. The Green Climate Fund (GCF) is the world's largest climate fund that supports developing countries to take climate action through GCF's investments in climate change mitigation and adaptation. Although additional funding is available for industrial sectors outside of the sphere of the GEF's focus areas, other GCF-funded projects relate to sustainable forestry and biodiversity (either as a direct focus through mainstreaming, or as one of multiple result areas) and are therefore relevant to the GEF's work. Between 2016 and 2022, GCF funding to projects relevant to sustainable forestry and biodiversity totaled \$59 million in Viet Nam, \$40 million in Cambodia, and \$26 million in Lao PDR.

- (a). In Viet Nam, related projects funded by the GCF have included Improving the Resilience of Vulnerable Coastal Communities to Climate Change Related Impacts in Viet Nam (\$29.5 million of GCF financing), and Strengthening the Resilience of Smallholder Agriculture to Climate Change-Induced Water Insecurity in the Central Highlands and South-Central Coast Regions of Viet Nam (\$30.2 million).
- (b). In Lao PDR, projects have included Implementation of the Lao PDR Emission Reductions Program through Improved Governance and Sustainable Forest Landscape Management (\$16.3 million) and Building Resilience of Urban Populations with Ecosystem-Based Solutions in Lao PDR (\$10 million).
- (c). In Cambodia, GCF invested in the Climate-Friendly Agribusiness Value Chains Sector Project (\$40 million).
- (d). Multicountry investments covering Lao PDR and/or Cambodia, alongside other countries globally, have included through the Global Subnational Climate Fund (SnCF Global), ASEAN Catalytic Green Finance Facility (ACGF): Green Recovery Program, and Green Guarantee Company.

Figure 20: GCF financing relevant to sustainable forestry and biodiversity (2016–2022)

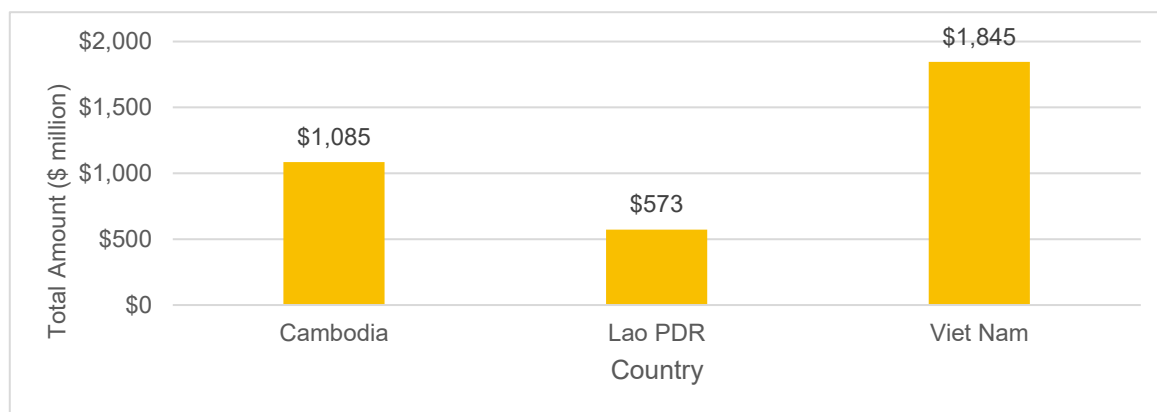


Source: GCF Open Data Library

110. The Asian Development Bank (ADB) provides funding to projects in Cambodia, Lao PDR, and Viet Nam in a range of sectors; of particular relevance to the GEF's work are ADB's investments in

agriculture, natural resources, and rural development. As of April 2022, ADB funding within this sector in Cambodia totalled \$1.085 billion, constituting 23 percent of ADB's total funding in all sectors within the country, the highest proportion of the three countries covered by this evaluation. In Lao PDR, this stood at \$573 million, or 19 percent of total ADB funding in the country. Investments in Viet Nam were the highest in value among the three counties, at \$1.845 billion.

Figure 21: ADB cumulative commitments to agriculture, natural resources, and rural development projects (as of April 2022)



Source: ADB Member Fact Sheets - Cambodia; Lao PDR; Viet Nam (updated as of January 2023).

111. As discussed in section 2, within the portfolio for this evaluation (n=28), ADB has been lead Implementing Agency for two GEF projects. These include:

- (a). In Viet Nam, the Integrating Biodiversity Conservation, Climate Resilience and Sustainable Forest Management in Trung Truong Son Landscapes project (GEF ID 5005) with a total project financing of \$3.79 million; and
- (b). The regional project GMS Forest and Biodiversity Program (GMS-FBP) - Creating Transboundary Links Through a Regional Support (GEF ID 4652), with a total project financing of \$917,000.

Both of these projects had multifocal areas and were initiated under GEF-5.

112. The World Bank mainly provides loans⁵² rather than grants to LMRB countries. Between 1998 and January 2023, the Bank provided \$1.585 billion, making it the largest source of funding for the three countries. These loans primarily focused on the irrigation and drainage sector where they represented the highest total value. Other sectors in which the Bank provided funding were other agriculture, fishing, and forestry (\$747 million), and forestry (\$553 million). The loans were mainly invested in Viet Nam, although that country has reached its limit for receiving loans and it is now urgently searching for large private-sector investments. It is noteworthy that the GEF's grant contribution to those loans has been disproportionately small compared with the total Bank loan value, and several sources alluded to the belief that they are added on to make the loans more enticing.

113. As discussed in section 2, within the evaluation portfolio, the Bank is the lead Implementing Agency for six GEF projects. Four of these projects have had multifocal areas, and two have

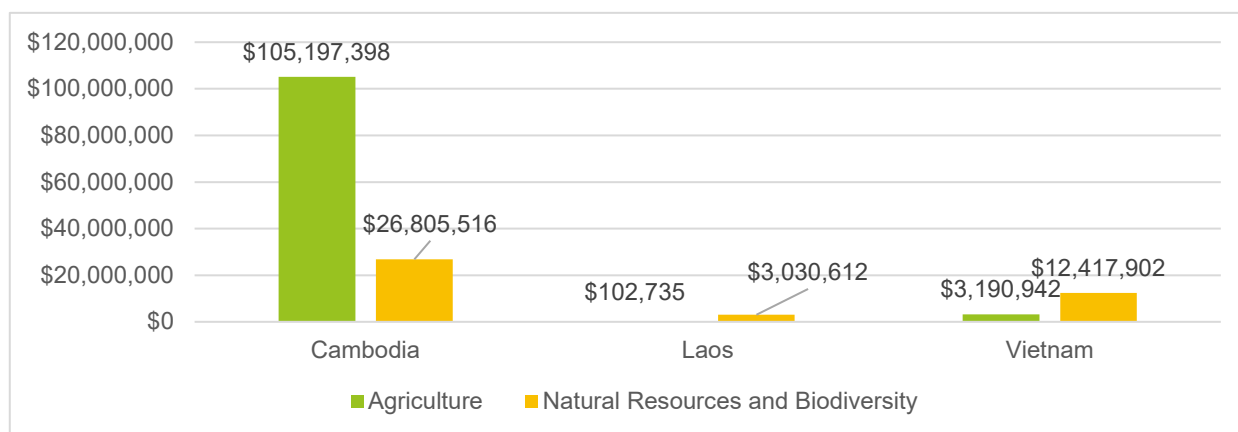
⁵² Loans are based on country priorities and focused on many other sectors besides environment, climate change, land, or water.

concentrated on the biodiversity focal area. The most significant GEF projects with the Bank in terms of funding are:

- (a). Lao PDR Landscapes and Livelihoods Project (GEF ID 10499) under GEF-7, with a total project financing of \$7.37 million;
- (b). GMS-FBP: Strengthening Protection and Management Effectiveness for Wildlife and Protected Areas (GEF ID 4650) under GEF-5, with a total project financing of \$6.83 million;
- (c). GEF-AF-Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project (GEF ID 9265) under GEF-6, with a total project financing of \$6.09 million, which is dwarfed by the ca. \$350 million loan; and
- (d). Additional Financing for the Cambodia Sustainable Landscape and Ecotourism Project (GEF ID 10483) under GEF-7, with a total project financing of \$4.42 million.

114. Between 1998 and 2022, the United States Agency for International Development (USAID) has invested in projects relating to agriculture, natural resources, and biodiversity within the three countries.⁵³ Of the three countries, USAID has made the most significant investments in these sectors in Cambodia, totalling over \$105 million in agriculture and \$26.8 million in natural resources and biodiversity. Viet Nam received \$3 million in agriculture and \$12 million in natural resources and biodiversity during that period, In Lao PDR, \$102,000 was invested in agriculture, and \$3 million in natural resources and biodiversity. USAID also supports agriculture, climate change, and natural resource management interventions at the regional level. The above figures might be an underestimation, as the publicly available data base does not provide sectoral or LMR specific details.

Figure 22: USAID total funding in agriculture and natural resources and biodiversity sectors 1998–2022



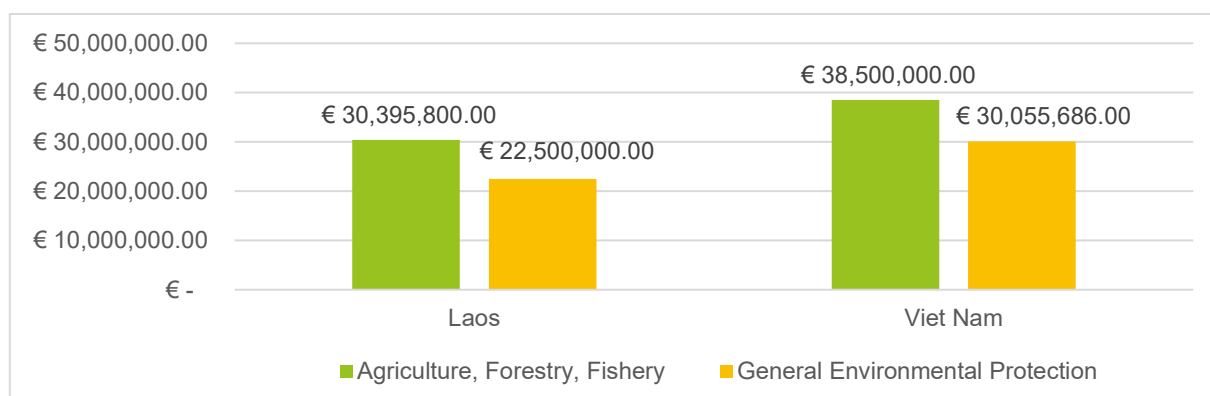
Source: Foreign Assistance.gov database (updated January 20, 2023).

115. The German Development Bank KfW (Credit Institute for Reconstruction) has been a significant investor in development projects in the LMRB. While KfW funding has recently prioritized Water, sanitation and hygiene (WASH) and health in the three countries, historically their funding has heavily targeted agriculture and environmental protection in Lao PDR and Viet Nam. From 2007 to 2022, KfW invested EUR 38.5 million in agriculture, forestry, and fisheries in Viet Nam, and just under

⁵³ An in-depth analysis of data from other organizations is outside the scope of this evaluation, therefore a general summary is presented based on publicly available data.

EUR 30.4 million to the same focus area in Lao PDR. Moreover, KfW has invested about EUR 30.1 million in Viet Nam and EUR 22.5 million in general environmental protection since 2007.

Figure 23: KfW total funding in agriculture, forestry, and fisheries, and general environmental protection sectors 2007–2022



Source: KfW Development Finance, Transparency Portal. KfW.de (updated December 31, 2022).

116. The International Fund for Agricultural Development (IFAD), an international financial institution and specialized agency of the United Nations, supports rural and agricultural development in the LMRB countries. Cambodia has received the highest value of IFAD financing, with activities in enabling poor smallholders to take advantage of market opportunities, increasing resilience to climate change and other shocks in poor rural households and communities, and improving poor households' access to rural services. In Lao PDR, IFAD's country strategic opportunities program has three main objectives, focused on improving: community-based access to and management of land and natural resources; access to advisory services and inputs for sustainable, adaptive and integrated farming systems; and access to markets for selected products. In Viet Nam, IFAD describe their current strategy and portfolio of programs and projects as aimed at developing market-led innovations that aid poor people, by deepening institutional and policy reform at the provincial level and building capacity in districts and communes and among poor farm households. IFAD are also working to incorporate IFAD-supported experience into government systems and programs.⁵⁴

Table 8: IFAD funding in the LMRB countries

Country	Projects	Total Project Cost (USD million)	Total IFAD financing (USD million)	Households impacted
Cambodia	12	950.48	309.08	1,565,500
Lao PDR	17	509.07	164.81	329,775
Viet Nam	17	788.1	463.4	738,470

Source: IFAD Operations: <https://www.ifad.org/en/web/operations/regions>

KEY FINDINGS OF THE EVALUATION

117. This chapter presents the key findings of the evaluation. It is subdivided into four main sections: relevance, effectiveness, sustainability, and additionality. The relevance section synthesizes findings on the aptness of GEF project designs in targeting LMRB needs and advancing the

⁵⁴ IFAD (2023) Country Strategies: <https://www.ifad.org/en/web/operations/regions>

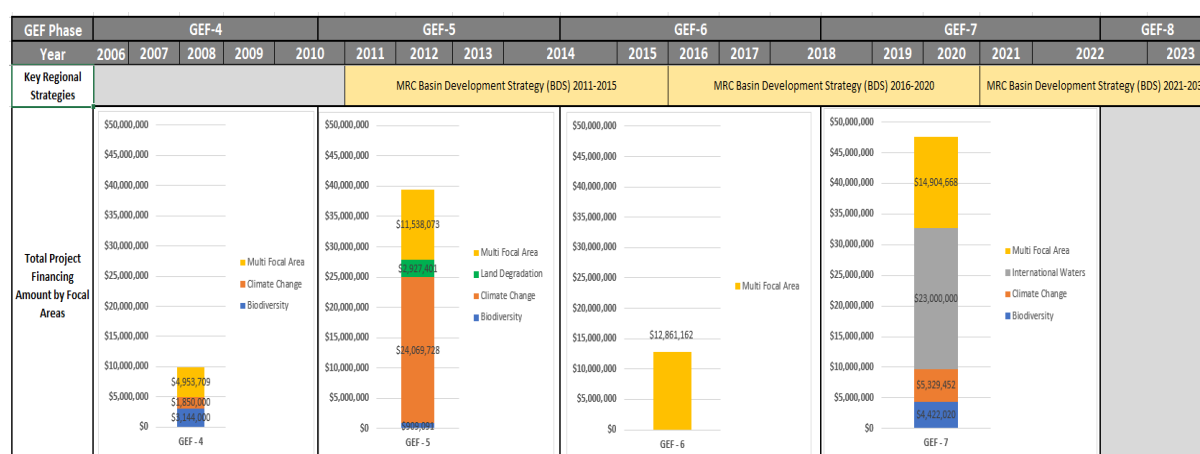
achievement of regional priorities. Specifically, it presents findings on the distinctiveness and added value of GEF-supported projects; how closely GEF’s support aligns with regional and national priorities; the appropriateness of project design; and the inclusivity of marginalized demographics within GEF projects. The effectiveness section summarizes the principal impacts, successes, and shortcomings of GEF’s support in relation to the following outcomes: ecosystem resilience building; strengthening resilience of communities through addressing vulnerability and enhancing livelihoods; and strengthening policies and institutional capacity. The sustainability section examines some of the key ingredients for sustaining GEF investments, while the discussion on additionality analyzes some of the unique value-added contributions that led to transformative changes.

1.12 Relevance⁵⁵

FINDING 1: All projects not only provided support⁵⁶ to partner countries plans, strategies, and policies but also to regional bodies.

118. The evolution of GEF support is shown in Figure 24, with climate resilience beginning to appear in GEF-4 and intensifying in GEF-5, when there was substantial investment in the climate change focal area. However, GEF funding for climate change subsequently dropped once the Green Climate Fund was established in 2010, and recognition of the importance of taking a multifocal approach and working with transboundary international water issues became increasingly important in subsequent GEF funding cycles.

Figure 24: Evolution of GEF support



119. In general, GEF projects were designed to add unique additional value through coherence, complementarity with other donors, and pragmatic and innovative approaches⁵⁷ that not only addressed some of the most urgent issues in rural areas for the three countries⁵⁸, but also provided solutions to multiple LMRB challenges highlighted by regional bodies.⁵⁹

⁵⁵ Includes not only relevance to national and regional plans, programs, and strategies but also the degree to which the project designs were relevant to addressing the stated problem and barriers.

⁵⁶ This includes interventions for reducing social, economic, and ecosystem vulnerabilities, while increasing the resilience of socioecological systems in the LMRB’s productive landscapes by applying tools such as ecosystem-based adaptation tools to address human and climate impacts in the region.

⁵⁷ Furthermore, qualitative evidence from KIIs and FGDs highlights the GEF’s distinctive integrated ridge to river–basin management approach, corroborated by desk-based analysis and direct observations.

⁵⁸ Given the importance of the LMRB as a biodiversity hotspot and its role in connecting and sustaining many of the LMRB’s most important ecosystem functions, it is not surprising that the GEF has strategically focused on water resource (wetlands, catchment management, and aquifers) management within the ridge-to-river basin landscapes connecting people and biodiversity (especially ecosystems).

⁵⁹ This includes over two decades of the MRC’s river basin management strategies and ASEAN’s ASCC Blueprint 2025, which guides ASEAN cooperation to include the conservation and sustainable management of biodiversity and natural resources, promotion of climate change adaptation and mitigation, and encouragement of circular economic consumption and production toward a circular economy.

120. GEF project designs were widely praised by interviewed key informants for successfully optimising donor efforts in the region by minimizing donor overlaps and key informants noted the additionality of the GEF's efforts to minimize project overlap with other donor projects in the region, thereby engendering the increased positive impact of donors' projects in the region. Prior to GEF support, informants described limited coordination between existing project aims, roles, and responsibilities, which ultimately hampered the overall impact of all donor projects. For example, the strategic value added by the GEF's coordination efforts was aptly summarized by a representative of Cambodia's Planning and Statistics Department: "All of the GEF projects under the NAPA [National Adaptation Program of Action] follow-up were designed to address the duplicate roles and responsibilities in local government planning, implementing, M&E, and reporting."⁶⁰ However, GEF projects helped to establish the local government secretariat at the provincial, district, and commune levels to address the issue of overlapping roles.⁶¹

121. Another interview cited examples of how the GEF projects were designed to be coherent with and complement other donor interventions in the region. One key informant from the Cambodian Planning and Statistics Department noted that for the national level, "[the] GEF project contributed to the upgrade of the NCDD [National Commission for Sub-National Democratic Development] to being an eligible entity for the Green Climate Fund, which now allows the NCDD to absorb funds to implement different climate change projects".⁶² The injection of funding, partially enabled by the GEF's support in the region, has potentially increased the capacity and resolution of Cambodian national institutions to embark on more ambitious climate adaptation projects.⁶³ However, in Viet Nam, interviews with government officials engendered less-positive responses and failed to reveal additional distinctive competencies of the GEF relative to other donors, nor instances of demonstrable complementarity.

122. Beneficiaries and government officials also highlighted the GEF's unique added value of incorporating people-oriented approaches to improve project implementation. The focus on vulnerable groups, particularly women, indigenous people, and other marginalized groups (the poorest in the communities) helped lay a foundation in which governments, NGOs, and the private sector could potentially sustain some of the forward-looking investments stand out as distinctive achievements of GEF projects. Overall, most KIIs with officials from national, provincial, and district authorities strongly agreed that the GEF has demonstrated unique competencies in project management and support⁶⁴ in the LMRB.⁶⁵

FINDING 2: The GEF has been an important and early contributor to several regional initiatives with ASEAN and the MRC.

⁶⁰ Previously, MAFF [Ministry of Agriculture, Forestry and Fisheries], MOE [Ministry of Environment], MOWA [Ministry of Women's Affairs], MOWRAM [Ministry of Water Resources and Meteorology], and NCDD [National Committee for Sub-National Democratic Development] worked on the same climate change issues, in the same locations, and with the same beneficiaries.

⁶¹ The interviewee went on to explain that "Therefore, different stakeholders, such as NGOs in the provinces and other development partners, can now directly support the secretariat to assist and finance the local planning process by integrating climate change adaptation and other ecosystem restoration in the rural areas of Cambodia."

⁶² This statement was corroborated by another KII with senior officials at the NCDD secretariat itself.

⁶³ Cambodian and Lao PDR officials elaborated on a range of the GEF's distinctive competencies and complementarities with existing donors, as summarized in annex 6.

⁶⁴ When questioned on the relevance and value of GEF support in relation to river basin and ecosystem management, Cambodian and Lao PDR officials regularly cited the GEF's collaborative approach at the lowest practical levels for implementing climate change adaptation projects.

⁶⁵ Regarding GEF 3404, interviewed officials from the Preah Vihear Provincial Department of Agriculture, Forestry, and Fisheries stated that the GEF's support for communities distinguished its support: "The GEF project focused on climate change and informed communities in advance...and it takes care of staff who are involved in the project implementation with the provision of enough material support to staff, like motorbike, computer etc."

123. The GEF was one of the first grant agencies to support efforts to confront major regional challenges by: i) addressing the loss of the LMRB's ecosystem regulatory and functional capacities;⁶⁶ ii) demonstrating good SLM through more sustainable agroecological practices;⁶⁷ iii) creating transboundary biodiversity and forestry linkages;⁶⁸ and iv) supporting the ASEAN Peatland⁶⁹ Management Strategy⁷⁰ (APMS) 2006-2020.⁷¹

124. The GEF has continued to address these major challenges more recently through creating enabling environments for transboundary cooperation and action to strengthen forest, biodiversity corridors and climate resilience;⁷² freshwater resource management and ecosystem health in bi-national river basins;⁷³ and water security in the Mekong River Delta Transboundary Aquifer.⁷⁴ It also has played an important role in promoting regional cooperation through two major peatlands projects, creating a network of protected peatland ecosystems in LMRB countries, which is in line with Aichi targets to increase awareness, while supporting surveys and economic valuations of priority peatlands.

125. Two of the projects addressed threats and awareness about peatlands⁷⁵—ecosystems of global importance—which is significant because prior to 2009, peatlands were not officially recognized in Viet Nam, Cambodia, Lao PDR, or Myanmar, even after the adoption of the ASEAN Peatland Management Strategy in 2006.⁷⁶ Although the total area of the GEF-supported peatlands ecosystem projects is relatively small, they occur in significant conservation landscapes and support unique and rare biodiversity.⁷⁷

126. Today the GEF is one of the LMRB's top five donors to help reduce the risk of fire⁷⁸ and the resulting haze, improving livelihoods and contributing to environmental management of globally important peatland carbon-storage reservoirs in the LMRB.⁷⁹ However, despite the importance of continuing the GEF's support to peatlands,⁸⁰ few of the lessons and recommendations from previous GEF peatland projects were incorporated into the design of the present peatland project under

⁶⁶ GEF 2751, GEF 4652.

⁶⁷ GEF 2751, GEF 5824, GEF 9232.

⁶⁸ GEF 4652.

⁶⁹ Peat is a heterogeneous mix of decomposed plant remains that has accumulated in an anoxic, water-saturated environment, mainly found in lowlands. Marshes, swamps, floodplains, and coastal wetlands may contain peat, but places where the peat deposits are greater than 3-4 m in depth contain a distinctive variety of ecosystems. Peat deposits are also flammable because of their high carbon energy content.

⁷⁰ The EU provided approximately 18 percent of the budgeted donor assistance funding.

⁷¹ GEF 2751, which aimed to promote the sustainable management of peatlands through collective actions and enhanced cooperation, support and sustain local livelihoods, and reduce the risk of fire and associated haze, while contributing to global environmental management of these important carbon storage ecosystems.

⁷² GEF 4652.

⁷³ GEF 10193.

⁷⁴ GEF 10520.

⁷⁵ The lack of understanding and management actions for protecting and restoring peatlands makes them especially vulnerable to degradation and potential loss of critical biodiversity resulting from land conversion and degradation due to unsustainable land use practices. This has not only resulted in significant losses of peatland ecosystems in southeast Asia, but also reduced biodiversity, carbon sequestration capacities, and livelihood benefits.

⁷⁶ GEF support also addressed ASEAN regional ecosystem priorities on peatlands protection and restoration of globally significant degraded ecosystems and their important carbon stocks. The GEF's first integrated peatlands management project (GEF 2751, 2005–06) covered multiple countries in Southeast Asia, focussing for the LMRB in Viet Nam's national parks.

⁷⁷ Field-level data supported the terminal evaluation finding that the project has had a strong catalytic effect on financial sustainability (visitor reception center, boat tours, and associated food stalls that provide additional income for the local community), greater awareness about the project, and improved peatland management.

⁷⁸ For example, the Regional Peatland project in Viet Nam (GEF 2756), where fire prevention has successfully eliminated fires since the last major fire nearly three decades ago and converted damaged areas to productive fishing grounds.

⁷⁹ Key global environmental benefits will arise from the protection, rehabilitation, and sustainable management of key peatland areas. The project aims to support the implementation of the Aichi Biodiversity Targets, in particular target 11 on protected areas and target 15 on the conservation and restoration of degraded ecosystems.

⁸⁰ GEF 2751 and GEF 9232. The importance of a thematic focus on peatlands was commented upon by one official from the Cambodian Ministry of Agriculture, who noted: "Although Koh Kong had some existing projects, such as GEF-6, FFI- Fauna & Flora International, Wildlife Conservation Society, and PEMSEA (Partnerships in Environmental Management for the Seas of East Asia), the focus on peatland was not included in their project framework. Therefore, GEF 9232 has been really crucial to work and complement with the existing ones." The GEF's contribution to peatland conservation and ecosystem management was similarly described by a representative from the Lao PDR Ministry of Water Resources as being distinctive and beneficial.

implementation, including promoting local empowerment, which was a key feature of the previous peatlands project. It has also failed to take the recommended comprehensive analysis of the social, economic, and biophysical context recommended by the STAP. Studies commissioned by the project also have done little to add to the broad base of capacity building that is fundamental for beneficiaries to test project-related interventions.⁸¹ Furthermore, the projects failed to consider that the government had plans to convert a critical mangrove and peatland ecosystem into a concession area for an Asian investor. Recently, legal protection was removed for ca. 126,000 hectares⁸² of carbon biomass and critical habitat with several globally important species⁸³ found nowhere else on the planet, thus undermining the relevance of the project in the local context. This oversight was particularly surprising given the long history of donors working in this location (i.e., since the late 1990s).

127. Overall, GEF support to national governments has been consistent with supporting the MRC's long-term strategy through its specific focal areas related to climate change (6 projects), land degradation (2 projects), international waters (2 projects), and protection of biodiversity hotspots (4 projects) at the national and transboundary levels. The remaining projects focused on integrated water management through multifocal area strategies, and the recent surge in calls for nature-based solutions was addressed in most of the GEF projects examined for this evaluation.⁸⁴

128. A few projects demonstrated their relevance in terms of innovation and effectiveness of good practices that could be replicated and upscaled to other LMRB countries. The previously mentioned Peatlands project⁸⁵ and a project from Viet Nam⁸⁶ are good examples of projects that could have a major catalytic effect on replicating good SLM approaches using nature-based solutions. Such projects could protect and rebuild rich carbon stocks and soil nutrients⁸⁷ to address issues of declining soil fertility and mismanagement of nutrient resources and improve the capture and efficient use of nutrients, while reducing air and water pollution. Vulnerability risk assessment (VRA) tools introduced by two projects⁸⁸ for all relevant government levels offer a regionwide approach, including a framework for systematically establishing gender-disaggregated baselines and measuring project-linked outcomes to changes in vulnerability.

FINDING 3: GEF project objectives were closely aligned and balanced with national priorities to reduce vulnerability of rural communities, including indigenous peoples, women, and other marginalized groups.

⁸¹ Unsurprisingly, the midterm evaluation rated the implementation effectiveness as moderately unsatisfactory.

⁸² <https://news.mongabay.com/2021/10/the-great-koh-kong-land-rush-areas-stripped-of-protection-by-cambodian-govt-being-bought-up/> The Tatai Wildlife Sanctuary is one of the eight protected areas across Koh Kong that collectively lost 126,928 hectares to the sub-decree. Tatai stood out as an area of concern due to the inclusion of large uninhabited forests among the 26,103 hectares (64,502 acres) cut from the wildlife sanctuary.

⁸³ Peam Krasop Wildlife Sanctuary lost 7,235 hectares (18,100) to Sub-decree No. 30, despite being home to one of the largest and best-preserved mangrove forests in southeast Asia (<https://news.mongabay.com/2021/10/the-great-koh-kong-land-rush-areas-stripped-of-protection-by-cambodian-govt-being-bought-up/>).

⁸⁴ GEF 2571, GEF 3404, GEF 3637, GEF 4434, GEF 4454, GEF 4945, GEF 5489, GEF 9232, GEF 9265.

⁸⁵ It also generated a number of good lessons and practices for sustainable peatlands management that included fire control with no fires for over two decades in these massive underground carbon sinks. However, there is no evidence that these good practices were shared with other peatland partner countries nor were those experiences (e.g., pineapple cultivation in peatlands as a restoration technique in Indonesia) shared with Viet Nam.

⁸⁶ GEF 5824 Sharing Knowledge on the Use of Biochar for Sustainable Land Management, or Biochar for Sustainable Soils). While formal biochar research is in its infancy, scientific studies have improved understanding of biochar, and the chemical, physical, and biological processes involved when biochar is applied to soil. However, results have not been assessed or disseminated.

⁸⁷ The project Biochar for Sustainable Soils was intended to build on previous interventions and scientific field trials by evaluating the diverse formulations and application rates of biochar (as one type of SLM innovation) for different scenarios of soil types, climates, and agricultural systems, aiming to increase understanding of biochar's potential for improving productivity and addressing issues of declining soil fertility and mismanagement of nutrient resources.

⁸⁸ GEF 3404 and 5419.

129. GEF funding responds to plans submitted by national partners; consequently, all GEF-supported projects addressed national priorities and were consistent with target-country climate change adaptation and SLM strategies aimed at reducing vulnerability of rural communities and achieving environmental and conservation goals.

130. Most projects addressed specific vulnerabilities at local (community) levels by targeting the four main LMRB challenges identified in this report: a) promotion of ecosystem-based solutions for sustainable forests and wetlands management; b) strengthening biodiversity; c) promoting climate-resilient measures at community level that reduced vulnerability and enhanced livelihoods; and d) strengthening institutional and community capacities, especially engaging and empowering women in specific areas of ecosystem management and ecosystem-based adaptation (EbA).

131. One biodiversity project⁸⁹ contributed to strengthening Viet Nam's 2008 biodiversity law, the 2020 national strategy on biodiversity, and vision to 2030. It was also harmonized with Viet Nam's REDD+ strategy and the national REDD+ action program and in line with the national plan to respond to climate change for 2021–2030 and vision to 2050. The project also contributed to the government's forestry development strategy and socioeconomic development strategy to restore and maintain forest cover, thereby contributing to other national targets, such as reducing poverty in the mountainous areas of Central Greater Annamites while testing solutions to restore and protect critical transboundary forest landscapes in Viet Nam.⁹⁰ It not only strengthened institutional and community capacities to manage protected areas and their surroundings but successfully demonstrated that reduced GHG emissions resulting from deforestation.

132. GEF projects in Cambodia were aligned with the government's priorities at national, provincial, and local levels, including climate change adaptation, mitigation, and resilience and disaster risk reduction. The GEF also supported climate-resilient adaptation practices and early warning alerts for farmers in Cambodia,⁹¹ while assisting the government to implement its strategies for reducing the vulnerability of Cambodian rural livelihoods (especially land-poor, landless, and/or women-headed households) through enhanced subnational climate change planning, policies, and execution of priority actions.⁹² The project objective⁹³ also strongly related to the national environment strategy and action plan (2016–2023) and Cambodia's climate change strategic plan (2014–2023). In Lao PDR, GEF support was aligned with national strategies and policies and the SDGs. One wetlands protection project included Ramsar⁹⁴ wetland sites in two different provinces along the Mekong River floodplain. These two sites were⁹⁵ not only highly relevant and a potential game changer for addressing target communities' development needs but were also coherent with Lao PDR's development goals and policies at all levels (central, province, and district). The project also offers a potentially important regional model for an integrated ecosystems-based approach for sustainable wetlands management which, if successful, could be replicated in other wetlands across the LMRB.

⁸⁹ GEF 5005.

⁹⁰ GEF 3627 Promotion of Sustainable Forest and Land Management in the Viet Nam Upland and GEF 5005.

⁹¹ GEF 5318 Strengthening Climate Information and Early Warning Systems in Cambodia to Support Climate Resilient Development and Adaptation to Climate Change project helped build a comprehensive and functional meteorological and hydrological monitoring network and related early warning system infrastructure.

⁹² GEF 5419.

⁹³ The objective was to improve subnational administration systems affecting investments in rural livelihoods through climate-sensitive planning, budgeting, and execution.

⁹⁴ The Ramsar Convention on Wetlands of International Importance (established in 1971) is an intergovernmental treaty that provides the framework for national action and international cooperation on the conservation and wise use of wetlands and their resources. It is also known as the Convention on Wetlands.

⁹⁵ GEF 5489 CAWA project. Wetlands provide key sources of livelihoods—food (rice, fish) and income (rice, livestock, nontimber forest products [NTFPs]). Important wetlands-related issues include preserving and sharing access to water in the dry season, controlling encroachment and illegal use, and enhancing livelihoods benefits derived from wetlands.

133. Women and indigenous groups have long been marginalized in the LMRB and it is noteworthy that all but one⁹⁶ of the GEF projects were designed to empower women, strengthen their capacities for economic empowerment, and involve them actively in implementation. KIIs and FGDs⁹⁷ across all three countries confirmed that gender and/or gender mainstreaming were key considerations during project design and implementation,⁹⁸ with specific examples demonstrating use of rapid gender assessments within vulnerability assessments⁹⁹ (e.g., VRA) and other mechanisms.¹⁰⁰

134. All projects but one¹⁰¹ were designed to empower women, strengthen their capacities for economic empowerment, and actively involve them in implementation. One important achievement of these gender engagement projects has been their impact in strengthening rural women's economic empowerment, achieving this through improving the availability of finances and decision making. Furthermore, these projects often exceeded their targets and helped rural women to overcome barriers to alternative livelihoods. One women-only FGD elaborated upon the Cambodian wetland project's positive impact on alternative, resilient livelihood creation.¹⁰²

135. Two projects¹⁰³ facilitated financial empowerment and increased agency, particularly among women. Both were effective in increasing female economic empowerment and providing rural women with greater agency with regard to leadership and decision making. One of the ways that this was achieved was through alleviating the burden on women regarding family health issues attributed to poor water quality and accessibility. This resulted in women being able to allocate more time toward income-generating activities. One informant described that she now had more time to sell groceries, doubling her income from before the intervention, and could dedicate more time to community work, such as participating in awareness-raising activities on climate change and the environment.

136. Most informants were impressed that the GEF promoted the inclusion of women and indigenous peoples in national and/or local (district or provincial) climate change and water resource management strategies. However, few projects provided gender-disaggregated data in their output and outcome baselines, precluding any firm conclusions on gender equality within GEF projects. This was particularly prevalent in a project¹⁰⁴ situated in the Cambodian wetlands. Within this region, women are the primary users of wetlands, however, they are significantly underrepresented in decision-making bodies and processes affecting them. At midterm there were no robust gender-responsive measures in place to mitigate this issue. This is equally true for another project¹⁰⁵ where, despite women beneficiaries being named a key target group, desk reviews and direct observations

⁹⁶ GEF 2416.

⁹⁷ These included not only beneficiaries but also government actors and donors. While most informants did not elaborate beyond an acknowledgment that cross-cutting issues, including gender, were "seriously take[n] into consideration," Cambodian officials expanded upon the practicalities and mechanisms used to mainstream gender using the innovative rapid gender assessment (RGA) in GEF 3404 and GEF 4434.

⁹⁸ One interview stated that "Since the beginning, a gender mainstreaming guide was introduced and coached to the commune and district councils using the VRA. However, it the VRA failed to differentiate between women and men to understand how climate risk affects women and men differently."

⁹⁹ Furthermore, women and men were engaged in the decision-making process at the local government level on the solutions and actions required to address the climate risks.

¹⁰⁰ During the prioritization of climate change initiatives in the local plans for GEF 3404 and GEF 4434, the communal councils needed to select the initiatives that benefited women and other vulnerable groups. If the project provides more benefits to women or vulnerable groups, its score is higher. The extent to which gender mainstreaming occurs in practice, however, was not possible to assess, due to a lack of disaggregated data which was hard to come by for most projects.

¹⁰¹ GEF 2416 Mainstreaming Biodiversity in Agricultural and Land Management Policies, Plans and Programs.

¹⁰² GEF 5489 CAWA. "The knowledge on vegetable, mushroom and grass cultivations, and livestock can be gained from the project interventions and the local people will have more opportunities for job creation... The main crop production affected by floods can be replaced by alternative crop production after the flood recedes."

¹⁰³ GEF 3404 Promoting Climate-Resilient Water Management and Agricultural Practices and GEF 4945.

¹⁰⁴ GEF 5489.

¹⁰⁵ GEF 9262 Sustainable Management of Peatland Ecosystems in Mekong Countries.

provide no significant evidence to suggest that women have benefitted more or have been prioritized by the intervention in any tangible way.

137. Two projects focused on improving infrastructure design to preserve and protect water resources¹⁰⁶ offered a model for measuring gender-disaggregated impacts in future GEF projects. In both of these projects, a mechanism was developed that enabled gender equality in the allocation of grants. For example, in the Kumban communities in Lao PDR,¹⁰⁷ village consultations were split into female and male focus groups to ensure that priorities of both women and men are included in the priority planning and grant proposal process. Another example is that at least one woman must be included on the district development support committee, a key body in the verification of district development fund proposals.

138. One-third of the projects examined in this evaluation had a strong focus on engaging indigenous people and promoting meaningful participation through capacity development. Of particular importance was the significant progress made in enhancing government authorities and increasing nonstate actors' capacities to provide responsive measures, including on gender and indigenous (Brao) peoples,¹⁰⁸ to address climate change-related vulnerabilities in Cambodia.¹⁰⁹

FINDING 4: Project designs lacked guidelines for applying conceptual management tools like EbA, ecosystem-based management (EbM), and failed to provide appropriate indicators to measure their effectiveness.

139. Projects that included a climate adaptation component¹¹⁰ attempted to build climate-resilient watersheds through EbA practices and EbM at the landscape level with nature-based solutions (NbS) to restore and maintain forest cover and watershed stability functions, while providing for sustainable livelihoods and ecosystem services.¹¹¹ However, only a handful of these sufficiently integrated cross-cutting issues and knowledge sharing to afford a reasonable degree of protection for adjacent, but interconnected ecosystems whose functions could contribute to the resilience of target areas. Examples of this are given in the geospatial analysis results provided in annex 6.

140. Conceptual management approaches like SLM, EbM, and EbA are not panaceas for the world's environmental problems, and unless they are applied by Implementing Agencies and Executing Agencies according to internationally accepted definitions and guidelines, they are unlikely to meet their full potential in the GEF context. Nonetheless, project designs failed to define these conceptual tools clearly and provide guidelines and indicators to test and measure their effectiveness. For example, rarely were these tools applied at appropriate scales to restore, maintain, or improve ecosystem health by addressing the resilience, connectivity, and other diverse roles that ecosystems play in driving larger landscapes.¹¹² Finally, there is no evidence that any project measured the effectiveness of these approaches, nor adapted them as needed to context-specific realities on the ground.

141. One-quarter of the projects that applied EbA, EbM, or other NbS focused on the symptoms of reduced ecosystem resilience, yet ignored root causes of community vulnerability and environmental

¹⁰⁶ GEF 3404, 4554.

¹⁰⁷ GEF 4554.

¹⁰⁸ The project worked with the Brao in one of the four target sites (Tavaeng Leu commune, Ratanakiri province) and paid serious attention to avoid generalizing the process of designing, consulting, and implementing the interventions for the group. The community consultative meetings were conducted in an environment in which indigenous people could express their self-determination as indigenous and preserve their self-esteem.

¹⁰⁹ GEF 4434.

¹¹⁰ GEF 2416 and 9232, and the CAWA wetlands project (GEF 5489).

¹¹¹ For example, GEF 4945.

¹¹² <https://friendsofeba.com/eba-criteria/>

degradation. This presented obstacles in several projects to applying ecosystem-based approaches. Furthermore, recommendations and lessons from previous donor projects and the STAP were either not integrated and acted upon, or fully taken up by over one-third of the projects. This was a serious shortcoming in many projects and was one of the key factors that might have affected several ratings. Finally, most of these projects also lacked mechanisms for strengthening ownership in central government institutions and for bringing attention to the MRC about good outcomes that can help address many of the LMRB's challenges, and strengthening the engagement of the private sector.

1.13 Analysis of effectiveness

142. The subsections that follow examine the effectiveness of GEF support in the Mekong region, focusing on some of the main challenges facing the LMRB, including: i) ecosystem resilience building; ii) strengthening resilience of communities through addressing vulnerability and enhancing livelihoods; and (iii) strengthening policy coherence with internationally agreed-upon benchmarks (e.g., SDGs, international agreements) and the institutional capacity to guide their implementation.

FINDING 5: Fewer than half of the projects, including GEF-7 projects, were adequately designed to measure the effectiveness of GEF support.

143. Document reviews of project MTR and terminal evaluation reports and their overall ratings were used to assess performance. While MTRs were available for 16 projects, terminal evaluations were limited either because they were not available or because the project is still ongoing. In the absence of a terminal evaluation, the latest available PIR was taken as a substitute. The desk review found that 11 of the 16 MTR ratings were less than satisfactory, while 3 projects were satisfactory, and 2 were highly satisfactory. Terminal evaluation ratings (or PIRs where applicable) improved for a total of 8 out of 10 projects compared with their midterm ratings,¹¹³ while 2 of those 10 projects received lower ratings in their terminal evaluation, and 2 projects remained unchanged. Only one project held a terminal evaluation effectiveness rating of highly satisfactory.

144. The performance of projects with poorly designed results frameworks—i.e., lacking causative results-chains leading to development impacts, lacking robust assumptions, missing baselines, and weak (nonSMART) outcome indicators as well as weak M&E systems, which limited the systematic application of adaptive management¹¹⁴ principles¹¹⁵—were consistently rated as being below satisfactory. While several projects developed baselines and innovative metrics for measuring the effectiveness of the interventions,¹¹⁶ few M&E systems were sufficiently robust to drive adaptive learning for developing corrective actions to put the project back on track to meet its objectives. The effectiveness of M&E implementation, especially participatory monitoring, evaluation, and learning (MEL), was closely associated with a project's achievement of satisfactory or higher rating.

¹¹³ In those cases where no MTR was conducted, the midterm PIR rating was used.

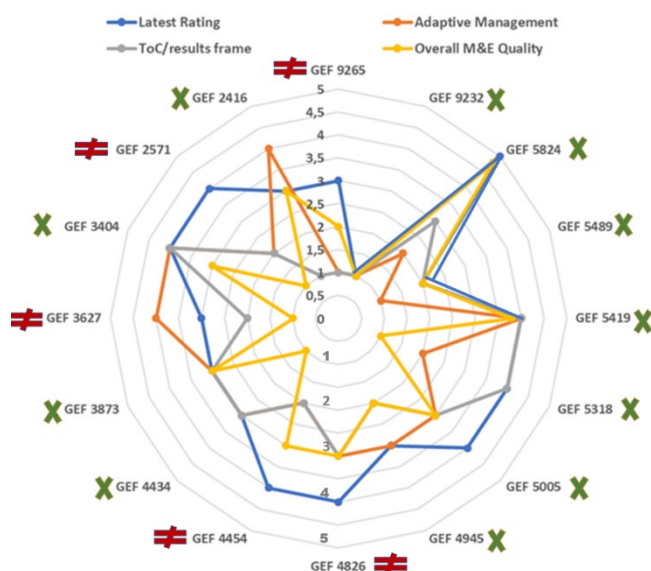
¹¹⁴ While there are many definitions and contexts in which to apply adaptive management, within the context of evaluations, adaptive management is an iterative process of reviewing and making changes to programmes and projects throughout implementation. It is an approach to management under conditions of ongoing uncertainty which represents a paradigm shift from classic, linear approaches to planning, implementation, and evaluation. Therefore, it goes beyond the usual adaptation involved in good management, modifying plans in response to changes in circumstances or understanding and using information to inform these decisions (<https://www.betterevaluation.org/methods-approaches/themes/monitoring-evaluation-support-adaptive-management>). According to Salafsky and Margoluis' (2003) definition, adaptive management incorporates research into action. Specifically, it is the continuous integration of design, management, [and] monitoring for evaluation to test assumptions systematically to adapt and learn.

¹¹⁵ There are diverse definitions, categories, and subcategories of adaptive management principles. Within the context of this report, the following four principles are highlighted: i) plan; ii) do; iii) evaluate; and iv) adjust/respond, following <https://www.betterevaluation.org/blog/does-evaluation-need-be-done-differently-support-adaptive-management>.

¹¹⁶ GEF 5419, GEF 3404, and GEF 4945.

145. While the sample size of projects with MTRs and/or terminal evaluations is relatively small, this assessment found a relationship between a project's evaluation rating and the quality of several associated variables. Figure 25 compares the overall effectiveness of a project's last available evaluation report¹¹⁷ with variables that included: i) the robustness of the project's results framework (log frame, theory of change, or similar results chains); ii) quality of the M&E process; and iii) appropriate application of adaptive management principles.¹¹⁸

Figure 25: Diagram showing degree to which selected variables influenced overall project effectiveness ratings



Note: In the diagram, green Xs indicate a relationship between the variable and the rating, whereas the red strikethrough equal sign does not support the hypothesis. (Based on most recent evaluation rating)

146. One common characteristic of an effective project was the degree to which its results framework contributed toward applying adaptive management principles, thereby allowing for adjustments to help meet its expected objectives and outcomes as required throughout implementation. The available evidence indicates that the quality of the results chain (baselines, SMART indicators) and the application of adaptive management principles appear to be correlated with a project's most recent project effectiveness rating in 10 of the 16 reports.¹¹⁹ Overall project effectiveness was generally lower for projects with weak results frameworks, nonSMART outcome indicators, and inadequate implementation of the initial M&E design.¹²⁰ Nearly two-thirds of the projects in the sample portfolio lacked coherent results chain/theory of change framework, and most projects lacked assumptions that could drive an adaptive process. Projects with poorly designed results frameworks, missing baselines, and weak M&E platforms consistently scored below satisfactory ratings in MTRs or terminal evaluations.

147. Several projects defined their target indicators inadequately, despite recommendations from previous project evaluations to develop robust, SMART outcome indicators rather than continually focusing on outputs. No project mentioned or incorporated empirical policy-related research recommendations into their design that included causal analyses of access failure to help address

¹¹⁷ Depending on what was available at the time of this evaluation.

¹¹⁸ It is to be noted that some of the Executing Agencies (FAO, ADB, and World Bank) did not include some of the metrics in their evaluations. The data presented for those projects are qualitative, based on in-depth reviews of the available evaluations.

¹¹⁹ The evaluation noted that the quality of two of the terminal evaluation ratings are questionable as the GEF IEO had a less favourable view than the independent evaluators or the rating assigned by the terminal evaluation, which was inconsistent with findings in the terminal evaluation report.

¹²⁰ Twelve of the 19 projects examined with terminal evaluations, MTRs, and up to date PIRs (and 8 of the deep dive projects) lacked coherent results chain/theories of change frameworks and fewer than half presented had SMART outcome indicators.

vulnerability related to climate-related displacement, economic loss, hunger or famine, and historical institutional and power constraints to effective climate adaptation.

148. Evaluation ratings for 16 projects showed that overall project effectiveness was generally lower for those with weak results frameworks, non-SMART outcome indicators, and inadequate implementation of the initial M&E design. The data show that, with one exception,¹²¹ a project's final rating was linked with: a) the quality of the M&E system design presented in the ProDoc; and b) the subsequent implementation of a project's M&E system (figure 25). Two projects showed a weaker relationship with these variables.¹²² However, the best designed M&E system presented in the ProDoc did not necessarily guarantee that the system will be effectively implemented. The implementation of seven M&E systems were less robust than their designs, while five of the projects improved their M&E implementation compared with design, and there was no change for two projects.

149. While most projects incorporated lessons from other projects from previous GEF funding cycles, few of them incorporated recommendations in the course of implementation, which affected performance. Project designs were by and large activity and output-oriented, without sufficient analysis of causal pathways and theory of change. Half of the projects incorporated pertinent recommendations and lessons from previous projects in their design and, with several exceptions, the degree to which recommendations were considered was related to a project's rating. Three of 5 regional¹²³ and half of 23 national projects failed to integrate lessons, good practices, and recommendations from other, similar projects into their design. Failure to incorporate recommendations and lessons from previous experiences backed by scientific evidence into their project design negatively affected project ratings. There is no evidence that traditional knowledge on SLM and EbA were considered, much less tested by any of the projects. Consequently, these projects missed opportunities for testing the validity of those recommendations and the effectiveness of traditional SLM practices within different contextual settings.

150. In general, each country faces capacity and institutional barriers, including constraints in technical capacities to execute new projects that offer climate-resilient interventions (e.g., nature-based solutions), coordination, and knowledge management with effective, cross-comparable results. Adaptive learning is one tool that could help improve learning by doing and adapting. However, weak results frameworks and baselines, and non-SMART indicators were related to the limited application of adaptive management principles. Only five projects applied adaptive learning to adjust to lessons during project implementation. This could be one reason that good outcomes of EbA, sustainable forest management (SFM), and SLM initiatives were localized and challenged to broaden their scope by scaling up and/or integrating them with evidence-based central-level policy.

151. Figure 26 shows that in most cases, there is a relationship between a project's overall effectiveness rating and the application of adaptive management principles. Higher ratings were observed in those projects that incorporated adaptive management and recommendations. Only two¹²⁴ of the seven projects receiving satisfactory or higher ratings were designed with adequate assumptions, while the others applied a reactive adaptive management approach to make

¹²¹ GEF 4826.

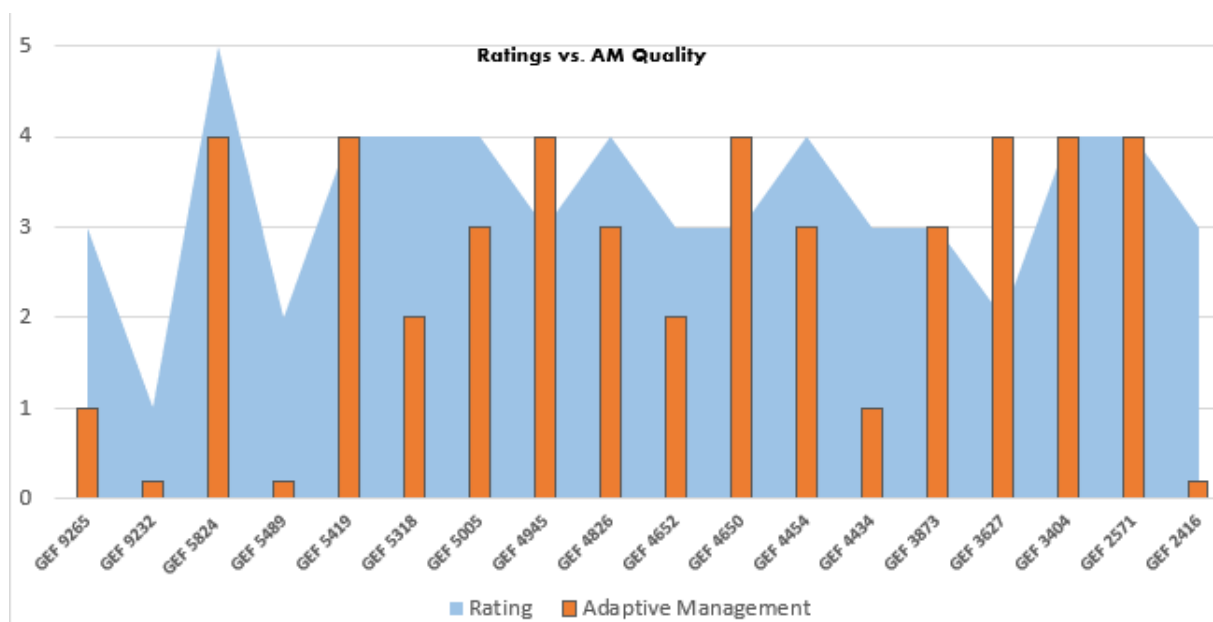
¹²² GEF 5419 and 4454.

¹²³ GEF 2751, GEF 4652, and especially GEF 9232.

¹²⁴ GEF 4495, GEF 5419.

adjustments during implementation based on recommendations from the MTR.¹²⁵ One project¹²⁶ took corrective action based on the MTR feedback, but was unable to improve its terminal evaluation rating, while the Lao PDR wetlands project¹²⁷ mitigated serious barriers to implementation long after the delayed MTR. The terminal evaluation for this project has not been completed to assess the relevance of these mitigative actions to put the project back on course.

Figure 26: Relationship between project effectiveness rating and application of adaptive management



152. The combination of weak baselines and inadequate result frameworks hypothetically prevented the systematic application of adaptive management principles. While this in no way negates projects that adapted well to unforeseen obstacles,¹²⁸ most of those good examples involved a reactive, rather than a proactive approach to adaptive management. A systematic, proactive approach, which involves testing assumptions and adapting when they are inaccurate, is almost always the more efficient approach, and it leads to systematic learning and knowledge sharing. For that reason, it is not surprising that those projects with poor results frameworks, inadequate baselines, and weak M&E platforms consistently scored below satisfactory ratings in MTR or terminal evaluations.

153. Another design shortcoming in all projects was that they rarely took a sufficiently broad holistic approach that recognized the importance of interconnected ecosystems adjacent to the target areas. In many cases, these ecosystems can be critical for driving upstream and downstream processes across geospatial scales. The unexpected outcome of indirectly protecting upland forest groundwater recharge areas in Cambodia and in the CAWA wetlands project in Lao PDR offer two good examples of the importance of such interconnected drivers, but this was recognized only after the projects had either passed their midterm point of implementation or were close to completion.

¹²⁵ For example, GEF 3404 made significant adjustments in order to close successfully, despite serious barriers due to COVID lockdowns. Engagement with communities was improved and this built trust with project staff. Partnerships with national and subnational government partners also improved and resulted in dynamic interactions between implementing partners and target beneficiaries.

¹²⁶ GEF 2416.

¹²⁷ GEF 9232 – CAWA Wetlands in Lao PDR.

¹²⁸ Good examples include the shift in funding modalities that the CAWA wetlands project in Lao PDR made to release funds from the central level to provide urgently needed funds to implement activities on the ground by using the direct implementation (DI) modality.

The absence of clear guidelines for implementation using adaptive management and measuring effectiveness affected the application of a holistic approach.

154. The design of GEF projects was not always optimal and rarely focused on addressing the root causes of the threats to socioecological resilience in the LMRB. For example, none of the projects explicitly addressed access failure (box 3), which has been shown to be one of the root causes of environmental and social problems in the Mekong. Overlooking this key issue that plays variable degrees of importance in each country ultimately resulted in obstacles for implementing at the lowest practical levels in several projects and sustaining good outcomes in others.¹²⁹

Box 3: Access failure

Inequitable and limited access to critical ecosystem services—otherwise referred to as access failure—increases poor and marginalized peoples’ vulnerability. It also drives their displacement, loss of livelihoods, and food insecurity in response to climate impacts (Ribot 2014), while impeding inclusive landscape and water governance (Oberlack and Eisensack 2018). Understanding the root causes of an environmental problem requires an analysis of access—namely, who benefits, under what conditions, mobilizing what relations of power, and through what set of mechanisms (Peluso and Ribot 2020).

155. Another barrier to the effective implementation of many of the projects is related to specific attributes of actors and pre-existing institutions, and/or institutional barriers to inclusive decision making. One study¹³⁰ found 21 reappearing patterns that impeded governance in river basins, most of which are related barriers to collective action for EbA. They also found that insecure property rights and obstacles to collective decision making at the local level were additional barriers that must be addressed. These findings are consistent with KIIs and FGDs in all countries and evidence from desk review of the portfolio.

156. Two projects¹³¹ provided examples of how power relationships not only derailed projects from achieving their objectives, but also acted as a disincentive for community-based ecosystem management and a risk to the overall effectiveness of the projects. However, those risks were neither identified nor mitigated in the design of either project, and not surprisingly, they were rated as less than satisfactory. Unless these issues are addressed in the design of future GEF projects, it is likely that the barriers to inclusive/interactive governance and project implementation efficiencies will continue to be one of the most formidable challenges for replicating, scaling up, and sustainably financing those initiatives. If the GEF’s contributions to transformational change directed at promoting climate-resilient water management, food security, and sustainable agroecological practices in rural areas are going to be continued, and good practices scaled up and replicated, it will require improved national government ownership.

FINDING 6: The most effective interventions were those whose design coupled long-term resilience building with immediate social and short-term economic outcomes and good technical backstopping.

¹²⁹ GEF 2416, GEF 3627, GEF 4434, GEF 5489, GEF 9232.

¹³⁰ Oberlack and Einsack 2018.

¹³¹ GEF 4434: While the ProDoc is very well laid out, there is no evidence of local empowerment nor the recommended comprehensive analysis of the social, economic, and biophysical context to describe the socioecological and power relationships and map the interactions between these variables. While it definitely met the SDG on women empowerment, uptake by government was minimal and could never have worked based on the poor design. GEF 4454: For some reason the Implementing Agency technical support overlooked the crucial importance of linking the project to the central-level ministries. This is the Achilles heel of the project and it is unpardonable, especially since the Implementing Agency office is based in Phnom Penh where the ministries are housed. Project design failed to assess critical institutional and technical risks, including coordination issues between MoHA and MoNRE, resulting in delays for ensuring linkages between environmental protection at the watershed level and water-related infrastructure.

157. Most projects contributed either directly or indirectly to address some of the main LMRB challenges by providing a diverse array of good practices and/or lessons on successes and failures in achieving a broad range of objectives aiming to reduce the vulnerability of rural communities and the critical ecosystems benefiting present and future generations. The resulting changes mainly took place at local levels (provincial, district, and communal), and included: i) improved access to water¹³² resulting in better community health; ii) irrigation for year-round agriculture; and iii) maintaining, restoring, and/or improving the capacity of the LMRB's widely diverse ecosystems' functions and services¹³³ through SLM and SFM. Five projects directly improved the effectiveness of managing biodiversity,¹³⁴ which is a key ecosystem service and the target of ecosystem-based management and adaptation to climate change impacts, improving rural livelihoods, and overall societal well-being.¹³⁵ Other notable transformative changes included creating new livelihood systems that led to lower vulnerability to global and regional changes and improved resilience of landscapes, water catchments, and forests.

158. The evaluation found satisfactory or higher ratings for 9 out of 16 projects.¹³⁶ These were projects that coupled ecosystem-resilience building, vulnerability-reducing measures, and good practices that improved incomes and subsistence at the community level. Two other projects also received satisfactory ratings but involved strengthening ecosystem management using top-down approaches, with a relatively small proportion of their budgets allocated to social and economic incentives for carrying out sustainable practices at the lowest practical levels and in close collaboration with government provincial institutions. The available information clearly shows that, unless local actors are allowed to take part in planning and decision making at the local levels, in the absence of funding and other incentives, they are likely to lose interest in a project. Without a buy-in from those communities, projects were only marginally successful in meeting their targets.

159. The available information for the projects also indicates that effectively implemented projects were those that adopted the subsidiarity principle in which provincial, district, and communal actors worked collaboratively and had adequate incentives to deliver immediate social and economic benefits. This resulted in collective action and inclusive governance actions for planning and implementing cross-cutting project activities.¹³⁷ While the sample size is relatively small, the limited evidence suggests that local engagement was highest when incentives such as the availability of financial resources were available to implement the interventions. Several project reports indicated beneficiary engagement was satisfactory or better when they received benefits from a project in the short term (as opposed to the medium and long ones). Those projects received at least a satisfactory rating.

160. The most effective interventions were those that were designed and implemented to couple long-term resilience building (e.g., ecosystem restoration),¹³⁸ sustainable irrigation infrastructure,

¹³² Water is key to climate change adaptation, community health, food security, and diversified livelihoods.

¹³³ Eleven of the 18 projects focused on the biodiversity focal area and multifunctional issues related to protecting, restoring, and building the resilience of ecosystem services and functions. Biodiversity provision and its resilience are crucial for climate change adaptation and mitigation.

¹³⁴ This not only includes the diversity of species, genetic material, and ecosystems, but also the bio-ecological processes that sustain many other ecosystem services.

¹³⁵ The full enjoyment of human rights, including the rights to life, health, food, and water, depends on the services provided by ecosystems (UN Rapporteur's Report on Human Rights (2017)). The provision of ecosystem services depends on the health and sustainability of ecosystems, which in turn depend on biodiversity. Thus, the degradation and loss of biodiversity undermine the ability of human beings to enjoy their human rights.

¹³⁶ GEF 2751, GEF 3404, GEF 3627, GEF 4454, GEF 4650, GEF 4945, GEF 5318, GEF 5824, GEF 5419.

¹³⁷ GEF 3404 provided a good example of the importance of a good institutional framework to build capacities to sustain adaptation measures. This was further strengthened by the strong commitment of communes and user groups to implement a fees collection system to maintain equipment such as irrigation systems in the long run. Such commitment is encouraging, although further efforts are needed.

¹³⁸ Biodiversity, encompassing variation from within species to across landscapes, may be crucial for the longer-term resilience of ecosystem functions and the services that they underpin (Oliver *et al* 2015 -Biodiversity and resilience of ecosystem functions. Trends in Ecology & Evolution, 30 (11). pp. 673-684).

governance that engaged women and other marginalized groups, and enhanced capacities to implement new conceptual planning and operational tools (e.g., EbA,¹³⁹ EbM,¹⁴⁰ SLM) delivering immediate social and economic benefits¹⁴¹ (e.g., improved communal and family well-being, more equitable sharing of ecosystem services under substantial future environmental changes, improved family incomes). Packaging short-term benefits with longer-term interventions also enabled the inclusion of vulnerable households. While many of these transformative changes included a broad range of good practices and/or lessons for maintaining, restoring, and/or improving the resilience the decades-old fragmentation of the LMRB's diverse ecosystem functions and services, the magnitude and spatial scales of those contributions in producing transformational change were limited.

161. Two projects¹⁴² indirectly highlighted the importance of taking a holistic approach during implementation that was not included in the project design. These projects demonstrated how GEF interventions indirectly protected ecosystem service flows from adjacent forested uplands that were critical for surface and groundwater recharge in the intervention areas by feeding year-round water storage ponds. This resulted in multiple unexpected benefits, including year-round supplies of drinking and irrigation water supplies, which not only improved community health, but also created new opportunities for aquaculture and agriculture. These new opportunities subsequently reduced the pressure to cut timber and firewood in the adjacent uplands, which indirectly protected (and rehabilitated) upstream forest ecosystems and improved water recharge to downstream infrastructure sites, according to interviews and observations at the site. For example, residents of Khamkok village in Lao PDR¹⁴³ reported easier access to and more efficient utilization of water, noting that this increased access to water resources gave residents more time to do other work and reduced conflicts arising from the efforts used to access water, while FGDs also described how families can now grow vegetables and raise livestock with accessible water from the system.¹⁴⁴

162. On the other hand, project designs without a holistic approach were faced with serious ramifications at their midterm evaluation point after discovering that their EbM approach was too narrow to recognize the importance of protecting functionally interconnected ecosystems adjacent to the wetlands. Had EbM been implemented adequately, these surprises could have been avoided. In the case of Lao PDR wetlands,¹⁴⁵ the project focused too narrowly on protecting wetlands, rather than examining historical flood and drought patterns, and the buffering and recharge capacities which depend on adjacent upland forests. Interviews and on-site observations during the field visit indicated that damming or diverting water flows away from the wetlands and downstream hydrological connections to the Mekong reduce the wetland's physical and ecological functions, harm the intervention areas, and reduce the resilience of ecosystem service flows.

163. Fortunately, the Implementing Agency took corrective action during the final months of the project. The original design was adapted to address deforestation and livestock grazing in the upland forests and interconnection area by providing alternative sources of foraging and firewood, and downstream hydrological connections were protected by removing dams and introducing fishery

¹³⁹ Ecosystem-based adaptation (EbA) is the use of ecosystem services, including biodiversity, as part of a strategy to help people adapt to climate change (CBD 2009).

¹⁴⁰ EbM is a key operational ingredient part of the CBD's ecosystem approach (<https://www.cbd.int/ecosystem>) based on the application of appropriate scientific methodologies focused on levels of biological organization which encompass the essential processes, functions, and interactions among organisms and their environment. Humans, with their cultural diversity and governance, are integral components of EbM.]

¹⁴¹ Feedback from many beneficiary households, for example under GEF 5419 from household surveys to establish baselines to assess income changes from agriculture, provided a powerful tool for the beneficiaries to reflect upon their results. However, going beyond these simple assessments to analyze the impacts of the interventions and assess the attribution of those impacts proved to be complex.

¹⁴² GEF 3404 Promoting Climate-Resilient Water Management and Agricultural Practices project in Cambodia, and GEF 4554 Effective Governance for Small Scale Rural Infrastructure and Disaster Preparedness in a Changing Climate project in Lao PDR.

¹⁴³ Beneficiaries of GEF 4554.

¹⁴⁴ With beneficiaries of GEF 3404 in Cambodia,

¹⁴⁵ GEF 5489 Climate Adaptation in Wetlands Areas (CAWA).

conservation areas. While much work remains for the soon-to-be completed project, the Implementing Agency and Executing Agency managed to make significant advances to reduce pressure on forest and aquatic resources by creating no-take fish conservation zones to enhance fish reproduction during critical breeding seasons and restore aquatic resources while supporting income generation.¹⁴⁶

164. In Cambodia,¹⁴⁷ local transformational changes not only enabled the inclusion of vulnerable households with immediate needs (who otherwise would not be keen to participate in interventions with long gestation periods), but they also resulted in more permanent behavioral changes in both these and other participating households.¹⁴⁸ Besides the project's overall goal of enhancing community resilience through improved household incomes linked to the agriculture sector and crop diversification, the introduction of climate-smart and drought-resistant crop varieties using seasonal forecasting aimed at reducing the impact of floods and droughts, which helped stabilize agricultural incomes. Therefore, there seems to be potential for integrating some of the projects' emerging good practices into a more holistic adaptation approach aimed at improving economic resilience and livelihoods of rural communities.

165. There is increasingly wider acceptance that future water resources supplies will be one of the biggest challenges affected by changing hydrological patterns due to more frequent climate-related natural disasters and to seasonal availability alterations caused by hydropower installations throughout the Mekong. Over two-thirds of projects examined focused on testing ways to improve water resource availability to reduce vulnerability. Approaches included coordinated, sustainable landscape-level planning and management in several projects. This resulted in restoration and maintenance of forest cover and watershed stability functions in adjacent hillside or mountainous forest landscapes that also helped diversify agricultural production, improve livelihoods, and support forestry management and the protection of ecosystem services (for example through enhancing the availability of irrigation and drinking water). Demonstrated good outcomes led to local transformative changes, including:

- (a). **Improved social, ecological, and economic resilience within hydrologically interconnected landscapes** through integrated watershed planning and landscape-level management interventions to restore and maintain forest cover, wetlands, and protected areas;
- (b). **Greater access to irrigation and drinking water resources**, while providing solutions to address watershed fragmentation¹⁴⁹ and early warning systems to alert farmers to climate conditions;¹⁵⁰

¹⁴⁶ It also demonstrated innovative approaches for introducing improved soil fertility management and good farming practices using adequate soil-cover crops. This provided additional benefits such as forage for livestock, thereby taking grazing pressure off critical interconnection areas.

¹⁴⁷ GEF 5419.

¹⁴⁸ Evidence from the projects indicate that increasing household incomes from agriculture is important for improving resilience and reducing vulnerability to external shocks. Diversifying and stabilizing income sources is equally important for engaging local actors to help contribute toward building resilience to extreme climate change events and other external disturbances (e.g., COVID-19).

¹⁴⁹ GEF 4454 developed climate resilience tools in two provinces in Lao PDR with high poverty rates and vulnerability to floods and drought caused storms and flash floods. It benefited over 3,000 villagers by integrating infrastructure design and construction within water catchments to conserve water resources and provide year-round water supply for irrigation in dry seasons.

¹⁵⁰ GEF 5318 supported climate-resilient adaptation practices and early-warning climate alerts for farmers that helped them plan their planting cycles according to climate data about impending floods and droughts. It helped build a comprehensive and functional meteorological and hydrological monitoring network and related early warning system infrastructure.

- (c). **Reduced social and ecological system vulnerability¹⁵¹ to extreme climate events** through EbA and nature-based solutions, such as agroecological farming, aquaculture, and forestry practices, and supporting women to adopt climate-resilient livelihoods;¹⁵²
- (d). **Mitigation of fragmenting biodiversity of global and regional importance** by integrating biodiversity with sustainable agriculture, aquaculture, fishery management (via zoning of key life cycle habitats) and forestry, which also helped improve protected area management;
- (e). **Prioritized inclusion of marginalized groups (women¹⁵³ and indigenous people) in climate adaptation initiatives** to improve food security and water availability, building ecosystem resilience to climate change and capacities to implement climate adaptation tools in globally and regionally important landscapes (e.g., Ramsar wetlands, peatlands and other critical watersheds feeding into the Mekong Basin); and
- (f). **Demonstration that increased income¹⁵⁴ can be obtained from sustainable practices that help maintain and/or restore ecosystem functions when they have sufficient water supply.** Human health is much improved compared to previous years, as a result of environmental improvement (more forest and plants), as well as good quality of water for household consumption.

166. The objective of the early warning system was to improve subnational administration systems affecting investments in rural livelihoods through climate-sensitive planning, budgeting, and execution. Investments were made in small-scale water management infrastructure. These resulted in a comprehensive and functional meteorological and hydrological monitoring network, supported by technical assistance, for creating resilient agricultural practices, and building capacities for poor women to improve food production in their home gardens. These were delivered through subnational administrations (communes, districts, and provinces), with a view to strengthening their overall capacity to plan, design, and deliver public services for resilience building.

167. The previously mentioned vulnerability reduction assessment¹⁵⁵ (VRA) offered powerful metrics for measuring the effectiveness of physical infrastructure and other measures for building water resilience and reducing vulnerabilities in targeted communities. Unlike most projects, the VRAs provided a framework for establishing robust baselines that allowed for calculating changes in the average vulnerability index. The VRAs also integrated the rapid gender assessment (RGA) during its inception phase. The final VRA results showed that the average vulnerability index decreased by 22.5 percent and these achievements were confirmed visually during the field visits and interviews with beneficiaries. It is surprising that so few projects employed this tool, which proved to be an excellent means of verifying changes in socioecological vulnerability.

¹⁵¹ GEF 3404 and GEF 4495 established robust baselines using a VRA that allowed for calculating changes in the average vulnerability index.

¹⁵² Site visits and available documentation for GEF 2416 Mainstreaming Biodiversity in Agricultural and Land Management Policies, Plans, and Programs in Lao PDR highlighted the effectiveness of protected area management through improved agro-biodiversity management for over 100 km² of mountainous landscapes and good agro-ecological practices that offered incentives for reducing unsustainable practices.

¹⁵³ There were several good examples of the emphasis the GEF placed on empowering women through capacity building. GEF 4434 focused on strengthening government authorities and non-state actors' capacities to provide gender-responsive services that address climate change vulnerabilities, while promoting women's participation and leadership in decision making.

¹⁵⁴ GEF projects in Lao PDR (GEF 5419, GEF 3404, and GEF 4945) supported water systems and climate-smart agricultural equipment for Siem Reap and Kampong Thom provinces' rural population, which allowed them to diversify their agricultural activities and reduce vulnerability to external shocks. Interviewees were satisfied because the project significantly helped their well-being and enhanced their capacity for resilience and adaptability.

¹⁵⁵ The VRA (www.undp-adaptation.org/project/cba) is a question-based approach which aims to: i) make M&E responsive to community priorities; ii) use M&E to make projects more accountable to local priorities; iii) make M&E capture community ideas and local knowledge; iv) gather community-level feedback to guide ongoing project management; and v) generate qualitative information to capture lessons on specific issues at the community level.

Local communities benefited economically, with some respondents stating that their income doubled (\$25 per month before the project compared to \$50–100 per month after the project). In addition, the water pond, water irrigation, and solar water-pumping technologies allowed local residents to use sufficient and clean water, thereby enhancing their health while decreasing the historically negative impacts of drought. Diversification at farm level (multiple crops, double cropping, more cash crops, animal husbandry, and other value chain additions) increased household incomes.

168. One official from the Cambodian Ministry of Agriculture, Forestry, and Fisheries stated¹⁵⁶ that “As of now, communities can access water of higher quality, and faster. Communities no longer need to spend much time on reaching the water supply, and this leads to better hygiene, and an increase in home gardening. Indeed, all of these interventions help them to reduce cutting down the forest, and this in turn leads to better ecosystem growth. The project has provided local communities with trees and sweet bamboo, with the establishment of water ponds and of water tank stations.” Community interviews echoed a similar message.¹⁵⁷

169. Capacity building was introduced to promote participatory forest land-use planning, and allocation methodologies were developed and successfully applied in an SFM project in Viet Nam,¹⁵⁸ resulting in a process that was more rapid, less conflictive, and lower cost than the country’s traditional top-down approach. This also helped in the training of a critical mass of individuals, institutions, and authorities at local levels who were assessed to have hands-on experience with a process that delivered over 100,000 ha of forest land zoning/planning, and allocated almost 24,000 ha. This resulted in the issuance of nearly 22,000 Red Books (forest land usufruct certificates) in Viet Nam and apparently convinced the people’s provincial committee to apply the approach across the province. Four projects¹⁵⁹ addressed capacity-building needs to help reduce threats; each provided a different approach for addressing deforestation, improving water availability, enhancing food security, and building resilience.¹⁶⁰

170. Although there are good examples of how the GEF’s contribution to building capacity through training courses, knowledge transfer, and applied learning resulted in good outcomes, there are also examples of shortcomings due to project design flaws where the results were less positive, in four projects¹⁶¹ that included a capacity and knowledge transfer component. For example, one climate change adaptation project¹⁶² highlighted the most common barriers for applying developed capacities financed by the GEF to improve implementation and adaptive management. Barriers included: i) limited financial resources available for subnational administrations and communities to plan for adaptation measures; ii) insufficient integration of climate risks into subnational development planning with climate resilience concerns not mainstreamed in the public expenditure management; iii) misaligned incentives for promoting climate-sensitive planning and budgeting at subnational level; iv) technical capacity constraints for climate-resilient agriculture and water infrastructure design; v) fragmented coordination at the subnational level; and vi) a knowledge management barrier leading to a lack of effective, cross-comparable measurement of results and sharing of knowledge.

¹⁵⁶ In reference to GEF 4945.

¹⁵⁷ “Compared to before and after the project, the barriers in accessing water (which is quite far from the village) have decreased for the women in the community. Previously, families had to spend 2-3 USD for gasoline and 3-4 hours to collect the water, while now they just pay 0.4 USD per cubic meter to access clean water supply.”

¹⁵⁸ GEF 3627.

¹⁵⁹ GEF 2416, GEF 3404, GEF 9232 and GEF 5419.

¹⁶⁰ Sustainability is also strengthened by building the capacity of project stakeholders in the field of climate change adaptation. Designating a project as sustainable essentially means that the government can reach out to non-targeted farmers who wish to receive similar support (GEF 3404).

¹⁶¹ GEF 2416, GEF 5419, GEF 5489 and GEF 9265.

¹⁶² GEF 5419.

171. The equity issue has also been at the heart of some of the community resilience initiatives. The Peatland project in Viet Nam¹⁶³ made significant progress in ensuring equitable allocation of forest ecosystem resources through the re-distribution of land from those with more to those with less or none. By developing and implementing a socially grounded approach, it was possible to empower communities to find their own solutions, leading to the re-allocation of land from households that had been disproportionately benefitted by land allocation processes in the past. One important tool that helped improve local decision making and participatory governance was a conflict resolution mechanism. Another project in Viet Nam¹⁶⁴ introduced a voluntary payment for environmental services (PES) scheme, which was conceived, brokered, and facilitated by the project to resolve an upstream-downstream conflict in a manner that was equitable and mutually beneficial to the involved communities and stakeholders.¹⁶⁵ The model is simple, efficient, and has good sustainability potential. Several projects defined their target indicators inadequately, despite recommendations from previous project evaluations to develop robust, SMART outcome indicators rather than continually focusing on outputs. No project mentioned, nor incorporated, empirical policy-related research recommendations into their design that included causal analyses of access failure to help address vulnerability related to climate-related displacement, economic loss, hunger or famine, and historical institutional and power constraints to effective climate adaptation.

172. Projects with strong Implementing Agency technical support received satisfactory or higher ratings. Technical support is important in these projects in the absence of national capacity and therefore it is important to include such support to strengthen execution on the ground. Projects that achieved most of their stated objectives and outcomes were those for which good project management and IA technical support enabled substantial achievements at national, provincial, and local levels.¹⁶⁶ For example, five projects rated as having good (one project¹⁶⁷) to excellent (four projects¹⁶⁸) Implementing Agency technical support received satisfactory ratings in final evaluations. However, the quality of the technical assistance and not the quantity was important, as demonstrated by several projects.¹⁶⁹

173. In one case, the Implementing Agency's support¹⁷⁰ helped to mainstream sustainable development and environmental objectives and priorities within the context of Cambodia as expressed in various national strategies and plans, as well as in UN and UNDP country strategies and programs. The project worked effectively with the local stakeholders to embed the SLM and watershed management concept, approaches, and practices in the local livelihood and governance system through SLM demonstrations, agroforestry pilots and community forests/ community protected area, and participatory planning and integration of community livelihood improvement plans (CLIPs) in the carbon disclosure projects (CDPs) and commune investment plans (CIPs). UNDP also brokered intensive consultations with the key stakeholders and with UNDP representatives from the regional hub. This formed the basis for a redesign process, in which a refinement of the project was initiated to revive the stalled project. Key elements of the refinement process were the drivers to change the implementation arrangement to shift investment modalities (from national implementation to direct implementation), to ensure in its "business model" that overlap with

¹⁶³ GEF 2751 SFM Rehabilitation and Sustainable Use of Peatland Forests in South-East Asia.

¹⁶⁴ GEF 3627 Promotion of Sustainable Forest and Land Management in the Viet Nam Uplands.

¹⁶⁵ The downstream stakeholders comprise small-scale, private tourism enterprises which made direct payments to an upstream community as an incentive for their preserving the environmental values upon which tourism is based.

¹⁶⁶ E.g., GEF 3404, GEF 4434, GEF 4454, GEF 5005, GEF 5419.

¹⁶⁷ GEF 5005.

¹⁶⁸ GEF 4434, GEF 4554, GEF 4945 and GEF 5419.

¹⁶⁹ GEF 3404. The Implementing Agency (UNDP) made genuine efforts to address some key issues in mainstreaming and bring the concepts of climate change to the project.

¹⁷⁰ GEF 4945.

emerging projects be avoided, and that engagement with the private sector and NGOs be actively pursued.

174. Three other projects¹⁷¹ that were rated less than satisfactory either faced significant limitations after having to change the Implementing Agency's chief technical advisor or provided little to no support for the GEF component of the project. Other projects¹⁷² with weak Implementing Agency technical oversight produced a wide range of studies that were never implemented, and, unsurprisingly, did little to build capacity of stakeholders to develop wetland management plans or think about climate change adaptive measures.^{173,174} Similar findings were observed for two other projects¹⁷⁵ that focused more on supporting technical solutions or technical studies. Most projects underscored that understanding and applying new tools like EbA, SLM, and IWRM requires time and well-focused capacity building, which the aforementioned projects lacked. In sum, high quality Implementing Agency technical support was a key ingredient for effective projects, while those with weak technical assistance and an emphasis on administrative oversight scored lower in evaluative ratings.

175. One example of inadequate capacity building led by two Implementing Agencies in an early project¹⁷⁶ simply consisted of 26 technical reports that were never translated into the national language. Consequently, they were of no value for beneficiaries.¹⁷⁷ Again, inadequate funding for programmed activities on the ground, weak M&E platforms, and the absence of continuity with technical support to assist beneficiaries in adapting the project's path toward its objectives, based on lessons captured during implementation, placed an unacceptable burden on the beneficiaries to overcome unforeseen obstacles, because they were never given the capacity to find solutions for overcoming them.

FINDING 7: Few good local transformative outcomes were replicated or scaled up beyond their target areas and they were seldom mainstreamed to help strengthen policy coherence.¹⁷⁸

176. In most cases, the previously mentioned lessons, good practices, institutional arrangements, and other outcomes were mainstreamed into development policies, strategies, and plans at the lowest operational levels. For example, 9 of the 18 projects that offered good examples of transformative social, eco-systemic, and economic changes¹⁷⁹ at the local levels (i.e., provincial, district, and communal/village) applying nature-based solutions (e.g., EbA, EbM, SFM, integrated water management practices) were mainstreamed into local development strategies and plans. However, these outcomes were rarely scaled up or extended to the national level.¹⁸⁰ Exceptions were found for those cases when the timing of the GEF projects filled a needed gap for national priorities (e.g., climate change adaptation in Cambodia and the prioritization of a protected area in Viet Nam)

¹⁷¹ GEF 5489, GEF 9232 and GEF 9265.

¹⁷² GEF 2416 and 9232, and the CAWA wetlands project GEF 5489.

¹⁷³ The GEF 5489 wetlands project also produced numerous technical reports, and technical advisors were based in the capital, far from the project. The evidence from the site visit and interviews indicated that beneficiaries and government actors did not share the same ideas about what the project was meant to achieve, and these studies did little to develop local capacities.

¹⁷⁴ From the available evidence, the district appears to have taken an ad hoc responsibility for dealing with wetlands conflict that threaten resilience. It was evident from interviews and observations that there is definitely a power hierarchy in the community. Many of the conflicts surrounding unsustainable practices in the wetlands continue, according to interviews, and this was confirmed in a translated interview with the district officer.

¹⁷⁵ GEF 9232 and GEF 9265.

¹⁷⁶ GEF 2416.

¹⁷⁷ The terminal evaluation gave low scores to both Implementing Agencies as well as the team leader.

¹⁷⁸ The GEF defines policy coherence as an approach to integrate environmental objectives into domestic policymaking by fostering synergies, maximizing benefits, and managing trade-offs across economic, social, and environmental policy areas, and by balancing domestic policy objectives with commitments under the multilateral environmental agreements.

¹⁷⁹ Diversified and improved local livelihoods from increased water availability and good agro-ecological practices; better family health resulting from enhanced water quality.

¹⁸⁰ In some cases, there may have been a high level of ownership, but little empowerment.

or when there was interest by other donors to add value in the form of a grant or a large loan. However, good outcomes were rarely, if ever, scaled up and replicated outside the target areas. Furthermore, few projects were adequately designed to support evidence-based policy coherence options at multiple levels, or to promote equitable governance that could help take the voices of local people and stakeholders to high-level, central government—the decision makers.

177. There are many barriers to mainstreaming good practices to balance domestic policy objectives with sustainable development goals, addressing the transboundary and long-term impacts of policies on regional neighbors. For example, one project's efforts to mainstream biodiversity conservation into the country's agricultural and landscape management policies¹⁸¹ aimed to improve subnational administration systems affecting investments in rural livelihoods through climate sensitive planning, budgeting, and execution. It focused mainly on land-poor, landless, and/or women-headed households and, through promoting efficient capture of rainfall and surface water in the wet season, the project introduced resilient seed varieties and changing cropping patterns to allow two wet season crops. However, the project had little vertical integration and good practices at the local levels were on a relatively small scale with nothing filtering to the top. Other barriers included a failure to commit full-time counterparts with strong team-building skills and technical experts; a lack of an adaptive management system to respond and adapt to failures; and insufficient time for in-depth discussions with villages regarding their conservation and development priorities.¹⁸² Finally, results were not institutionalized nor did the project design provide guidelines on how to do so in ways that would allow for gradual adjustments of procedures to fit into the political economy system in Lao PDR.

178. Target provinces in an early project in Cambodia¹⁸³ were able to achieve vertical and horizontal integration of multiple institutions,¹⁸⁴ resulting in improved policies on climatic risk-reducing measures into their provincial development plans that addressed climate change at the local level. Interviews indicated that the province is contributing to sustaining the initial investment and, importantly, that a revolving fund has been set up and is being used to maintain infrastructure.

179. Scaling up good outcomes was a weakness in projects. Central governments rarely allocated sufficient funding to scale up and replicate effective projects. Four projects¹⁸⁵ aimed to scale up good practices and enabling conditions in subsequent phases. The absence of an exit strategy was just one barrier to scaling up,¹⁸⁶ whereas the disconnect between local-level government institutions and the central level was the bottleneck in the other projects. In some cases, the bottleneck was related to the limited flow of funds being channelled down to the lowest practical levels for implementation. This may be partly related to the fact that GEF projects are planned in collaboration with Executing Agencies, who are the primary recipients of GEF funds, and the type of funding modality that is agreed upon by the IA and the EA. The desk review and interviews indicated that those funds were not always channelled to local levels as planned and this affected the performance of several projects.¹⁸⁷ However, two projects that responded to MTR recommendations to increase

¹⁸¹ GEF 2416 Mainstreaming Biodiversity in Agricultural and Land Management Policies, Plans and Program invested in small-scale water management infrastructure, and aimed to mainstream biodiversity conservation in Lao PDRs' agricultural landscapes and land management policies to reduce threats from erosion, while improving the management of threatened local water supplies.

¹⁸² Additionally, the MTR identified a weak theory of change/results matrix; indicators and targets were not SMART and results framework failed to provide a foundation and guide for results-based management. Furthermore, there was no systematic internal evaluation process of strengths and weaknesses of procedures and tools developed.

¹⁸³ GEF 3404 Promoting Climate-Resilient Water Management and Agricultural Practices.

¹⁸⁴ The project not only succeeded in integrating with both provincial and commune levels, but coordination efficiency was also enhanced by the provincial government integrating its different departments (Agriculture, Women's Affairs), as well as district and communal council authorities that helped create project-specific beneficiary groups, including seed multiplication groups, agricultural improvement, or animal feed groups.

¹⁸⁵ GEF 2416, GEF 3404, GEF 4434, GEF 5419.

¹⁸⁶ For example, GEF 4434.

¹⁸⁷ GEF 5489, GEF 4434, GEF 9265.

disbursements to activities carried out on the ground actually improved their terminal evaluation ratings¹⁸⁸ by invoking the Direct Implementation Modality.

180. It is noteworthy that evidence is lacking for the uptake of good outcomes addressing the MRC's basin action strategies, despite the MRC's potential role to share knowledge and good practices with national governments which are constrained to scale up or replicate projects in their own countries. While the MRC cannot prescribe a country to take ownership or scale up an effective project, it can lead the way by providing good examples through pro-active leadership. The MRC successfully achieved this in getting several countries to conduct robust environmental and social impact assessments (ESIAs) and strategic environmental assessments (SEAs) to identify social and environmental impacts before installing dams.

181. The choice and development of mainstreaming¹⁸⁹ strategies generally require collaborative processes involving like-minded groups of stakeholders/actors who aim for a common objective.¹⁹⁰ A small number of projects (five)¹⁹¹ presented evidence for mainstreaming good practices and lessons at the national and local levels. For example, Promoting Climate-Resilient Water Management and Agricultural Practices¹⁹² in Cambodia offered a good example of mainstreaming cross-cutting issues (gender, human rights, the environment, and resilience) into national and local development strategies and processes. Early in the process, targeted provinces helped to achieve a vertical and horizontal integration of multiple institutions, which resulted in improved policies by drawing in on experiences at the local and provincial levels, through the inclusion of climatic risk-reducing measures in provincial development plans and through awareness-raising activities on the need to address climate change at the communal council level. Two adjacent provinces¹⁹³ in Viet Nam co-signed regulations for coordinating forest management and protection, preventing and fighting forest fires and conserving biodiversity in the border area between the two provinces.

182. Mainstreaming new concepts like EbA, SLM, and SFM is not always easy to achieve¹⁹⁴ nor is changing unsustainable cultural practices and behavior. Not surprisingly, many of the projects faced the risk of non-acceptance of these new concepts and management tools. This challenge was further amplified by weak local institutional capacities even though policies on decentralization have conferred more independence to provincial levels in the three countries. Notwithstanding the above good examples of nature-based EbA solutions,¹⁹⁵ the evaluation finds that the impacts were limited because many of the projects focused on addressing the symptoms of ecosystem fragmentation, rather than some of their root causes and in those cases, the application of EbA did not follow good-practice EbA guidelines.¹⁹⁶

183. Evidence from other projects outside of the Mekong Region indicates that creating central-level governmental ownership of GEF projects is a slow process that requires an incremental approach. In some cases, once the playing field is tipped to favor ownership, the process can raise interest at the highest levels of government. Evidence from document review and site visit of one

¹⁸⁸ GEF 5489, GEF 4434

¹⁸⁹ Karlsson-Vinkhuyzen *et al.* (2014) make a case for developing an analytical and operational approach for addressing mainstreaming bottlenecks by taking a specific objective of one issue domain and declaring that this objective should be integrated into other issue domains where it is not (yet) sufficiently addressed (for example, in a political context where it has been applied for issues of legitimate concerns versus earlier conflicting policies).

¹⁹⁰ Karlsson-Vinkhuyzen *et al.* (2014).

¹⁹¹ GEF 3404, GEF 4434, GEF 4650, GEF 5005, GEF 5419.

¹⁹² GEF 3404.

¹⁹³ Thua Then Hue and Quang Tri Provinces.

¹⁹⁴ See GEF 3404, GEF 5824.

¹⁹⁵ GEF 4454; GEF 5489; GEF 5005.

¹⁹⁶ For example, those outlined by Friends of EbA - <https://friendsofeba.com/eba-criteria/>

project¹⁹⁷ found that the project offered a powerful tool for addressing some of the key challenges in the LMRB, but there is no evidence that MRC or ASEAN are aware of such local-level projects. These transformational changes could also be accelerated to other target countries through key regional bodies like the MRC and ASEAN.

FINDING 8: While local ownership of GEF projects was usually strong, with few exceptions, central-government ownership was weak, as was interest by the MRC in testing and replicating good practices that were pertinent to five-year action strategies.

184. Weak national-level ownership was an issue in over half the projects, and it may help explain the limited uptake of effective GEF project outcomes as evidence-based inputs for improving policies.¹⁹⁸ However, this is a symptom that likely reflects deeper root causes of this finding, including project designs that paid insufficient attention to strengthening institutional ownership at the highest levels and developing innovative mechanisms for transferring, replicating, and scaling up effective local-level good practices at the national level, while exploring ways to integrate and catalyze those good outcomes into regional policies, strategies, and management toolboxes addressing the LMRB's most urgent challenges.

185. One exception and positive example came from a watershed management project in Lao PDR¹⁹⁹ which addressed policy gaps²⁰⁰ by assisting the national government to integrate climate change adaptation (CCA) into national agricultural and food security decision-making frameworks. Although the project was relatively small, the stakeholders institutionalized climate-sensitive planning at the national level, carried out watershed management and planning and CCA farming practices, and supported women to adopt climate-resilient livelihoods and create savings and loan groups, while ensuring their active participation in other project activities. Data collection from the project pilot sites was also designed to provide evidence for guiding policy changes at national level. While it remains unclear the degree to which evidence from the pilot areas influenced these updated policies, the collection of baseline data started late in the project cycle (rather than at startup). There was a lack of regular and effective data collection for crop yields and food security, which was neither effective nor systematically maintained throughout implementation. Nonetheless, the initiative provides an excellent framework for institutionalizing evidenced-based policies from the lowest practical levels and appears to have learned from mistakes from a similar but less successful project mentioned previously.²⁰¹

186. An example from Lao PDR²⁰² found that local community ownership of infrastructure projects was weak, despite strong engagement at the local level. One explanation given in interviews was that the government is widely recognized as being responsible for maintenance of its works and the communities do not feel responsible for their maintenance. This created issues with sustaining delivery of water resources and physical measures provided by GEF funding because central-level

¹⁹⁷ GEF 5419 Reducing the Vulnerability of Cambodian Rural Livelihoods through Enhanced subnational Climate Change Planning and Execution of Priority Actions. The project was not only highly coherent and relevant with national needs but also regional ones, especially the MRBS 2018–2030. Yet there is no evidence that the good practices/outcomes were taken up by the MRC.

¹⁹⁸ While in some GEF projects this is part of the design to give more autonomy to local government, in several decentralized government systems, environment, agriculture is a state subject.

¹⁹⁹ GEF 4434 - Strengthening the Adaptive Capacity and Resilience of Rural Communities Using Micro Watershed Approaches to Climate Change and Variability to Attain Sustainable Food Security.

²⁰⁰ National policies and planning had never taken climate change into account.

²⁰¹ Although GEF 2416 supported Lao PDRs' first strategically important project, Mainstreaming Biodiversity in Agricultural and Land Management Policies, Plans and Programs aimed to integrate biodiversity conservation and agro-biodiversity practices into government policies, laws, and other legal instruments. However, the project was relatively small and poorly designed, the draft guidelines were never translated into Lao from English, and not surprisingly, the project did not achieve its objectives.

²⁰² GEF 4454 Effective Governance for Small Scale Rural Infrastructure and Disaster Preparedness in a Changing Climate in Lao PDR.

support was lacking, as were sustainable financing local mechanisms to help maintain and replicate those investments.

187. A biodiversity conservation project²⁰³ in Viet Nam's Central Annamites (running between Viet Nam and Lao PDR) provided some good practices for scaling up protected area management, both nationally and in other LMRB countries. It improved the management and ecological integrity of the protected area network by strengthening the institutional and community protected-area management capacities, improving landscape conservation measures at the community level, and providing financial sustainability. Furthermore, the project supported the development of regional ecosystem connectivity by supporting climate change mitigation, habitat restoration, and biodiversity protection within and outside protected areas. This is a good example of how the central and provincial governments coordinated and contributed toward enhancing the quality of life in the community by safeguarding natural forests from erosion, managing water flow, and preventing landslides by using their institutional mandates to protect and restore ecosystem services. The outcomes also demonstrated to government and local communities the vital role that natural forests play in ensuring the safety of local populations.

FINDING 9: Most projects did not collect the necessary time-series information for evaluating the outcomes and effectiveness of area-based interventions, and the indicators used to measure progress towards area-based targets were insufficient.

188. Only three projects employed quantitative indicators for measuring spatial changes in land use before, during, and after project implementation to measure effectiveness of different management approaches to achieve their ultimate area-based targets (e.g., conservation goals, EbA, or resilience building for socioecological landscapes). Instead, most projects focused on measuring inputs or outputs that provided only one link of causative results chains, or qualitative indicators (e.g., improved management) that are otherwise impossible to quantify.

189. Although GEF support to national and regional biodiversity focal area projects resulted in improved protected-area management effectiveness mainly focused on improving intersectoral governmental institutions' management capacities, they lacked quantitative metrics (e.g., SMART outcome indicators) for measuring the effectiveness of investments in equally important social and economic incentives, learning from implementation (via adaptive learning) to help sustain good results. Most management effectiveness tracking tools such as the Monitoring and Evaluation Tracking Tool (METT) are based on output and process indicators, and few are capable of measuring land use changes or disruptions in biological-ecological corridor connectivity. Unlike the recently updated METT (which was not applied in any of the protected projects), earlier versions do not measure project outcomes. None of the biodiversity projects that used the METT employed analyses to assess land use changes adjacent to conservation targets or the disruption of biological-ecological connectivity.²⁰⁴

190. To address the lack of change analysis in project documents, the IEO carried out analysis of five projects (annex 6) with the aim of measuring changes in land use, land cover, and habitat quality before and after the projects were initiated. While each case provides some excellent ground

²⁰³ GEF 5005 - Integrating Biodiversity Conservation, Climate Resilience and Sustainable Forest Management in Trung Truong Son Landscapes.

²⁰⁴ The inclusion of livelihood and other economic incentives notwithstanding, the target indicators as designed were mainly focused on outputs. Few presented SMART outcome indicators or good baselines that could measure each of the triple bottom-line (social, economic and environmental) outcomes, and instead focusing on changes in METT scores, which mainly consist of output and process indicators.

truthing results, the Collaborative Management for Watershed and Ecosystem Service Protection and Rehabilitation project²⁰⁵ in the Cardamom Mountains is presented here.

191. Notwithstanding the rating of satisfactory for component 2 for the selected Cardamom Mountains example, there are some serious barriers, and the overall impact is expected to be small according to the terminal evaluation. A review of the project outputs shows the modest level of watershed management change that was pursued so far in the three pilot communes. Of the activities for strengthening forest protection in two community protected areas and one community forest (CF), the most important of these activities to the communities is the water supply investments. From the map, it can be discerned that intense deforestation has occurred across both basins through time. Therefore, the GEF intervention in this area is very relevant. The time series of deforestation area (Figure 28) shows that, as a percentage of the total area, there is little difference when comparing deforestation rates in the upper and lower basin. The exception is a strong spike in deforestation rates between 2010 and 2015 for the lower basin. Close examination of the map (Figure 27) shows that in the heavily forested areas in the northwest portion of the upper basin, deforestation rates are quite low relative to the rest of the basin. These areas are possibly where the community forest areas are, and if so, further analysis would reveal their effectiveness in curbing illegal logging, deforestation, and habitat loss.

Figure 27: Map of deforestation in Prek Thnot River basin

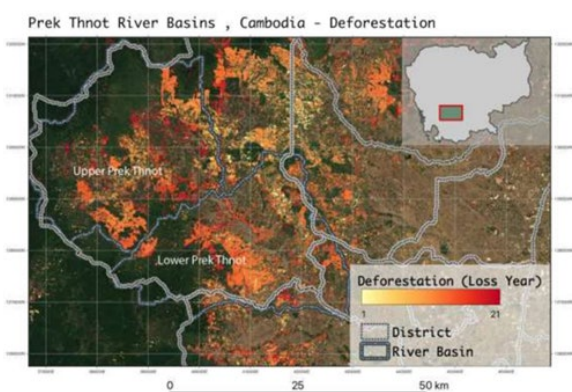
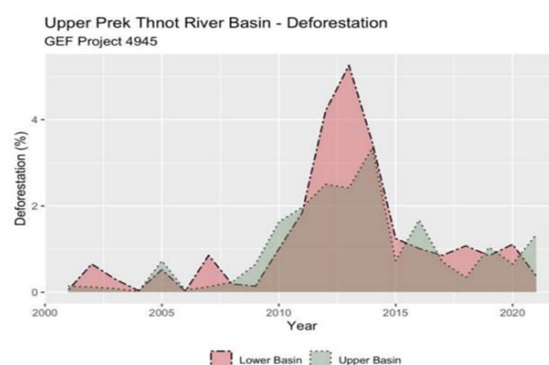


Figure 28: Time series of deforestation in Upper Prek Thnot River basin



192. Although the focal area of biodiversity was relatively small and represented by under one-third of the projects (5 of 16 projects), the findings from these projects warrant consideration. First, management effectiveness (either measured by METT scores or achieving area based protection targets) improved in all but one project through a strong focus on institutional capacity building and regulatory tools, and each biodiversity project design included social and economic incentives. The biodiversity projects are of interest also because they only demonstrate the continuity and transboundary focus of GEF's support for biodiversity in Lao PDR and Viet Nam. While three of the five biodiversity projects received less than satisfactory ratings, the others were rated as being satisfactory. The latest biodiversity project under GEF-7 (a World Bank loan with a GEF grant) appears to have taken up some of the lessons from those earlier projects and allocated an adequate budget for ecotourism and nontimber forest product value chains (\$18.09 million).

²⁰⁵GEF 4945. The Upper Prek Thnot Basin Mekong River Committee in 2004–2005 identified Prek Thnot River as one of the top 10 watersheds that are seriously affected by the risk of quality reduction and urgently require management interventions.

1.14 Sustainability²⁰⁶

FINDING 10: The combination of institutionalizing good outcomes, local-level beneficiaries' appropriation of triple bottom-line impacts,²⁰⁷ adaptive learning, and the availability of sustainable financing mechanisms and or/exit strategies were key ingredients for sustaining GEF investments.

193. Most of the projects rated as moderately likely to be sustained shared several common ingredients: i) appropriation of multidimensional, holistic approaches that incorporated cross-cutting issues (e.g., social and economic incentives, integrated ecosystem-based management, gender equity, and sustainable financing mechanisms); ii) mainstreaming and institutionalizing key aspects of effective outcomes and good practices into evidence for local-level (provincial, districts, and communal) policies and/or strategies; iii) public and communal financial sustainability mechanisms (e.g., community payments schemes for water usage, revolving funds, and small funding support from local government included in project designs (rarely); and iv) continued support from NGOs or other donor investments. Partner countries allocated national funds to sustain GEF projects in less than a quarter of cases examined in this evaluation. NGOs or donor investments that continued building on the GEF's original model, especially for water resource-related projects, added considerable value (e.g., solar and wind-powered water pumps, water testing and treatment).

194. Several other game-changing ingredients identified in a few projects provide important indicators for future projects to aim for: a) early strategic assessments (e.g., SEAs,²⁰⁸ VRAs²⁰⁹) to identify issues and solutions related to key challenges (e.g., climate change, fragmented ecosystem resilience) that helped guide the preparation of local government's strategic response to those challenges; b) beneficiaries taking over implementation during and after they experienced immediate social and/or economic benefits, which helped them achieve achieved triple bottom-line impacts;²¹⁰ c) learning and adjusting activities throughout the implementation process to better meet the project's objectives by applying adaptive management principles (usually on a reactive, rather than a proactive, systematic basis); and d) the forward-looking exit strategies within the project design or in response to MTR recommendations. The most convincing examples of sustainability were those which evidenced at least four of those ingredients.

195. Sustainability ratings were provided for 16 closed projects and all were rated as being moderately likely to be sustained. However, many of these ratings are incongruent with ratings for other dimensions of sustainability (e.g., financial and/or institutional) and a closer examination of the available ancillary evidence raises questions about the validity of some of those ratings, as many of these were judged to be unlikely to be sustained because they lacked sustainable financing mechanisms, lacked central government ownership, and were bereft of policy coherence with sustaining global environmental benefits.

²⁰⁶ Sustainability is understood as the likelihood that the project benefits and outcomes will continue once the project is completed. GEF IEO (2019) The GEF Evaluation Policy (GEF/ME/C.56/02) https://www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF_ME_C56_02_GEF_Evaluation_Policy_May_2019_0.pdf

²⁰⁷ It is worth re-emphasizing a point from the impact section of this evaluation that these good outcomes appear to have contributed to an unexpected outcome of protecting the adjacent forested uplands' water production functions (water capture and storage and recharge of aquifers) from logging and other deforestation after people's incomes improved and they were able to diversify into more sustainable, nonconventional agricultural activities.

²⁰⁸ GEF 4650.

²⁰⁹ GEF 3404, GEF 5419

²¹⁰ GEF 5419. Reducing the vulnerability of Cambodian rural livelihoods through enhanced subnational climate-change planning and execution of priority actions. Support for building water ponds, water irrigation systems, solar water pumping systems, and climate-smart agriculture equipment for Cambodian rural communities.

196. Several projects that included at least four of the key aforementioned sustainability ingredients are worth highlighting. For example, the strong commitment of communes and user groups to implement a fee collection system to maintain equipment such as irrigation systems in the long run is also an encouraging sign of locally driven sustainability in a climate-resilient water management project in Cambodia.²¹¹ However, work to carry out the VRA from the project's outset proved to be an important planning and analytical tool that helped develop an integrated water management approach for guiding the district-level climate change strategy and therefore address increasingly severe climate impacts (where "drought is the biggest enemy.")²¹² The VRA was also a tool for integrating gender into district development plans by focusing on sustainable agriculture and examining the extent to which conventional practices exacerbated negative climate change effects. A small (\$10,000) investment by local government in a revolving fund helped sustain all activities being run through the communal council. Interviewees told the evaluation that the province is contributing to the initial revolving fund²¹³ and the project continues to be supported by other funding organizations.²¹⁴ Although there are regular consultations with central-level water institutions, it is unclear why this model has not been scaled up or replicated elsewhere in the country.²¹⁵

197. In Lao PDR, the government made good progress for laying the foundation to improve the effectiveness of wildlife and protected area management²¹⁶ by carrying out a strategic environmental assessment (SEA) for the national green growth strategy and for the national power development plan. This not only led to the approval of the full set of 15 guidelines related to protected area management, but also helped develop a roadmap for sustaining investments through fees placed on private-sector extractive activities and ensuring that those extractive industries are certified as being in full compliance with environmental safeguards. The fees have created an excellent fund of public-private financing for sustaining good practices developed by the project.²¹⁷

198. Viet Nam's first peatlands project²¹⁸ provides a pertinent example of how a relatively small investment from the GEF contributed to catalytic effects by raising awareness about the site (e.g., it is a World Biosphere and also a Ramsar wetland site of international importance) and providing leverage for government funding. All of which led to broader livelihood impacts as a result of the tourism-related income-generating opportunities, many of which are run by women, e.g., food stalls and sales of souvenirs at the park. The national park's operational costs are being partially supported with funding from the provincial government. However, more importantly, interviews with national park representatives indicated that the park recovers its remaining operating costs from admission fees and tour packages.

²¹¹ GEF 3404 Promoting Climate-Resilient Water Management and Agricultural Practices. The project was rated overall as moderately likely, but likely for environmental and socio/political sustainability. However, based on the field visit, the overall sustainability could easily be rated as likely.

²¹² According to KIIs.

²¹³ The community is running the entire system with its own with funding and water is sold to the community at a low price (0.125 Real per m³). At the time of the site visit, the fund was used to maintain the water resources infrastructure initially established through GEF funding (e.g. water storage tanks, water pipeline connection) to enable the local people to grow agricultural products year-round in Preah Vihear and Kratie provinces, Cambodia.

²¹⁴ World Vision International is also processing the water supply system construction using the model from the GEF project and farmers benefitting from the project are also providing in-kind support, e.g., provision of land, while the Japan International Cooperation Agency (JICA) funded renewable-energy water pumps.

²¹⁵ Another problem was that several projects failed to link logically with providing management tools to address the specific threats and barriers to applying livelihood or economic incentives and sustaining them. GEF 2416's approach was not linked logically to the specific threats and barriers to agro-biodiversity conservation in Lao PDR.

²¹⁶ GEF 4650 on Strengthening Protection and Management Effectiveness for Wildlife and Protected Areas.

²¹⁷ Specifically, \$1,553,009 has been received, comprising \$331,914 from public sources and \$1,221,095 from private sources. The total contribution of \$1.21 million from the private sector came from 5 hydropower companies and 80 mining companies. The public fund comprises the bank interest of about \$0.68 million per six months from the EPF endowment (\$5.5M) and a small interest from loan subprojects (about \$1,000 to \$2,200 per six months).

²¹⁸ GEF 2751 Rehabilitation and Sustainable Use of Peatland Forests in Southeast Asia project.

199. Regarding the financial sustainability (as well as efficiency and effectiveness) of implementation modalities, the CAWA Ramsar wetlands project²¹⁹ offers an excellent example of what, and what not, to do. While the Lao PDR government and other partners were consulted and contracted for, the IA had complete budget responsibility and made final decisions for the project because its application of the direct implementation modality (DIM).²²⁰ However, the project failed to make good use of this rather unique mechanism during the first two years of implementation by spending most of its funding at central level and to international consultancies that produced studies whose outcomes are difficult to measure. Furthermore, it is not the role of central government and consultants to implement project activities at village level. However, the Implementing Agency made an important shift after the MTR and used DIM to fund activities at the lowest practical levels through its provincial and district partners, as they can best respond to the needs of local communities, and this approach fits well with the government's own "Sam Sang" policy for defining the roles of central, provincial, and district governments.

200. Barriers to sustaining GEF investments included weak ownership at the central levels, the poor performance record of replicating and scaling up good outcomes at the local levels, and the general absence of sustainable financing mechanisms and exit strategies in project designs.

201. Engaging the private sector is one pathway to help sustain the GEF's investments, create ownership, and support governments to deliver their five-year development strategies. Private companies and regulatory bodies involved in hydropower (e.g., independent power producers), tourism, and agriculture offer an excellent opportunity as partners for investing in ecosystem-based approaches, with related socioeconomic benefits (e.g., for small-scale producers of niche, certified sustainable produce such as wild rice, which is currently being done through the Wildlife Conservation Society in Lao PDR to connect with European markets).²²¹

202. Despite clear benefits to private sector engagement such as those in the Peatlands National Park that helped provide financial support to ecosystem-based approaches, there are few examples where GEF project designs incorporated a strategic approach for integrating private sector or public-private partnerships. Field data from FGDs and KIIs confirmed a lack of any strategic private-sector engagement in GEF projects, with only sporadic involvement. This is not surprising as project designs rarely included private sector funding to invest in GEF focal areas. However, three projects benefited from private sector support to date, including a GEF-7 project²²² in the Ma and Neun/Ca Transboundary River basin. This project aimed to enhance connections between private-sector investments (hydropower, tourism, forestry, and agriculture) and formal basin planning processes, while providing the planning process with up-to-date information on investment strategies and more detailed data than currently available. The project also provides opportunities for dialogue between diverse private actors in the basins. One project in Lao PDR²²³ adopted an innovative approach for recovering private sector funds through fees on their extractive operations and used the interest as a public contribution from the government.

²¹⁹ GEF 5489.

²²⁰ While the DIM offers many benefits (e.g., avoiding getting bogged down in complicated, slow, and not-so-transparent government administrative mechanisms; rapid deployment of funds where they are actually needed), these are unlikely to be sustainable because the DIM will only work during the lifetime of the project. Unless adjustments are made to build an exit strategy, the project is unlikely to be sustained.

²²¹ According to KIIs.

²²² GEF 10193 Fostering Water and Environmental Security in the Ma and Neun/Ca Transboundary River Basin.

²²³ GEF 4650 Strengthening Protection and Management Effectiveness for Wildlife and Protected Areas.

203. The tourism sector at Bab Be Lake in Viet Nam's Uplands²²⁴ is running well and in the hands of what appears to be a dynamic private sector and community entrepreneurs. There is good evidence of continued private investment in tourism infrastructure by community members in recent years and this demonstrates financial viability and a level of profitability sufficient to incentivize further investment, thanks to the GEF's support in starting the project. Although one-quarter of the budget of another small biodiversity project²²⁵ was allocated to community engagement, much of that investment was to develop feasibility plans rather than livelihood incentives. The project was not sustained in part due to ambitious goals of promoting ecotourism that never materialized, because the private-sector partner pulled out due to low demand for services.²²⁶

204. The above good examples notwithstanding, an attempt to engage the private sector proactively in an ecotourism investment mainstreaming biodiversity conservation into provincial planning²²⁷ did not succeed, after it became clear that scheme was commercially unviable. While ecotourism is attractive for another protected area project,²²⁸ the sites are far from the existing markets and an NGO has temporarily substituted for the private sector in product development, training, and market linkages until the market and access grows sufficiently to withdraw the NGO in favor of a "responsible" investor.²²⁹ As a result of the GEF support, the ecotourism operation has increased the visibility of the area and it was concluded that efforts to establish partnership with a private operator should continue.²³⁰

205. Exit strategies were not consistently present in all projects and, where they were, they were inadequate, leading to missed opportunities for sustainability planning. The absence of exit strategies was a common factor in over one-third of the projects and led to lower than satisfactory performance ratings in several projects in Lao PDR.²³¹ Exceptions to this finding were illuminating and the successful examples should be closely examined and incorporated into new and ongoing projects to the extent possible. For example, in addition to the tangible benefits and contexts of the excellent outcomes²³² generated by the SFM project on the Promotion of Sustainable Forest and Land Management in the Viet Nam Uplands,²³³ the project management unit and project steering committee also developed a viable institutional exit strategy that enhanced the probability that these good results would continue over the long term.²³⁴

²²⁴ GEF 3627 Promotion of Sustainable Forest and Land Management in the Viet Nam Uplands. The project also developed a voluntary PES model, which is now an established model thanks to national legislation. Participants agreed that the arrangement is mutually beneficial between the upstream and downstream communities, and they believe that the first year's pilot experience was successful and should now enter into a three-year contract.

²²⁵ GEF 3873 Developing and Demonstrating Replicable Protected Area Management Models at Nam Et Phou Louey National PA.

²²⁶ For GEF 3873, the partnership with a private operator has failed due to an insufficient volume of tourists.

²²⁷ GEF 4826 Developing National Biodiversity Strategy and Action Plan and Mainstreaming Biodiversity Conservation into Provincial Planning

²²⁸ GEF 3873 Developing and Demonstrating Replicable Protected Area Management Models at Nam Et - Phou Louey National Protected Area.

²²⁹ While the public-private partnership was sought, reaching out to three tour operator companies has failed to secure an interest. The main reason is the lack of volume of tourists for a private operator to be profitable: the scale needed for profitability was about ten times greater than the current volume of 200–250 tourists per year.

²³⁰ Although there is widespread acknowledgment by the government and communities that tourism is a source of sustainable growth that protected areas can offer, action is required at the policy level, because without a consolidated effort to support tourism in protected areas, the commitment of villagers working with the ecotourism sector is linked solely to income-earning and little more.

²³¹ Although GEF 4434 had put much in place to support different dimensions of sustainability, interviews stated that the absence of an exit plan was a barrier for connecting communities to options for receiving post-project technical and financial support. Developing an exit strategy early on would have helped ensure the sustainability of post-project outcomes to guide the communities involved in the projects and on how to continue receiving support.

²³² Participatory forest land-use planning and allocation – the methodologies developed and successfully applied resulted in a process that was more rapid, less conflictive, and lower cost than the traditional top-down approach. Ecotourism at Bab Be Lake is in the hands of what appears to be a dynamic private sector and community entrepreneurs and a voluntary PES model.

²³³ GEF 3627.

²³⁴ Although it had a good exit strategy for mainstreaming the project into new donor projects, interviews stated that the final beneficiaries had considerable difficulties in organizing and making financial resources available to ensure regular maintenance of the water resource infrastructures. The lack of financial sustainability of maintenance will likely re-surface as more extreme events hit the area.

206. The MTR for CAWAS Ramsar project²³⁵ strongly recommended that the Implementing Agency and the government should immediately develop an exit strategy, given the many loose ends, the lack of policy on wetlands in Lao PDR, and the urgency of protecting the adjacent upland and downstream ecosystems to which the Ramsar wetlands are linked.

1.15 Additionality²³⁶ and catalytic effects

FINDING 11: Many of the projects added unique value in which transformational changes resulted in catalytic effects and, in some cases, led to unexpected outcomes.

207. All projects contributed in one way or another to three of the GEF IEO's six pathways toward additionality. Their highest achievements were related to specific environmental additionality, as well as socioeconomic and innovation additionality where transformational changes resulted from achieving project outcomes and in some cases, spilling over to achieve unexpected outcomes.

208. While institutional additionality was addressed in half of the projects that resulted in transformational changes at the lowest practical levels (provincial, institutional, and communal levels), the important central-level institutional changes and ownership were limited.

209. Three projects that established sustainable financing mechanisms are noteworthy, as were two protected-area projects that resulted in improved regulatory tools. Nonetheless, one of the biggest gaps was related to project designs and the application of adaptive management to articulate pathways for broadening GEF-associated impacts beyond project completion at the national and regional levels.

210. Several projects drew on good practices, awareness, and research findings from previous projects. For example, the results of the targeted research in the first Integrated Peatlands project²³⁷ catalyzed a second phase, which emerged partly because of the research findings from the initial project.²³⁸ The primary catalytic mechanism employed raising awareness and reaching out to international stakeholders by disseminating the project's results, while bringing the importance of peatlands as carbon sinks and biodiversity hotspots to the forefront.

211. One early project²³⁹ built on existing coordination efforts and a learning platform involving other climate change initiatives to support the Cambodia's 2006 National Adaptation Programme of Action to Climate Change (NAPA) to tackle climate change adaptation in agriculture and water resources management. This resulted in substantial achievements at national, provincial, and local levels, and succeeded in advocating for and institutionalizing climate-sensitive planning in the country. It also led to the development of a road map and a core working group to oversee subnational development planning processes and the creation of an inter-institutional climate change working group, which prepared an action plan for addressing issues that arose during the implementation of this project. It also resulted in a spillover effect in the form of the unexpected outcome of reducing timber and firewood extraction in nearby water-producing and storage upland forests, thanks to diversified agroecological practices that resulted in immediate economic and health benefits to families.

²³⁵ GEF 5489.

²³⁶ GEF IEO (2021). GEF Additionality: Broadening the Definition. Prepared by the Independent Evaluation Office. Seventh Overall Performance Study of the GEF.

²³⁷ GEF 2751 SFM Rehabilitation and Sustainable Use of Peatland Forests in South-East Asia

²³⁸ Brann, J. (2010). Terminal Evaluation of the Rehabilitation and Sustainable Use of Peatland Forests in Southeast Asia.

²³⁹ GEF 3404 Promoting Climate-Resilient Water Management and Agricultural Practices in Cambodia

212. A project focused on effective governance in Lao PDR²⁴⁰ catalyzed support for developing subnational planning guidelines to mainstream climate change into revised guidelines that were endorsed by one LMRB government, while another²⁴¹ followed an integrated watershed management approach to combine local economic development needs and conservation objectives. Although livelihoods and income generation were not the primary objective, the project integrated them in view of the high level of poverty in the project area and the importance of addressing the poverty-environment nexus. This innovative approach led to a spillover effect that went beyond the original objectives.

213. GEF projects in Cambodia have been crucial entry points for effective coordination and synergy among the different small and medium-size projects of NGOs through which the GEF projects have enhanced knowledge and improved the capacity of government institutions to undertake climate change adaptation, mitigation, and resilience initiatives as well as disaster risk reduction activities at the ground level using integrated water management and EbA approaches.²⁴² A good example of the GEF's catalytic role in enabling resource mobilization comes from Cambodia, where based on the results and lessons learned from the GEF-supported project,²⁴³ the government of Cambodia has been considering increasing its national budget for climate change. Furthermore, the project created the opportunity for the National Committee for Subnational Democratic Development (NCDD) to receive accreditation as an eligible entity of the Green Climate Fund (GCF), thereby enabling the government to access additional funds and to scale up the climate change and disaster risk reduction programs. The same project led to the development of the national action program for soil degradation management to enable sustainable management and governance of watersheds.

214. Beneficiaries participating in a collaborative rehabilitation project²⁴⁴ in the Cardamom mountains received many benefits from the project, such as water access from the system flowing from the mountain.²⁴⁵ The project offers a good example of a key spinoff from this project: positive signs of collaborative governance and management, which are essential ingredients for sustaining investments. All KIIs/FGDs praised the formation of community management committees and acknowledged the active role of the management committee in informing and consulting with villagers on projects. This resulted in the communities creating a community forest, which allows them to have ownership in terms of management and implementation of the community forest management plans.

CONCLUSIONS AND RECOMMENDATIONS

1.16 Conclusions

Conclusion 1: The GEF is well positioned to continue contributing to transformative changes in collaboration with partner countries and regional organizations and to scale-up solutions that

²⁴⁰ GEF 4554 Effective Governance for Small-Scale Rural Infrastructure and Disaster Preparedness in a Changing Climate

²⁴¹ GEF 4945 Collaborative Management for Watershed and Ecosystem Service Protection and Rehabilitation in the Cardamom Mountains, Upper Prek Thnot River Basin

²⁴² E.g., GEF 3404, GEF 5419.

²⁴³ GEF 3404 Promoting Climate-Resilient Water Management and Agricultural Practices.

²⁴⁴ GEF 4945 Collaborative Management for Watershed and Ecosystem Service Protection and Rehabilitation in the Cardamom Mountains, Upper Prek Thnot River Basin

²⁴⁵ This included sweet bamboo for planting and gardening along the riverbank of Prek Thnoat to prevent landslides. Even though the soil quality is low, the communities are able to grow crops by using sufficient water. Although the project has ended and there are no other projects to support the activities, the GEF's investments in these alternative activities have been well received and managed by the communities.

address the major challenges within the LMRB. More work needs to be done to achieve triple bottom–line impacts and link them to improve policy coherence.

215. GEF-supported interventions have all contributed in one way or another toward transformative changes in natural resource management practices at the local level. GEF contributions demonstrating good practices at local levels include:

- (d). Building social, ecological, and economic resilience within hydrologically interconnected, biodiverse landscapes through integrated watershed planning and participatory management interventions to restore and maintain forest cover, and improve wetlands and protected-area resilience;
- (e). Improving access to water resources for irrigation and drinking, while providing solutions to address landscape fragmentation and improving family health with cleaner water supplies; and
- (f). Reducing social and ecological system (SES) vulnerability to extreme climate events by improving SES resilience through nature-based and physical infrastructure solutions. This has also reduced vulnerability by strengthening livelihood systems through agroecological and diversified farming activities, reducing pressure on wild river species with aquaculture, and encouraging communal forestry practices. Women have been empowered to adopt climate-resilient livelihoods through short-term incentives and in some cases, sustainable financing mechanisms.

Conclusion 2: GEF projects have addressed the loss of globally and regionally important biodiversity by integrating conservation with sustainable agriculture, aquaculture, forestry, and improved environmental management.

216. All GEF-supported projects reviewed for this evaluation addressed national and regional priorities, strategies, and plans related to ecosystem-based climate change adaptation and sustainable landscape management for reducing the vulnerability of rural communities in LMRB countries. The diverse interventions aimed to protect water catchment production and storage systems, carbon sequestration, and other ecosystem services that are critical for maintaining resilient socioecological systems.

Conclusion 3: GEF project objectives were closely aligned with national priorities, with a focus on reducing the vulnerability of rural communities, particularly indigenous peoples, women, and other marginalized groups.

217. Most projects prioritized the engagement of women and indigenous people in decision making at the local level and in implementing nature-based climate change adaptation initiatives. These actions led to improved food and water security, reduced wasted time traveling long distances to collect water, improved family health, and built ecosystem resilience to climate change. This process also improved beneficiaries' capacities to implement climate adaptation tools in globally and regionally important landscapes.

Conclusion 4: Despite good examples of transformative changes and ownership at the local levels, few projects were mainstreamed to improve policy coherence at the national level or replicated or scaled up beyond the target areas. Projects lacking good technical support and backstopping performed poorly in those cases where central-level capacity was weak.

218. With few exceptions, there was limited central government involvement in GEF projects and limited institutional support mechanisms that were capable of transferring, replicating, or scaling up good practices and positive outcomes observed at the local level into improved policies at the regional and national levels. In addition, as most of the GEF projects are planned with decentralized structures at local (district or province) level, their outcomes depend largely on how the central government channels the GEF's funds to planned activities at the lowest practical levels for implementation. Project performance was invariably affected by the lack of timely access to technical and financial support for implementation as well as the lack of availability of long-term sustainable financing mechanisms.

Conclusion 5: After over two decades of support to the LMRB, the design of recently approved projects lacks coherent theories of change/results frameworks, SMART indicators, and M&E systems capable of driving adaptive learning to allow for corrective action.

219. Just over half of the projects were founded on coherent theories of change/results frameworks, while few M&E systems were sufficiently robust to drive adaptive learning to take corrective action for a project's path toward its objectives. Monitoring systems to assess progress on a timely basis and inform adaptive course correction and learning were frequently weak and subjective and annual PIRs did not promote timely adaptive management. When issues were identified, it was often too late to make the adjustments needed to put a project back on the path to meet its objectives.

Conclusion 6: Conceptual approaches promoting ecosystem-based management were frequently missing clear definitions and guidelines on implementation. In addition, they were not holistic as they seldom integrated broader scales of interconnected upstream and downstream ridge to river–basin (R2RB) ecosystems.

220. Most projects focused on activities in the specific target areas stipulated in the project document. Rarely were other interconnected upstream or downstream ecosystems taken into consideration, despite their potential importance as drivers of target-area resilience (e.g., water recharge and storage; critical habitat for the completion of life cycles of globally important species). However, several projects discovered midway or late in their implementation process that these ecosystems are vital for the resilience and well-being of human and ecological systems in the intervention areas.

Conclusion 7: Considerable knowledge is available for addressing ecological, economic, and social drivers that affect the MRB's resilience. However, with some exceptions, many of the good outcomes and lessons produced by multilateral, bilateral, and regional entities, as well as lessons from almost three decades of GEF support, remain compartmentalized. This impedes the collective action required for testing and scaling up good approaches for addressing the most urgent LMRB challenges effectively.

221. Despite the wealth of knowledge, reports, and other communication products, the systematization and translation of available knowledge into good practice is absent. This has prevented good outcomes from being tested in other areas and poor ones from being eliminated. This has also resulted in the impacts of EbA, EbM, SLM, and other initiatives being localized as the projects failed to integrate them with evidence-based, central-level policy. The limited sharing of good practices has manifested in (1) the absence of exit strategies and adoption of good examples of sustainable financing mechanisms, especially the scaling up of good practices with the private sector; (2) the repetition of weak project designs; and (3) the limited mainstreaming of good outcomes into regional toolboxes for testing and implementation in different national and sociocultural contexts.

1.17 Recommendations

Recommendation 1: The GEF should coordinate with partner LMRB countries, other multilaterals, bilaterals, and regional bodies (e.g., the Mekong River Commission [MRC], the Association of Southeast Asian Nations [ASEAN]) on the strategic regional priorities of the MRC's basin development strategy. This could be achieved through various GEF programs and projects with a coordination component.

Recommendation 2: To support longer-term sustainability, the GEF Secretariat and agencies should design and implement mechanisms for testing, replicating, and scaling up successful local outcomes and mainstream them at the national level. This would include dissemination of good practices and working in close coordination with local, provincial, and central governments to broaden and sustain the impacts of GEF investments.

Recommendation 3: The Scientific and Technical Advisory Panel (STAP), in consultation with the GEF, should provide technical advice on internationally agreed-upon definitions and guidelines for implementation of ecosystem-based conceptual approaches and management tools (e.g., ecosystem-based adaptation, ecosystem-based management, nature-based solutions, ridge to river basin) to support consistent understanding and implementation on the ground. Future GEF projects should include robust theories of change and indicators that measure the effectiveness of these conceptual approaches and management tools.

ANNEX 1: PORTFOLIO OF PROJECTS WITHIN SCOPE OF THE EVALUATION

NO	GEF ID	Project Title	GEF Phase	Lead Agency Name	Country Name	Focal Area Name	Project Status	Latest Stage Total Project Financing Amount
1	10539	Sustainable Forest and Forest Land Management in Viet Nam's Ba River Basin Landscape	GEF - 7	UNDP	Viet Nam	Multi Focal Area	Council Approved	\$2,183,105
2	10520	Enhancing sustainability of the Transboundary Cambodia - Mekong River Delta Aquifer	GEF - 7	FAO	Regional	International Waters	Council Approved	\$15,000,000
3	10514	Integrated Water Resource Management and Ecosystem-based Adaptation (EbA) in the Xe Bang Hieng River Basin and Luang Prabang City	GEF - 7	UNDP	Lao PDR	Climate Change	Council Approved	\$5,329,452
4	10483	Additional Financing for the Cambodia Sustainable Landscape and Ecotourism Project	GEF - 7	World Bank	Cambodia	Biodiversity	Under Implementation	\$4,422,020
5	10499	Lao PDR Landscapes and Livelihoods Project	GEF - 7	World Bank	Lao PDR	Multi Focal Area	Under Implementation	\$7,366,976
6	10245	Integrated Sustainable Landscape Management in the Mekong Delta of Viet Nam	GEF - 7	FAO	Viet Nam	Multi Focal Area	CEO Endorsement Cleared	\$5,354,587
7	10193	Fostering Water and Environmental Security in the Ma and Neun/Ca Transboundary River Basins and Related Coastal Areas	GEF - 7	FAO	Regional	International Waters	CEO Endorsement Cleared	\$8,000,000
8	9927	Building Resilience of Cambodian Communities Using Natural Infrastructure and Promoting Diversified Livelihood	GEF - 6	UNEP	Cambodia	Multi Focal Area	CEO Endorsement Cleared	\$522,947
9	9781	Integrated Natural Resource Management (INRM) in the Productive, Natural and Forested Landscape of Northern Region of Cambodia	GEF - 6	UNDP	Cambodia	Multi Focal Area	Under Implementation	\$3,340,320
10	9265	GEF-AF-Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project	GEF - 6	World Bank	Viet Nam	Multi Focal Area	Under Implementation	\$6,090,831
11	9232	Sustainable Management of Peatland Ecosystems in Mekong Countries	GEF - 6	IUCN	Regional	Multi Focal Area	Under Implementation	\$2,907,064
12	5824	Sharing Knowledge on the Use of Biochar for Sustainable Land Management	GEF - 5	UNEP	Global	Land Degradation	Project Implemented	\$1,826,484
13	5489	Climate Adaptation in Wetlands Areas (CAWA)	GEF - 5	FAO	Lao PDR	Climate Change	Under Implementation	\$4,717,579
14	5318	Strengthening Climate Information and Early Warning Systems in Cambodia to Support Climate Resilient Development and Adaptation to Climate Change	GEF - 5	UNDP	Cambodia	Climate Change	Project Implemented	\$4,910,285
15	5005	Integrating Biodiversity Conservation, Climate Resilience and Sustainable	GEF - 5	ADB	Viet Nam	Multi Focal Area	Project Implemented	\$3,794,954

		Forest Management in Trung Truong Son Landscapes						
16	4945	Collaborative Management for Watershed and Ecosystem Service Protection and Rehabilitation in the Cardamom Mountains, Upper Prek Thnot River Basin	GEF - 5	UNDP	Cambodia	Land Degradation	Project Implemented	\$1,100,917
17	4826	Developing National Biodiversity Strategy and Action Plan and Mainstreaming Biodiversity Conservation into Provincial Planning	GEF - 5	UNDP	Viet Nam	Biodiversity	Financially Closed	\$909,091
18	4652	GMS Forest and Biodiversity Program (GMS-FBP) - Creating Transboundary Links Through a Regional Support	GEF - 5	ADB	Regional	Multi Focal Area	Under Implementation	\$917,431
19	4650	GMS-FBP: Strengthening Protection and Management Effectiveness for Wildlife and Protected Areas	GEF - 5	World Bank	Lao PDR	Multi Focal Area	Under Implementation	\$6,825,688
20	4434	Strengthening the Adaptive Capacity and Resilience of Rural Communities Using Micro Watershed Approaches to Climate Change and Variability to Attain Sustainable Food Security	GEF - 5	FAO	Cambodia	Climate Change	Project Implemented	\$5,174,364
21	3873	Developing and Demonstrating Replicable Protected Area Management Models at Nam Et - Phou Louey National Protected Area	GEF - 4	World Bank	Lao PDR	Biodiversity	Financially Closed	\$879,000
22	3627	SFM: Promotion of Sustainable Forest and Land Management in the Viet Nam Uplands	GEF - 4	IFAD	Viet Nam	Multi Focal Area	Financially Closed	\$654,545
23	3404	Promoting Climate-Resilient Water Management and Agricultural Practices	GEF - 4	UNDP	Cambodia	Climate Change	Financially Closed	\$1,850,000
24	2762	SFM Viet Nam Country Program Framework for Sustainable Forest Land Management (COUNTRY PROGRAM)	GEF - 4	World Bank	Viet Nam	Multi Focal Area	Council Approved	\$0
25	2751	SFM Rehabilitation and Sustainable Use of Peatland Forests in South-East Asia	GEF - 4	IFAD	Global	Multi Focal Area	Financially Closed	\$4,299,164
26	2416	Mainstreaming Biodiversity in Agricultural and Land Management Policies, Plans and Programs	GEF - 4	UNDP	Lao PDR	Biodiversity	Financially Closed	\$2,265,000
27	5419	Reducing the Vulnerability of Cambodian Rural Livelihoods through Enhanced sub-national Climate Change Planning and Execution of Priority Actions	GEF - 5	UNDP	Cambodia	Climate Change	Project Implemented	\$4,567,500
28	4554	Effective Governance for Small Scale Rural Infrastructure and Disaster Preparedness in a Changing Climate	GEF - 5	UNDP	Lao PDR	Climate Change	Project Implemented	\$4,700,000

(GEF data, April 2022)

ANNEX 2: KEY ENVIRONMENTAL CHALLENGES IN FIELDWORK COUNTRIES

1. Viet Nam

Situated in central Viet Nam, the provinces of Thua Thien Hue and Quang Tri alongside the Phong Dien Nature Reserve and Dakrong Nature Reserve constitute the biodiversity corridors of Trung Truong Son Forest. Thua Thien Hue is a transitional climatic zone between the south and the north of Viet Nam, while Quang Tri is a core component of the East-West Economic Corridor connecting Lao PDR, Thailand and Myanmar. The province hosts the land between the Lao Bao international border gate (border of Lao PDR and Viet Nam) and the ports of Central Viet Nam such as Cua Viet, Chan May, Da Nang, and Vung Ang. The two provinces share a tropical monsoon climate with high temperatures. However Quang Tri Province differs as the interaction between the Truong Son Mountain, the winds, and its general geographical positioning, gives rise to a relatively harsher climate. This region supports the largest remaining area of lowland evergreen forest in the Annamese Lowlands Endemic Bird Area. However, logging, mining, collection of firewood, illegal timber cutting (either for house construction or by loggers from outside the area), forest fires (caused by swidden cultivation, deliberate setting of fires to collect metal from bomb and shell casings, and spontaneous detonation of unexploded ordnance), and clearance of forest land for agriculture have remained threats to the biodiversity and the ecosystem in general. In addition, poor forestry management in Phong Dien and Dakrong increasingly fragments the forests. Therefore, Conservation International categorises the Greater Mekong Subregion as one of the 10 most threatened forest hotspots. Protecting the remaining forest areas is crucial for both the development of nearby communities as well as the ecosystem in the region.

2. Cambodia

Siem Reap and Preah Vihear are located in the north-western part of Cambodia, belonging to the Tonle Sap river basin groups with estimated populations of 1,014,234 and 254,827, respectively. Meanwhile, Kampong Speu and Koh Kong provinces are situated in the southern area of Cambodia with relatively smaller populations of 877,523 and 125,902, respectively. The former belongs to the Mekong Delta basin groups, the latter is in the coastal area. In general, the nutritional intake of Cambodia consists mainly of aquatically derived resources (i.e. fish and other aquatic animals such as crabs, molluscs or frogs), accounting for almost one-fifth of food consumption in the region. Notably, the economy of Cambodia is largely dependent on water resources. The weather is highly seasonal, with a high degree of variability as it experiences wet and dry seasons coupled with typhoons, floods and droughts. Moreover, the ebb and flow of the Mekong river generates both negative and positive impacts on the water cycle of the Tonle Sap Lake and Lower Mekong Delta. Both of these bodies are vital for agriculture, fisheries production and the general ecosystem. Yet both concurrently spawn major floods and cause damage to infrastructure, crops, and ultimately precipitate in the loss of life itself.

Tonle Sap lake is the largest freshwater lake in Southeast Asia, one of the most diverse and productive ecosystems in the world and serves as a food source for thousands of Cambodians. It borders nine provinces, including the Siem Reap province which encompasses the second-largest Cambodian city of the same name; a city that lines the Tonle Sap Lake. Siem Reap and Preah Vihear both constitute the Tonle Sap Biosphere Reserve and are categorised as protected landscapes. While Siem Reap is best known as the site of Angkor and the Angkor Wat temple ruins, a UNESCO World Heritage Site; Preah Vihear is popular due to the Preah Vihear Temple, another listed World Heritage Site. However, in recent years the lake and its surrounding ecosystems are under increasing pressure from deforestation, infrastructural development and climate change. Therefore, the protection of forest in upstream watersheds and flood forest around the lake are both urgent and essential. Floodplain forests have decreased significantly due to agricultural activities, especially in the Prasat

Bakong district, which has seen a 35 percent decline of forest area by 2018 and almost half of forest area in Preah Vihear province has been replaced by agricultural land. Additionally, the appearance of dams upstream in concert with soil erosion and illegal fishing activities triggered an alarming decrease of fish species due to loss of breeding areas. In recent years, the water level is lower and recedes quicker compared to the past which further contributes to the reduction of fish populations. Moreover, the population density of human settlements is increasing, intensifying the demand for fish, thereby putting greater strain on these communities. The decreasing water levels have placed growing constraints on groundwater availability for communities, as they do not have access to piped water. Lastly, alluvium blocks have been placed at the mouth of the lake, preventing water from meeting the Mekong river. Overall, the lake's future existence is in question.

Located in southern Cambodia and a part of Mekong Delta, the Kampong Speu province is heavily dependent on agriculture, rather than fishing. However, due to climate change, there has been a noticeable rise in the frequency and severity of flooding and drought. Agricultural practice is not sophisticated and thus requires lower levels of skills and training. The farmers are still using traditional methods and tools to cultivate their land, while the irrigation system remains undeveloped. Consequently, the farmers are highly sensitive to environmental changes, especially events such as droughts. Households have many children and do not have other sources of income, and they are likely to be poor and continue to be poor in the future.

The impact of climate change can be exacerbated by overexploitation of forest resources in the Kirirom national park. The nearby communities rely heavily on forest resources and forest-related professions such as timber logging, charcoal, and firewood production. As the water level of the Mekong river is lowering and in combination with the other aforementioned issues, there will continue to be an increasing number of direct or indirect obstacles for communities relying on food supply from the river's tributaries.

The most southwestern province of Cambodia, Koh Kong has a long undeveloped coastline and a mountainous, forested, and largely inaccessible interior which includes part of the Cardamom Mountains, Koh Kapik Ramsar Site (the site covers a total area of 12,000 hectares and overlaps with Peam Krasop Wildlife Sanctuary and Botum Sakor National Park), and a section of Kirirom National Park. It is situated in the delta of three rivers – Prek Koh Pao in the north, and Prek Tatai and Prek Trapeang Rong in the southeast, and is affected by freshwater surface runoff. These rivers are tributaries of the Mekong river which supply fresh water for agriculture in the region. However, traditional methods of taking water to the rice fields from wells and small canals using manual labour remain pervasive, multiplying this area's vulnerability to droughts. The wetland area plays an important role in protecting the mainland from high waves and strong winds, while decreasing levels of sedimentary deposit along channels. The wetland also offers food sources and livelihood for indigenous people. The wetland provides direct food sources such as fish, crabs, shrimp, squid, and molluscs; and non-food products including firewood and construction materials. The degradation of wetland areas poses several threats to the livelihoods and lives of local communities, as well as the spawning and nursery grounds for fish and other marine species. Although degraded mangroves in the wetland have been replanted and protected in recent years, its general loss has still given rise to a variety of problems. The loss of mangroves forest not only impaired the food sources for nearby communities, but also facilitated saltwater intrusion into agricultural areas and freshwater bodies. The situation worsens in the dry seasons as there are changes in rainfall patterns, longer droughts and less fresh water from the Mekong River.

3. Lao People's Democratic Republic (PDR)

Savannakhet is the largest province of Lao PDR (or Laos), situated in the southern part of the country, covering an estimated area of 21,774 square kilometres. It borders the Quang Tri and Thua Thien Hue provinces of Viet Nam to the east and Thailand to the west. The Mekong River runs along the shared perimeter between Thailand and Lao PDR, creating an area of 1,500 ha wetland in the Xe Champhone

district. Popularly known as the 'Ramsar Convention', or the Convention on Wetlands of International Importance, this intergovernmental treaty enshrines protection of regions such as this district. The Xe Champhone district is located in the southeast of Savannakhet province, belonging to the hottest and driest part of the country, being highly vulnerable to variations in the climate alongside shortages of water. This area is the source of approximately 500 indigenous fish species identified within Lao PDR thereby offering livelihood to the region's indigenous people. Moreover, as the region is heavily dependent on the agricultural sector, the economy of Xe Champhone district is becoming increasingly sensitive to the impacts of climate change and changes in water supply. The shortage of water has become progressively alarming due to the quality and quantity of water from upstream dams. This issue is combined with a lack of clean water and watershed management; as well as changes in the wetlands due to soil erosion, invasive plant species, and inappropriate infrastructure contribute to a loss of biodiversity while damaging the habitats of endangered species.

Champasak is a province in southwestern Lao PDR and nestled between Salavan province to the north, Sekong province to the northeast, Attapeu province to the east, Cambodia to the south, and Thailand to the west. This province sits at a crucial geopolitical juncture as it borders both Thailand and Cambodia and contains the Mekong River and serves as the river's entry point into Cambodia. In addition, Don Sahong, an area within the province, functions as a primary transboundary migration passage and nursery ground for many species of fish throughout the year. Although Don Sahong is one of many channels and only comprises 15 percent of the flow at that given point of the Mekong River, its spawning ground plays a crucial role in fish conservation and biodiversity for the river. Therefore, the construction of Don Sahong dam has played a role of paramount importance in debates about hydropower, migratory fish behaviour, change of the river flow and local fisheries. These are conversations of growing significance as the loss of wild nursery ground and the more unpredictable flows of the Mekong are signs of an emergent and dangerous era of rising environmental insecurity.

Saravane and Sekong are two provinces located in the south of the country. These provinces share the Xe Xap National Biodiversity Conservation Area which are additionally known as important bird areas. Thanks to its location in the Bolaven Plateau, the two provinces have flourishing economies due to their production of arabica coffee (a veritable cash crop), honey and other horticultural products which are exported. Yet, Sekong province remains underdeveloped. This province hosts expansive forest coverage, yet it suffered its highest loss between 2000 and 2017. Protection activities started years ago, but it was too late as most of the 'high quality' forest area was lost already. Groundwater contamination, hygiene and sanitation are other problems of concern in these provinces posing significant health risks for local communities. Water from the floodplain areas in Saravane in particular are contaminated to a level above the WHO guidelines for drinking water. Furthermore, limited government investment in protected area management has led to fragmented landscapes. The branches of the Mekong river do not flow through these areas; yet Se Don river originating from here joins the Mekong river at Pakse - the capital of the Champasak province. Therefore, the health of the Se Don river and its adjoined forest areas can have both direct and indirect implications for the Mekong river downstream.

National policies

i. Viet Nam

Government's socioeconomic development objectives for 2011–2020, Biodiversity Law of 2008, National Strategy on Biodiversity to 2020 and Vision to 2030, Forestry Development Strategy, Socio-Economic Development Strategy, Viet Nam's REDD+ Strategy, National REDD+ Action Program and the Viet Nam Country Partnership Strategy 2012–2015 and National Plan to Respond to Climate Change for 2021–2030, Vision To 2050.

In 2020, the Prime Minister issued the National Plan to respond to climate change for 2021–2030, a vision to 2050, and all provinces had to build provincial action plans to respond to climate change for 2021–2030, a vision to 2050. The aim of the action plans was to raise the capacity of functional agencies and local communities to adapt to climate change in order to ensure sustainable development in the context of climate change. The Law on Environmental Protection 2020 has for the first time legalised the integration of climate change response content into strategies and plans. Currently, most ministries, branches, and localities have come up with plans to integrate climate change response content into the socioeconomic development process.

ii. Cambodia

National Adaptation Action Plan of sectoral ministries including the Ministry of Agriculture, Forestry, and Fisheries (MAFF), Ministry of Environment (MoE), and Ministry of Water Resource Management and Meteorology (MoWRAM), National Strategic Plan of the National Committee for Democratic Development (NCDD). Climate change adaptation, mitigation, and disaster risk reduction management have also been included as the first priority of the provincial, district, and commune development and investment plans, including the Vulnerability Risk Assessment (VRA) tool, which was introduced to all government levels.

iii. Lao PDR

Lao PDR has mainstreamed climate change and climate adaptation into the national strategies, policies, and plans vertically and horizontally. The Lao PDR National Strategy on Climate Change was adopted in 2010. It indicated that climate change should be mainstreamed into all related planning sectors like the Ministry of Agriculture and Forestry (MAF), Ministry of Public Work and Transport (MPWT), Ministry of Health, and Ministry of Energy and Mine (MEM).

Since 2011, each level has integrated climate change and natural disaster aspects into strategies for socioeconomic development. Currently, climate change mitigation and adaptation and climate resilience have been mainstreamed into a number of strategies and socioeconomic development plans, such as the Green Growth Strategy of Lao PDR until 2030, the 9th National Socio-economic Development Plan 2021-2026, including subnational economic development plans at the Provincial and District levels. In addition, climate change and adaptation were incorporated into the national water resource strategy, national climate change adaptation, river basin management plan, and RAMSA management plan as well as included in vertical planning by line agencies.

ANNEX 3: LIST OF STAKEHOLDERS CONSULTED

Date of Interview	Location	KII/ FGD	Informant category	KII specification	# participants		
					M	F	Total
Viet Nam							
03-Oct-22	Online	KII	Gov Executing Agencies (CPMU)	KII with CPMU representatives	2	1	3
07-Oct-22	Dakrong dist., Quang Tri province	KII	Gov Executing Agencies (Provincial & district level)	KII with PMU and Management Board of Dakrong Nature Reserve	1	2	3
07-Oct-22		FGD	Beneficiaries	FGD with local households	5	4	9
11-Oct-22		KII	Gov Executing Agencies (Provincial & district level)	KII with PMU and Management Board of Phong Dien Nature Reserve	2	1	3
11-Oct-22		FGD	Beneficiaries	FGD with local households	9	-	9
Subtotal Viet Nam					19	8	27
Lao PDR							
12-Sep-22	Vientiane	KII	Gov Executing Agencies	KII with Depart of Water Resources representative	1	-	1
13-Sep-22		KII	Gov Executing Agencies	KII with Depart of Environment and DCC	1	1	2
14-Sep-22		KII	Gov Executing Agencies	KII with DPF representatives	2	-	2
19-Sep-22	Savannakhet province	KII	Gov Executing Agencies	KII with PoNRE representatives	1	1	2
			(provincial level)				
19-Sep-22		KII	Intergovernmental organisation	KII with FAO staff (provincial and district facilitator)	1	-	1
20-Sep-22	Champhone district, Savannakhet province	KII	Gov Executing Agencies	KII with Xechampone DoNRE and Taleo village representatives	1	1	2
			(District and commune level)				
20-Sep-22		KII	Beneficiaries	KII with fish breeding household	1	-	1
20-Sep-22		FGD	Beneficiaries	FGD with local households	20	4	24
22-Sep-22	Saravan province	KII	Gov Executing Agencies	KII with Saravan DAFO and Nongsai village representatives	2	-	2
			(Province and commune level)				
23-Sep-22			FGD	Beneficiaries	FGD with local households	3	12
26-Sep-22		KII	Gov Executing Agencies	KII with Saravan PoNRE representatives	2	-	2
	(Province level)						
27-Sep-22	Thatend district, Sekong province	KII	Gov Executing Agencies	KII with Thateng DoNRE representatives	1	-	1
			(District level)				
28-Sep-22		KII	Gov Executing Agencies	KII with Kamkok village and Donxa village representatives	2	-	2
	(Commune level)						
29-Sep-22	Sekong province	KII	Gov Executing Agencies	KII with Sekong PoNRE representatives	1	-	1
	(Province level)						
30-Sep-22	Champasack province	KII	Gov Executing Agencies	KII with Champasack PoNRE and Champasack PAFO representatives	1	1	2
	(Province level)						
01-Oct-22	Pathoumphone district, Champasack province	KII	Gov Executing Agencies	KII with Pathoumphone DoNRE and Phapho village representatives	2	-	2
			(District and commune level)				
02-Oct-22	Ban Phapho village, Pathoumphone district,	FGD	Beneficiaries	FGD with local households	6	6	12

	Champasack province						
	Vientiane	KII	Gov Executing Agencies	KII with MPI representative (REDD project)	1	-	1
Subtotal Lao PDR					49	26	75
Cambodia							
5-Sep-22	Phnom Penh	KII	National Government	KII with PMU (MoE)	1	-	1
5-Sep-22		KII	National Government	KII with PMU (MoE)	1	-	1
6-Sep-22		KII	National Government	KII with PMU (MAFF)	1	-	1
6-Sep-22		KII	National Government	KII with PMU (MAFF)	1	-	1
7-Sep-22		KII	National Government	KII with PMU (MoWRAM)	1	-	1
8-Sep-22		KII	NGO	KII with NGO (Mlup Baitong)	1	-	1
8-Sep-22		KII	NGO	KII with NGO (Live and Learn Cambodia)	1	-	1
9-Sep-22		KII	NGO	KII with NGO (Save Cambodia Wildlife)	1	-	1
15-Sep-22	Siem Reap	KII	Local government	KII with implementers (Provincial government administration)	2	-	2
15-Sep-22	Prasat Bakong district, Siem Reap province	FGD	Beneficiary	FGD with beneficiaries	3	12	15
13-Sep-22	Kralanh district, Siem Reap province	KII	Local government	KII with implementers (District DoE, DAFF, DoWRAM)	3	-	3
13-Sep-22		FGD	Beneficiary	FGD with beneficiaries	6	4	10
14-Sep-22	Svay Leu district, Siem Reap province	KII	Local government	KII with implementers (District DoE, DAFF, DoWRAM)	2	1	3
14-Sep-22		KII	Beneficiary	KII with beneficiary	1	-	1
17-Sep-22	Preah Vihear province	KII	Local government	KII with implementers (Provincial DoE, DAFF, DoWRAM)	3	-	3
18-Sep-22	Choam Khsan district, Preah Vihear province	KII	Local government	KII with implementers (District DoE, DAFF, DoWRAM)	1	1	2
18-Sep-22		KII	Beneficiary	KII with beneficiary	-	1	1
19-Sep-22		FGD	Beneficiary	FGD with beneficiaries	5	12	17
21-Sep-22	Kampong Speu province	KII	Local government	KII with implementers (Provincial DoE, DAFF, DoWRAM)	3	1	4
22-Sep-22	Phnom Srouch district, Kampong Speu province	KII	Local government	KII with implementers (District DoE, DAFF, DoWRAM)	2	-	2
23-Sep-22		FGD	Beneficiary	FGD with beneficiaries	14	1	15
24-Sep-22	Aoral district, Kampong Speu province	KII	Local government	KII with implementers (District DoE, DAFF, DoWRAM)	2	-	2
25-Sep-22		KII	Beneficiary	KII with beneficiary	1	-	1
27-Sep-22	Koh Kong province	KII	Local government	KII with implementers (Provincial DoE, DAFF, DoWRAM)	2	-	2
28-Sep-22	Mondul Seima district, Koh Kong province	KII	Local government	KII with implementers (District DoE, DAFF, DoWRAM)	2	-	2
29-Sep-22		FGD	Beneficiary	FGD with beneficiaries	10	5	15
Subtotal Cambodia					70	38	108

ANNEX 4: FIELD WORK SCHEDULE

i. Field team

The core evaluation team joined parts of the field missions led by the national teams in Cambodia and Lao PDR. The local experts, supported by one research assistant who took photos, notes and transcribed them into the local language, led the country evaluations and conducted key informant interviews (KIIs) and focus group discussions (FGDs) in the applicable national language in each country (Viet Nam, Lao PDR and Cambodia). A film crew also joined the field mission in order to capture original video footage and images for a knowledge and communications product to accompany the final report. While the core team visited the peatlands project in Viet Nam's lower Mekong alone due to logistical issues, a severe typhoon prevented them from joining the national team for the field visit in Central Viet Nam.

The field visits helped: i) to understand the contextual setting of the project and beneficiaries; ii) to observe whether interviews were representative and unbiased; iii) to benefit from the national team's presence, for translation purposes; and iv) to collect data for GIS analysis for additional evidence and validation and triangulation.

ii. Timing

The field mission plan was developed in consultation with related parties and submitted to the lead agencies and government executing agencies for field permission and arrangement of meeting participants.

Table 9: Field mission schedule

Countries	Field mission timing	Remarks
Cambodia	5-29 Sep 2022	Onsite visits
Lao PDR	13 Sep-2 Oct 2022	Onsite visits
Viet Nam	3, 7, 11 Oct 2022	Online KII with CPMU on 3 Oct; Onsite visits to two provinces

iii. Locations

Table 100 gives an overview on the province, localities and villages/communities reached by the evaluation during data collection.

Table 10: Field mission locations

Country	Province	Localities	Villages/Communities
Viet Nam	Quang Tri	Dakrong District	Trai Ca, Ta Lao
	Thua Thien-Hue	Phong Dien District	Ha Long, Tan My, Luu Hien Hoa
Cambodia	Siem Reap	Prasat Bakong district	Trapaing Thom
		Kralanh district	Thkov
		Svay Leu district	Svay Leu
	Preah Vihear	Choam Khsan district	Teuk Kraham, Choam Khsan
	Kampong Speu	Phnom Srouch district	Kraing Devay
		Aoral district	Tasal
	Koh Kong	Mondul Seima district	Peam Krsaob
Lao PDR	Savannakhet	Xe Champhone	Taleo

	Salavan	Salavan	Nongsai
	Sekong	Thateng	Kamkok and Donxa
	Champasack	Pathoumphone	Phapho
	Vientiane Capital	-	-

In addition to collecting primary qualitative data through KIIs and FGDS, site visits were conducted during the field mission with the aim of conducting first-hand observations of observations of the quality of the GEF-funded projects, the engagement of beneficiaries and government institutions.

iv. Key informant interviews

In-depth stakeholder consultations were held to elicit opinion or explore in more detail specific aspects emerging from the literature review and initial analyses. The evaluation used semi-structured interview tools based on the EQs and judgment criteria. Key stakeholder groups were identified, with GEF and key partners providing support to identify individuals and introduce the evaluation. Additional relevant key informants were added through snowball (also known as chain or network sampling) technique²⁴⁶ as the evaluation progressed.

v. Focus group discussions with beneficiaries/ targeted communities

A crucial element in the stakeholder consultation process was community/beneficiary interviews and feedback. A sample of beneficiary/target communities were selected in districts and localities in which the sampled projects were implemented. The initial target set during the inception phase of the evaluation was to conduct at least 30-40 individual interviews and 4-5 small focus groups with beneficiaries/target communities of the selected projects for deep dive in each country. The evaluation consulted with two hundred and twenty individuals through ten focus groups, with an additional 79 individual interviews with beneficiaries/community members/provincial, district and national government representatives and NGOs. A detailed list of stakeholders consulted is provided in Annex 3.

²⁴⁶ Snowball sampling is a non-probability sampling method that begins with one or more study participants, and then continues on the basis of referrals from those participants. The process continues until the desired sample, or a saturation point is reached.

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ANNEX 6: GEOSPATIAL ANALYSES OF SELECTED PROJECTS

The following projects were selected for time-series geospatial analyses as a tool to further triangulate evidence and measure real-time changes on the ground in target areas for five projects.

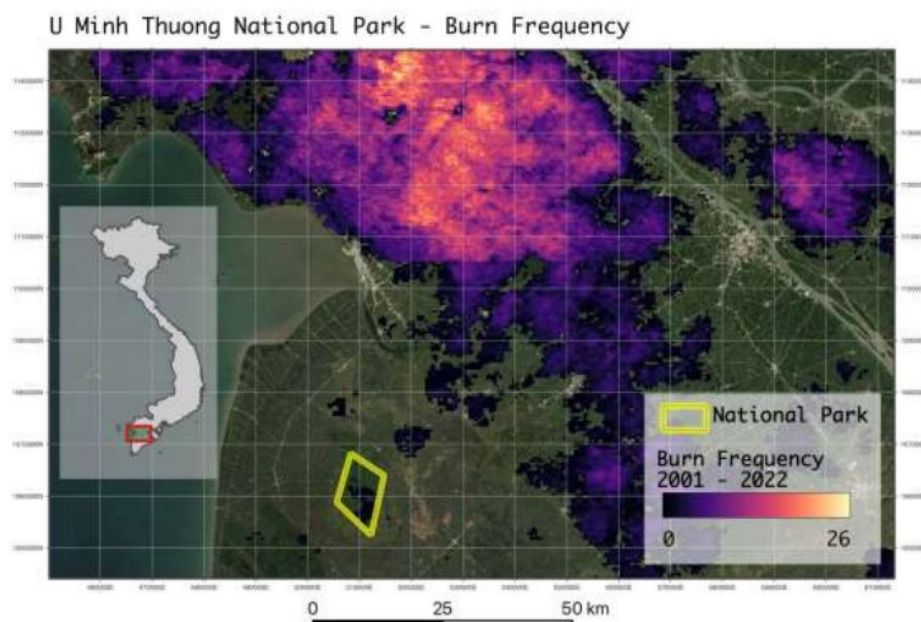
Viet Nam Peatlands Project

The first peatlands project²⁴⁷ provided effective models for protecting water-producing and carbon sequestering ecosystems, as supported from the desk review and field visits. It also offers an effective and replicable pilot demonstration that could be used to help protect these critical ecosystems throughout the region. While the project was more of a demonstration project that was not designed to produce impacts, it has resulted to date in identifying 72 rare animal and plant species listed in Viet Nam's Red Data Book (2007) and the International Union for Conservation of Nature (IUCN) Red List (2012).²⁴⁸ The 80 km² U Minh Thuong National Park (established in 2002) protects one of the most biodiverse and carbon-sequestering peat wetland areas in the Mekong Delta²⁴⁹. While it is relatively small, the National Park offers a protected refuge that is surrounded by agricultural development that threaten hydrological connectivity (ground water and surface water) and fires, which together, desiccate these permanently wet areas.

Comparative geospatial analyses of the park and the adjacent 100 km² buffer zone found that there has been only one fire, and only minimal land cover changes²⁵⁰, since the National Park was created in 2001, thanks to improved management practices implemented through GEF funding (see Figure 29: GEF 2751 Burn Frequency U Minh Thuong National Park

However, the frequency of fires was highly variable in community lands adjacent to the National Park, with some areas burning on an annual basis. The time series of the percent area burned for both the National Park and the 100 km buffer (Figure 30) shows that the only burn inside the national park occurred in 2001, while the area burned in the buffer varies annually with a slightly increasing trend through time.

Figure 29: GEF 2751 Burn Frequency U Minh Thuong National Park



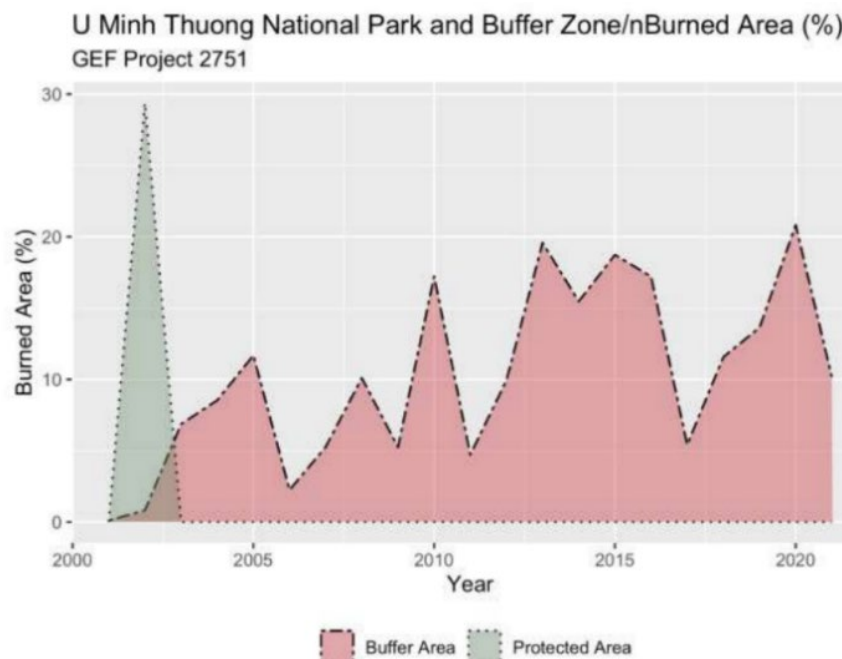
²⁴⁷ GEF 2751

²⁴⁸ RESTORATION OF PEATLAND ECOSYSTEMS AND BIODIVERSITY IN U MINH REGION OF MEKONG DELTA, VIET NAM Le Phat Quoi, Nguyen Tan Truyen, and Tran Van Thang.

²⁴⁹ In 2012, the park was designated the first ASEAN Heritage Park on peatland in Southeast Asia, becoming the fifth ASEAN Heritage Park in Viet Nam. In 2015, it was recognised as a Ramsar site – a wetland of international importance. In 2006 declared a world biosphere site.

²⁵⁰ This finding was corroborated by remote sensing analysis using fire detection data from the MODIS monthly burned area data product (MCD64). MCD64 derived annual fires from 2001 – 2022 were mapped and the burn frequency was calculated.

Figure 30: GEF 2751 Time Series U Minh Thuong National Park and Buffer Zone/ Burned Area (%)



The second, and ongoing regional Peatland project²⁵¹, (Sustainable Management of Peatland Ecosystems in Mekong Countries) focused on Cambodia and Lao PDR. One of its key outcomes was the sustainable management of peatland ecosystems in the targeted countries with an emphasis on conserving biodiversity, reducing greenhouse gas emissions, and strengthening livelihoods for local communities.

Geospatial analysis of three peatland systems across the region²⁵² was conducted by delineating the three areas using available maps from project documentation and the Dynamic World global landcover dataset to assess relative changes in area for key landcover classes²⁵³ between 2017 and 2022 (see Figure 31). Results show minimal changes within most of the natural vegetation cover for both Pream Krasaob and the Vientiane system, with some moderate increase in the flooded vegetation class. However, there were moderate increases in the amount of bare and built-up lands, as well as crop areas detected, which are mainly being converted from the forest cover and flooded vegetation classes. However, the system in Champasak Province²⁵⁴ is showing more alarming trends, with substantial losses in natural vegetation around the wetland areas. This is noteworthy because the province sits at a crucial geopolitical juncture as it borders both Thailand and Cambodia and includes contains the Mekong River, which serves as the river's entry point into Cambodia. Furthermore, the Don Sahong area within the province functions as a primary transboundary migration passage and nursery ground for many fish species throughout the year. Although Don Sahong is one of many channels and only comprises 15 percent of the flow at that given point of the Mekong River, its spawning ground plays a crucial role in fish conservation and biodiversity for the river. Therefore, the construction of Don Sahong dam has played a role of paramount importance in debates about hydropower, migratory fish behaviour, change of the river flow and local fisheries. This has stimulated increasingly important discussions conversations about the significant losses of wild nursery ground and the less predictable Mekong River flows that is creating a dangerous period of rising environmental insecurity.

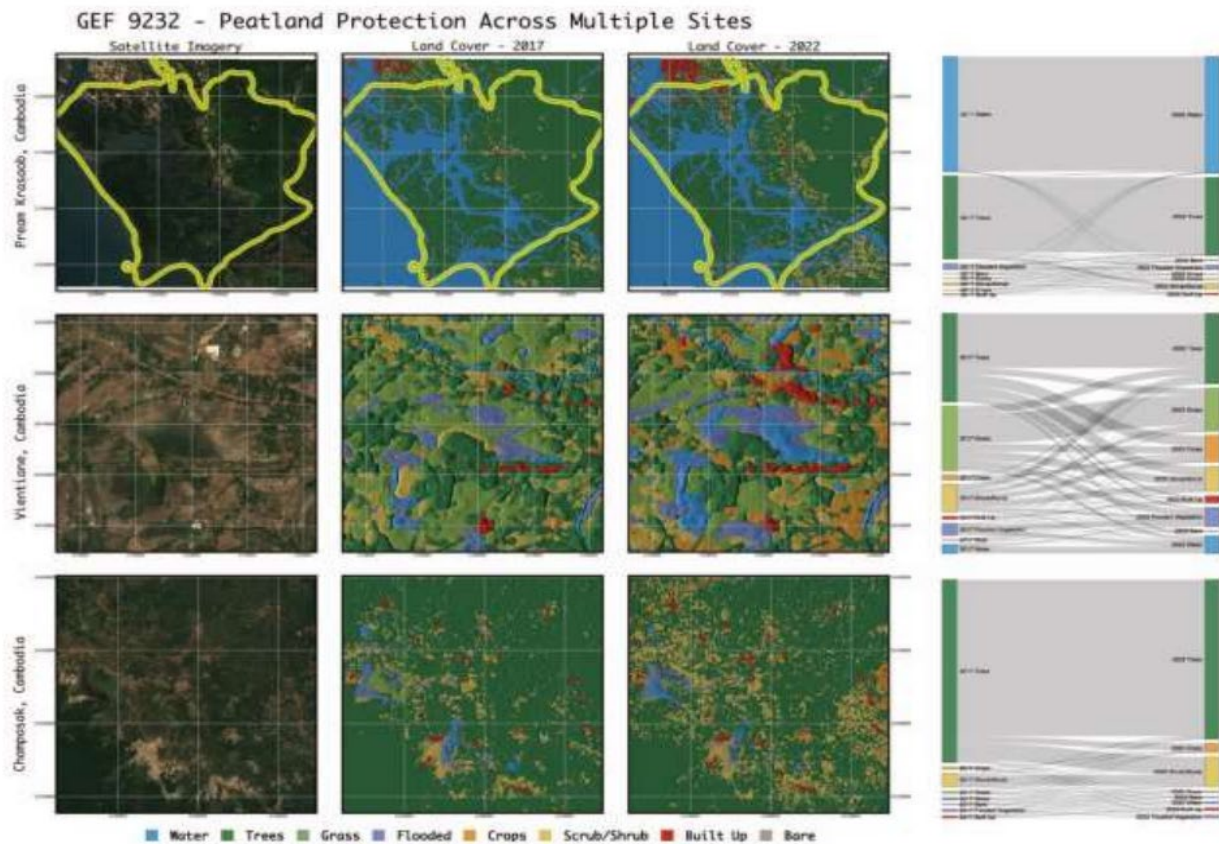
²⁵¹ GEF 9232

²⁵² There are peatlands in Pream Krasaob, Cambodia, a small peatland area in Vientiane province, Cambodia, and a larger peatland system in Champasak province, Cambodia.

²⁵³ The key classes mapped are water, trees, grass, flooded vegetation, shrub/scrub, crops, built-up, and bare.

²⁵⁴ Champasak is a province in southwestern Lao PDR and nestled between Salavan province to the north, Sekong province to the northeast, Attapeu province to the east, Cambodia to the south, and Thailand to the west.

Figure 31: GEF 9232 Peatland Protection Across Multiple Sites



Central Annamite Mountains²⁵⁵ Protected Area (PA) Effectiveness

Deforestation rates for these protected areas were calculated and mapped, both for the protected areas themselves and for buffer areas extending 10 km from each protected area boundary. Buffered areas overlapping other protected areas were removed from the buffered analysis, so that buffered areas represented ‘non-protected’ areas, to the extent the available data allows. The analysis below shows the high effectiveness of these protected areas in reducing deforestation. The map (Figure 32) shows very few deforestation events detected within the protected areas themselves, but substantial deforestation occurs in adjacent areas. The time series (Figure 32), confirms with deforestation rates in the buffer zone are substantially higher than in the protected area for each site. Furthermore, while the rate of deforestation through time is increasing across both the protected areas and buffer zones, it is increasing much more rapidly in the buffer zones. However, it must be noted that the degree to which the steep terrain and topography (up to 1700 m) impeded deforestation in the highest parts of the PAs.

This may indicate that while the protected areas have been highly effective until now (or that they are less accessible due to topographic rugosity and elevation), deforestation pressure on them is increasing due to the increasing pressure (and potential loss of resources in the adjacent areas). Additionally, the connectivity of this network of protected areas is likely being threatened due to the high rates of deforestation in the non-protected buffer areas. This may ultimately threaten the sustainability of these protected areas as they become islands in a sea of deforestation, cultivation, and development, and if this hypothesis is correct,

²⁵⁵ The biodiversity rich forest areas of the Central Truong Son Range/Annamites in the western part of Quang Nam, Thua Thien Hue, and Quang Tri provinces provide critical ecosystem services to the lowland and coastal areas of the central region of Viet Nam.

then it underscores the importance of investing higher proportions of GEF grants and multi- lateral loans to improve livelihoods and economic incentives for sustainable practices.

Figure 32: GEF 5005 Map Central Annamite Mountains Deforestation 2001-2021

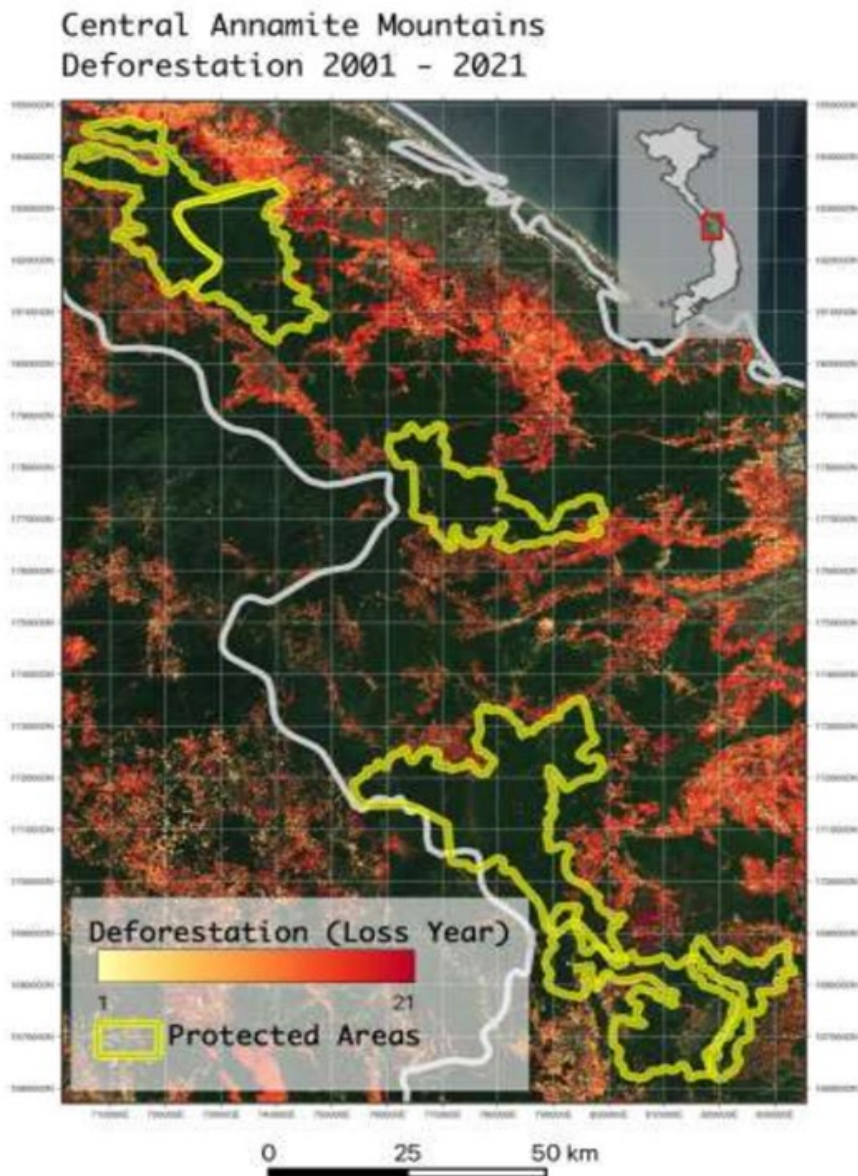
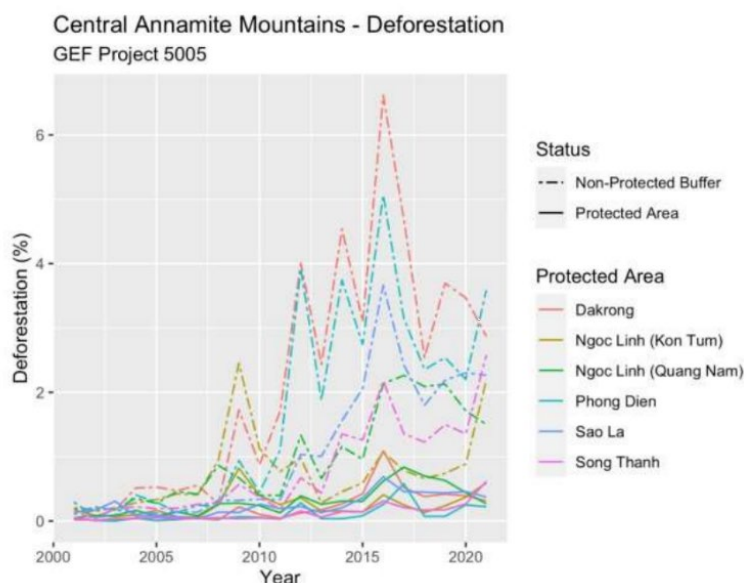


Figure 33: GEF 5005 Time Series Central Annamite Mountains Deforestation



The project provided financial sustainability while contributing multiple benefits including reduced GHG emissions, regional ecosystem connectivity, addressing forestland degradation, filling gaps in capacity required for sustainable forest management, and supporting climate mitigation, habitat restoration, and biodiversity protection within and outside Pas, while contributing to poverty reduction and other national targets.²⁵⁶ The approach strengthened institutional and community capacity in the management of Protected Areas (PAs) and adjacent Greater Annamite Mountains areas which run through Lao

PDR, while strengthening landscape conservation measures at the community level within the PAs and their surroundings.

Unfortunately, the project design ignored several STAP recommendations of extreme importance. For example, there is no evidence that the recommendation to coordinate the project to increase its impact to the regional level with the adjacent transboundary biodiversity hotspots of global importance in Lao PDR was adopted and as a result, opportunities for exchanging lessons were lost.

GEF 5489 Climate Change Adaptation in Wetlands Areas (CAWA)

One of the overall goals of this GEF project was to reduce the climate change vulnerability of communities and the fragile wetland ecosystems on which they depend. Activities implemented revolved around sustainable use and management of small, but critical wetland systems in community areas. Here, land cover change for the Xe Champone Ramsar wetland site in Lao PDR is assessed (*Figure 34*). Using the Dynamic World global landcover dataset, the relative change in area for key landcover classes was also calculated. The key classes mapped are water, trees, grass, flooded vegetation, shrub/scrub, crops, built-up, and bare (*Figure 35*). Results show that there were minimal changes within most of the natural vegetation cover, with moderate increase in the flooded vegetation class. However, there was also some increase in the amount of crop area detected, mainly being converted from the tree cover and flooded vegetation classes. Longer land cover time series could be used to further assess trends through time.

Despite International designation or Regional Action Strategies to protect globally important biodiversity, GEF investments projects are unlikely to be effective in achieving its focal area targets unless there is adequate legislation, effective enforcement of that protection at the provincial and/or district level, as well as effective, short-term benefitting livelihood and alternative economic activity incentives that promote sustainable practices.

For the CAWA project, aquaculture and fish production ponds, women's groups to make textiles were important incentives according to interviews. However, they still did not access the root causes of invasion

²⁵⁶ The project also contributed to the government's socioeconomic development objectives for 2011–2020 and it financed key elements of the Forestry Development Strategy and Socio-Economic Development Strategy to restore and maintain forest cover to contribute to other national targets, such as reducing poverty in mountainous areas of Central Greater Annamites.

of the wetlands with cattle foraging and the fragmentation of hydrobiological corridors between the wetlands and adjacent forested areas.

Figure 34: GEF 5489 Map of land cover change for the Xe Cahmpone Ramsar wetland site in Lao PDR

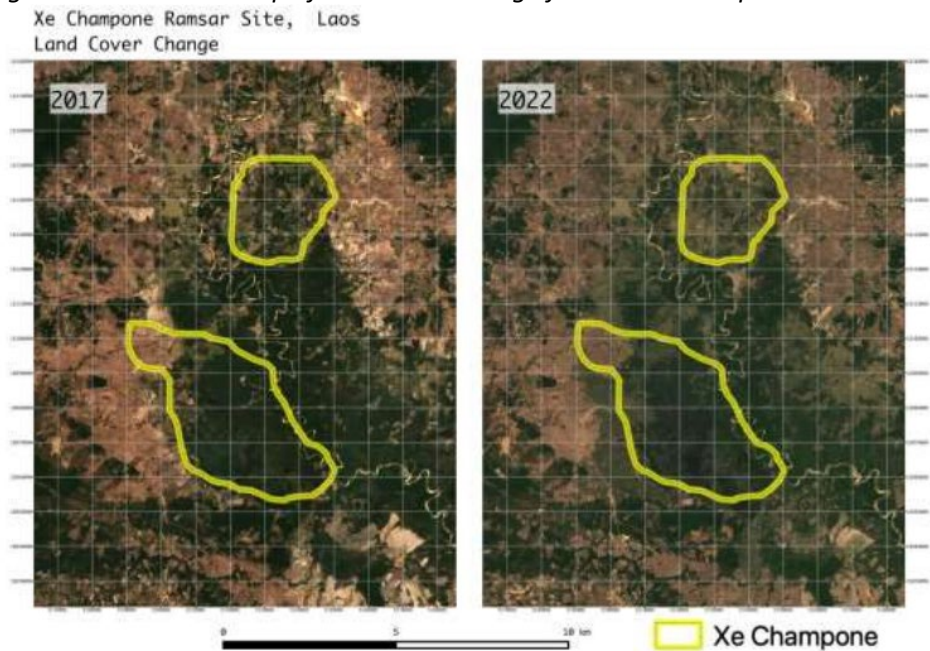
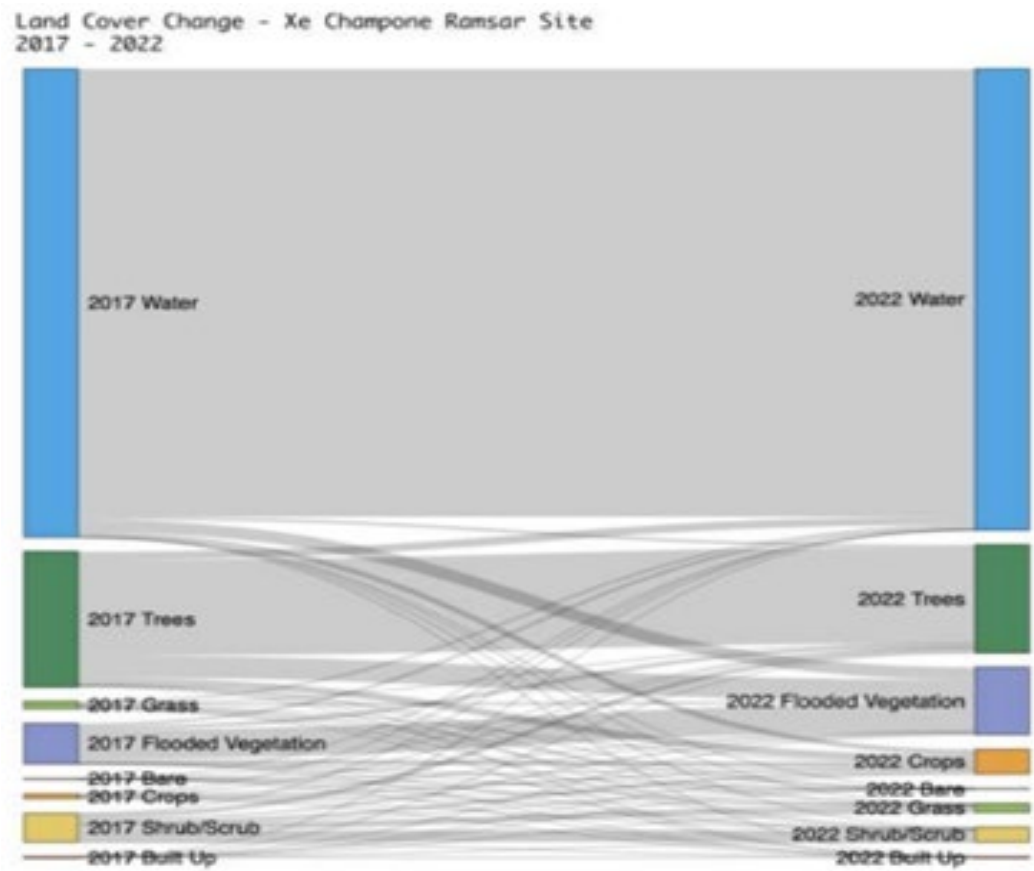


Figure 35: GEF 5489 Relative changes in area for key landcover classes for the Xe Cahmpone Ramsar wetland site in Lao PDR



Geospatial analysis of GEF 3404: “Promoting Climate Resilient Water Management & Agricultural Practices in Rural Cambodia”

The GEF IEO conducted a geospatial analysis of GEF 3404 in which a key goal was to reduce rural Cambodian communities' vulnerability to changing precipitation patterns and climate variability. Activities to achieve this included improving rainwater harvesting facilities and improving the design and management of reservoirs and irrigation channels. With reduced vulnerability to climate change, communities may be less likely to participate in illegal deforestation and other such activities.

Deforestation rates in Preah Vihear province, Cambodia were mapped and calculated for community forest areas, surrounding a village that received inputs to improve reservoir and irrigation systems (Figure 36). The deforestation rates of the community forest areas were calculated in relation to the annual surface water availability, derived from the Joint Research Center’s (JRC) Global Surface Water mapping product (Figure 37).

Figure 36 GEF 3404 Deforestation rates in Preah Vihear province

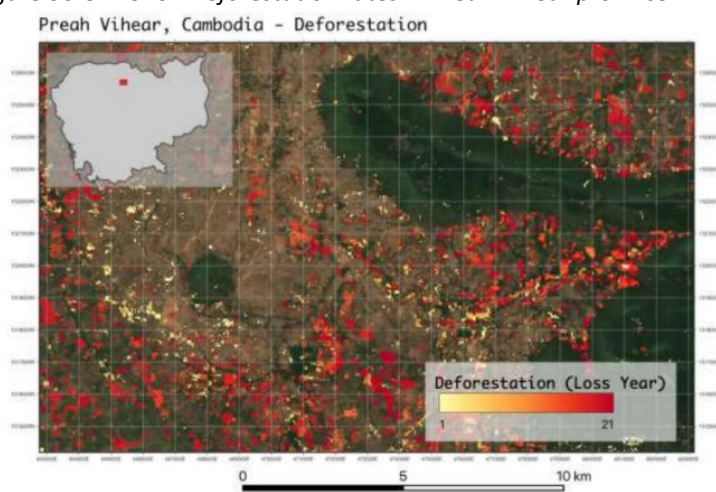
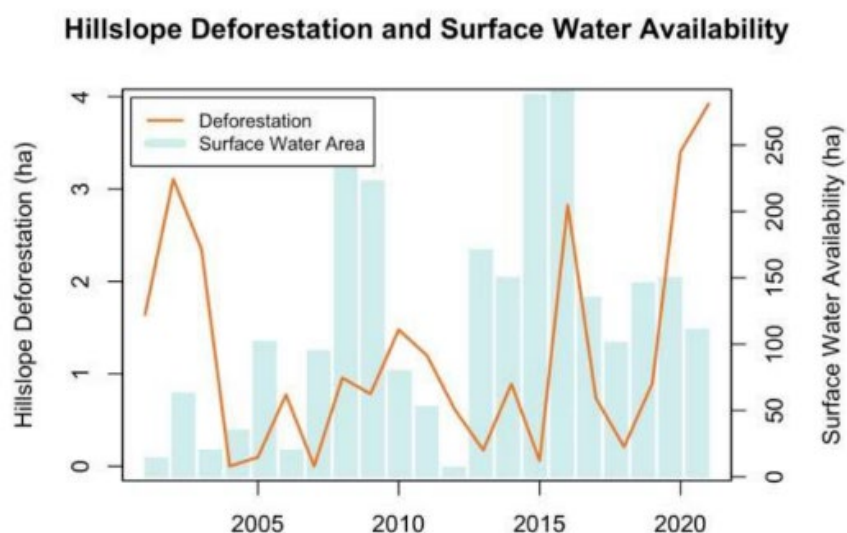


Figure 37: GEF 3404 Hillslope Deforestation and Surface Water Availability



Source: Annual surface water availability, derived from the Joint Research Centre’s (JRC) Global Surface Water mapping product. Deforestation rates are derived from the University of Maryland’s Global Forest Cover dataset.

Overall deforestation rates of the community forest areas (forested hill sides) are minimal, averaging around 1-2 hectares/year, which is lower than broader deforestation rates of other forested areas in the region. However, deforestation rates are much higher in the village areas themselves. The annual surface

water availability through time is highly variable. No discernible correlation exists between the annual surface water availability and the annual measured deforestation rate in the community forest areas.

However, there appears to be a lag between surface water availability and low deforestation rates (although rates are relatively low, there might be a localized effect where the deforestation is concentrated, rather than spread across a larger area). After deforestation peaked in 2005, there was a positive response in surface water over the next 10 years, then a peak in deforestation in 2011-2012, when water levels reduced (but El Nino/drought effects could also be at play). Then comes a deforestation peak in 2017-2018 when surface water drops again, and a further increase in deforestation up to 4 ha in 2020.

It is possible (a testable hypothesis) that groundwater is more important for maintaining water levels in the rice fields and in the GEF-funded pond (especially during the dry season) than surface water. As a result, it is possible that higher forest cover enhances groundwater recharge by reducing surface water runoff and increasing percolation into the underlying aquifers. However, this is difficult to test because reliable groundwater data is lacking.

GEF 4945 Collaborative Management for Watershed and Ecosystem Service Protection and Rehabilitation in the Cardamom Mountains, Upper Prek Thnot Basin

The Mekong River Committee in 2004-2005 identified Prek Thnot River as one of the top 10 watersheds for the level of risk of quality reduction that are seriously affected and urgently requiring management interventions. Notwithstanding the Satisfactory rating for Component 2, there are some serious barriers and the overall impact is expected to be small according to the terminal evaluation. A review of the project outputs shows the modest level of watershed management change that was pursued so far in the three pilot communes: strengthening forest protection in two Community Protected Areas (CPAs) and one Community Forest (CF), introduction of vegetable and mushroom growing by a few lead farmers, water supply and farm pond development and proposed agroforestry and tree planting. The most important of these activities to the communities is the water supply investments.

This GEF project supported the revitalization of community forestry and community protected areas in the upper Prek Thnot river basin. A comparison of deforestation rates between the Upper Prek Thnot basin and Lower Prek Thnot basin is derived here, using the University of Maryland's Global Forest Cover dataset (Figure 38). From the map, it can be discerned that intense deforestation has occurred across both basins through time. Therefore, the GEF intervention in this area is very relevant. The time series (Figure 39) of deforestation area, shows that, as a percent of the total area, there is little difference when comparing in deforestation rates in the upper and lower basin. The exception being a strong spike in deforestation rates between 2010 and 2015 for the lower basin. Close examination of the map (Figure 38) shows that deforestation rates are quite low relative to the rest of the basin the heavily forested areas in the northwest portion of the Upper Basin. These areas are possibly where the community forest areas are, and if so, further analysis should be done to evaluate their effectiveness and curbing illegal logging, deforestation, and habitat loss.

Figure 38: GEF 4945 Map of Deforestation in Prek Thnot River Basins, Cambodia

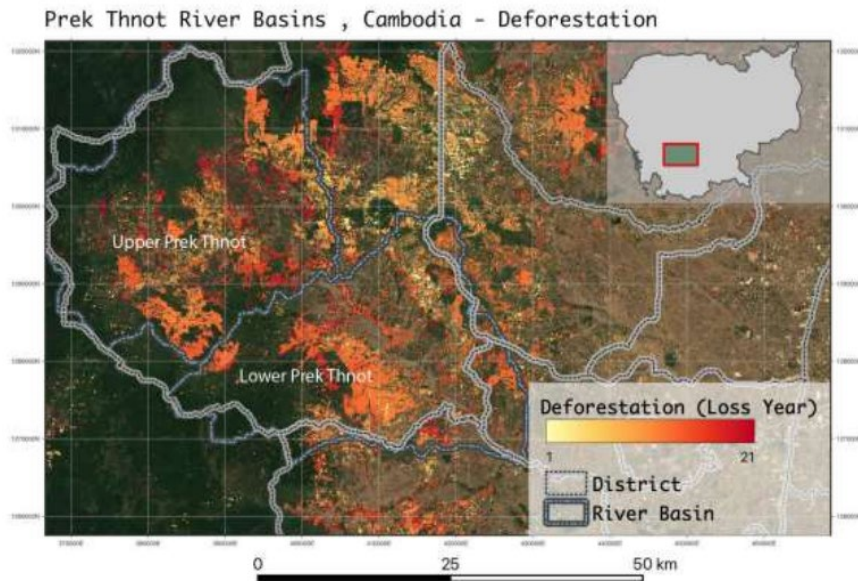
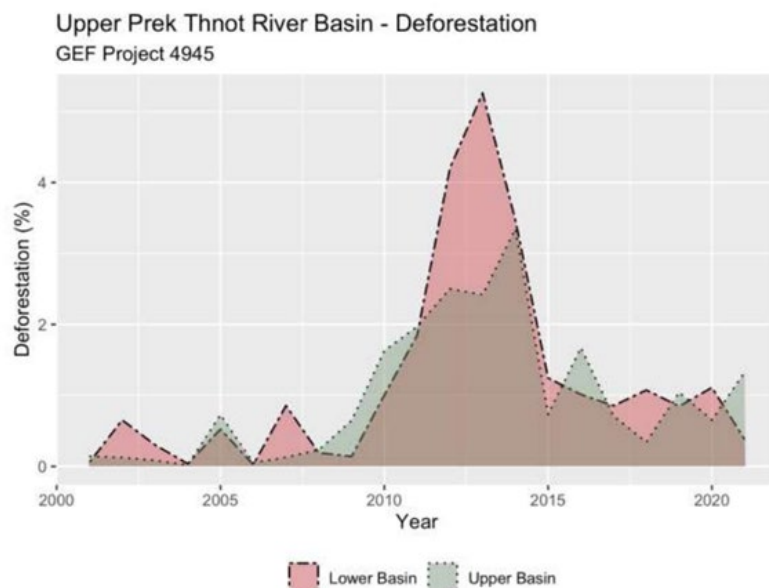


Figure 39: GEF 4945 Timeseries of Deforestation in Upper Prek Thnot River Basin



The policy and institutional mechanisms needed to initiate watershed management in Upper Prek Thnot watershed were largely beyond the scope of the project and as the map shows, the deforestation is widespread and difficult, if not impossible to contain with such a small project. While local activities can be effectively implemented in the three pilot communities with the support of the partner MB (NGO) to enhance forest conservation and alternative livelihoods, it is not obvious that the project had the governance systems in place to deliver the scale of watershed and ecosystem results that are envisioned in the project objective, especially given its limited time frame for implementation.