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Strategic Country Cluster Evaluation: Mekong River Ecosystem

Cambodia, Lao PDR, and Viet Nam

Approach Paper
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1. Introduction

The GEF IEO is undertaking a country cluster evaluation of the Mekong River Ecosystem to gather and assess the evidence of GEF's support to the Cooperation for the Sustainable Development of the Mekong River Basin (MRB) in strengthening transboundary river basin management. This concept note describes the approach for this strategic evaluation and includes the context, purpose, scope, evaluation methodology and timeline.

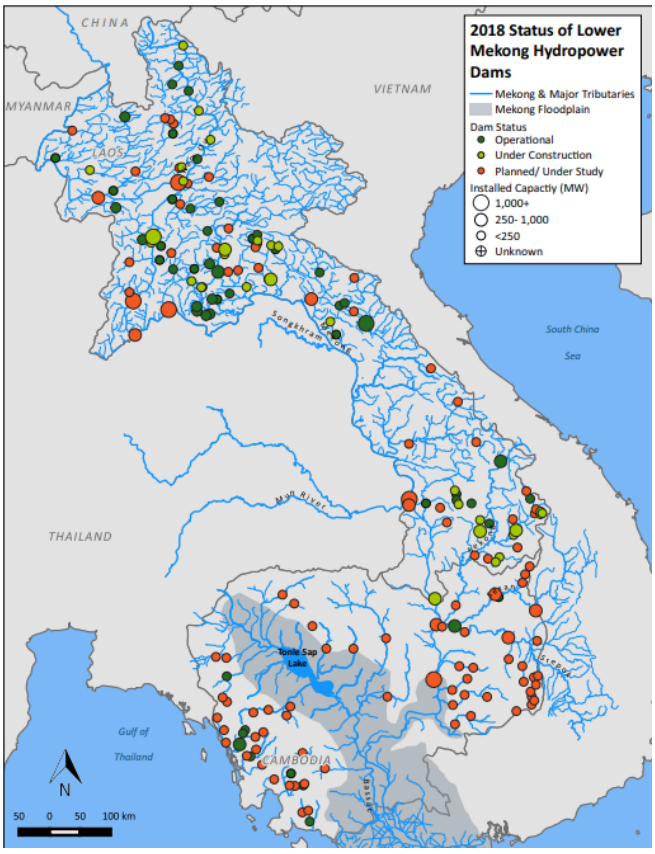
2. Context

The transboundary Mekong watershed and river (Figure 1) drains an area of 795,000 km^2 (307,000 mi^2), that stretches nearly 4,909 km (3,050 mi^2), from the Tibetan Plateau through China, Myanmar, Lao PDR, Thailand, Cambodia, and Viet Nam[1].

Figure 1 Mekong watershed

The Mekong nourishes agricultural areas and the largest lake in Southeast Asia that benefits half of Cambodia´s population and nearly one-quarter of Viet Nam's population. It also has the most concentrated biodiversity per hectare of any river in the world, second only to the Amazon in its global biodiversity. Most importantly, it is the breadbasket of Southeast Asia, a major source of subterranean drinking and surface irrigation water for millions of people (AFD 2021), as well as millions that also depend on important riverine fisheries that shift between the Mekong's and its tributaries according to seasonal river conditions for their income and subsistence (Baran *et al.* 2008). However, the multiple country demands on the Mekong's ecosystem services and a boom of high-tech engineering solutions (at the expense of nature-based solutions) have disrupted the century-old ecological balance and changed the Mekong's natural flow regime[2] resulting from hydropower dams (Figure 2) that offer both opportunities and risks (Linh *et al.* 2021; Brown 2016, MRC 2016).

Figure 2 Location of dams along the river affecting seasonal water recharge in the three target countries



[1] See Campbell 2016.

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

Annex 1 summarizes some of the main environmental challenges to the MRB. For example, flood protection and river training are being compromised by unsustainable floodplain development (urbanization, industrialization and full-year irrigation), unsustainable groundwater extraction and social inequalities (Linh *et al*.). The potential for water-related crises are also increasing due to development interventions and climate change (MRC 2018). For example, the construction of dams from China are trapping over half of the sediment crucial to the Mekong's ecology and more dams are planned even closer to the Thai border (Eyler and Weatherby 2019). Reduced freshwater flows and record-setting drought in the lower Mekong resulting from these dams exacerbates stronger penetration of saltwater up the river that has also resulted from the deforestation of mangroves and other riparian vegetation, and is now a serious threat to future irrigation and drinking water supplies (Linh et al. 2021; Brown 2016, MRC 2016). Environmental assets are widely under threat from development pressures and wetlands have greatly diminished, with the risk of disappearing altogether if no preventive action is taken. Riverine habitats are under threat from changed flow regime as a result of new storages in the basin re-regulating flows and backwater effects. Other challenges include climate impacts[3], water-related poverty[4] and environmental degradation from development in water and non-water sectors[5] (MRC 2016). As a result, these impacts have seriously altered the social and ecological dynamics of the river, threatening the well-being of millions of people in the region who depend on the river dynamics for their survival.

3. Purpose and scope of the evaluation

The aim of this country cluster evaluation of the Mekong River Ecosystem is to draw evidence of GEF's contribution to strengthening the transboundary river basin management that can address the social, economic and environmental issues related to increased flooding, drought, surface and groundwater recharge and biodiversity losses that threaten millions of the region's inhabitants. Reflecting on the period between GEF 4-7, it also aims to assess the degree to which the GEF has effectively contributed to strengthening transboundary watershed management for national and regional partners in the Mekong Region through policy and governance processes, good practices and lessons that can be shared with similar projects to sustain the investment and improve their effectiveness and overall sustainability, as well as contributions to the inter-governmental Mekong River Commission (MRC).[6]

Drawing on the evidence of completed interventions, the evaluation will assess the extent to which (a) GEF interventions at the country and regional level have delivered on outcomes and impacts over time (b) the country level projects and programs over time are well aligned and consistent with the broader regional objectives, (c) GEF agencies and executing partners have generated and utilised data, evidence and learning in development and continuous improvement of various interventions supported by the GEF; (b) previous evidence is being used to inform the design of new projects in GEF-8.

Specifically, the scope of the evaluation is as follows:

- **Temporal** – covering a period of GEF interventions up to 2022, with a focus on programming cycles GEF 4-7.

[3] Temperatures are projected to increase, sea levels will rise, and rainfall/run-off 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

[4]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.

[5] Assessments and scenario modelling by the MRC show that on-going degradation of water quality, fisheries biodiversity, wetlands and environmental assets is likely to continue with developments not only in the water sectors (intensive agriculture and aquaculture, hydropower and irrigation dams, flood control work, sand mining and navigation dredging, etc.) but beyond (e.g. industrialisation, urbanisation, deforestation, etc.).

[6] MRC comprises 4 member countries (Viet Nam, Cambodia, Thailand and Lao PDR); while the entire river basin also includes China and Myanmar, they are not core members of the MRC. In this report, the three countries of GEF focus are also referred to as Mekong sub-region. It should be the river's first line of multinational regulation for downstream countries, including the sustainability of fisheries in regions such as Tonle Sap, Cambodia. However, the body is advisory and has made little difference to the dams that have gone up since its creation in 1995.

- **Thematic** – land-based activities within the ridge to river basin ecosystem (R2RBE), including multifocal projects (but excluding coastal and/or marine-based interventions).
- **Geographic** – regional and country-level interventions in Viet Nam, Cambodia and Lao PDR.
- **Strategic** – contribution to the regional Action Plans for the Mekong River Basin.

4. Overview of GEF support in the Mekong sub-region

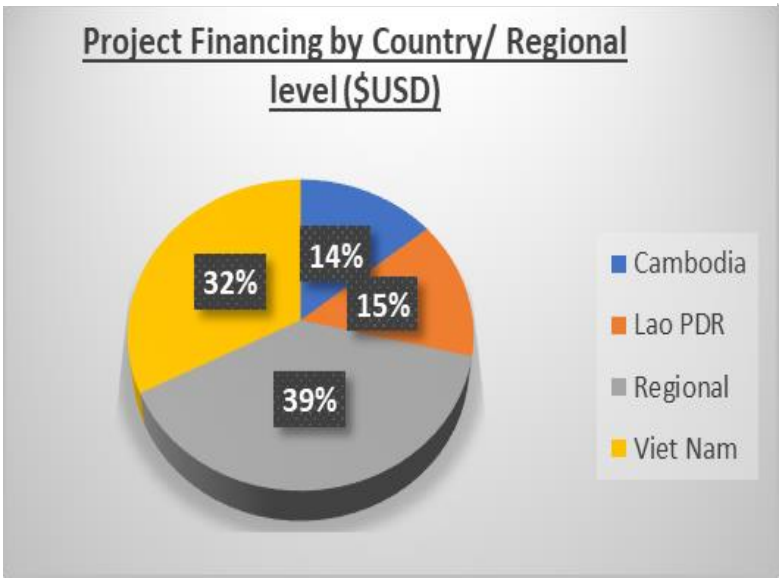
The Mekong River Commission (MRC) serves the countries bordering the Mekong. Since the 1990s, GEF's support has covered six countries in the basin (China, Myanmar, Thailand, Lao PDR, Cambodia and Viet Nam) in the GEF focal areas of biodiversity, climate change, international waters, land degradation and chemicals and waste (including persistent organic pollutants (POPs)).

More specifically, the thematic focus for the GEF programme has been in:

- Integrated ridge to river basin ecosystem (R2RBE) and biodiversity management in the subregion.
- Climate resilience, conservation and sustainable forest protection and management.
- Promoting climate-smart on-farm water management.
- Strengthening resilience of communities and livelihood systems.
- Transboundary linkages on river-basin management and strategic environment framework in the Greater Mekong sub-region.

The GEF worked with eight GEF implementing agencies and several executing agencies. The implementing agencies include ADB, UNDP, FAO, UNIDO, IUCN, World Bank, IFAD and UNEP. Of these, the UNDP and FAO consistently account for the largest number (UNDP) and size (FAO) of grants over the years. The implementing agencies work with executing agencies who are usually the core ministries dealing with natural resource management and environment (ministries responsible for agriculture, water resources, environment, forests) in different countries, MRC and in a few instances, ADB, IUCN and Conservation International. Figure 3 provides a breakdown of the distribution of the $547,878,151 allocated to the three countries covered by this evaluation, and for regional interventions (see Annex 4).

Figure 3 GEF funding in different countries and sub-regional level



Early regional projects under GEF-2 were an important part of the first five-year MRC Strategy that has been updated periodically for the past three decades in subsequent GEF phases.

4.1. Screening of GEF Projects in SE Asia

During the inception phase, the evaluation team (ET) compiled and examined an exhaustive list of interventions (Annex 3) to establish the scope of projects to be included in the evaluation – also referred to as the 'cluster' or portfolio of relevant projects. The initial list of 175 was firstly reduced to

137 in order to exclude **GEF 1-3 projects** (38), While these fall outside the temporal scope of the evaluation, key projects such as the 'Mekong River Basin Water Utilization Project' in particular will be included for contextual purposes, given their importance in relation to the first five-year MRC Strategy and in order to establish the extent to which learning was applied in subsequent phases.

For the remaining phases GEF 4-7, projects were excluded on the following basis:

1. **Coastal-marine** projects (12) – in accordance with agreed focus on inland waters (due to a similar evaluation having been conducted recently on coastal fisheries and large marine ecosystems (LMEs).
2. **Chemicals and waste**, persistent organic pollutants (POPs) (16).
3. **Other global projects** (23).
4. **Projects in thematic areas that are not relevant** to this evaluation (e.g. sustainable cities, wildlife conservation, industrial pollution, energy efficiency and large-scale agriculture) (61).

The resulting portfolio consists of 25 ridge to river ecosystem-related projects. However, on more detailed review (during the desk review), it may emerge that some fall outside the MRB catchment (e.g., wetlands and mountains on the east coast of Viet Nam and the southwest coast of Cambodia) or on the western part of Lao PDR, and hence these may be excluded during the next stage of the evaluation.

The definitive list of the 25 projects in the cluster is included in Annex 3.

5. Key evaluation questions

The evaluation will examine the overall hypothesis that GEF-funded watershed-related projects have contributed effective nature-based tools and other resilience-building interventions for improving surface and groundwater resilience in selected Mekong ridge to river basin area. To this end the evaluation team (ET) proposes the following evaluation questions in order to focus the evaluative study, based on the Terms of Reference (ToR) and subsequent discussions with the IEO during the inception phase:

EQ1: How has 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/value does GEF demonstrate in the area of integrated ridge to river basin management, and how coherent are these approaches with other donors and RSAPs?

EQ2: To what extent does the evolution of the GEF programme at the regional level and in the three countries reflect country and regional priorities?

EQ3:What has been the performance (outcomes, impacts) of the interventions at the country and regional level, and to what extent has learning from previous phases been integrated into ongoing and new projects and into GEF 8 with the aim of transforming ridge to river ecosystem management strategies for building social, economic and ecosystem resilience in the region?

EQ4: To what extent has GEF contributed to more inclusive/interactive governance, and to what extent has it strengthened local, regional and national capacities to sustain GEF's investments? To what extent has GEF enabled executing agencies to engage with civil society and the private sector in their respective countries, and what potential exists for further development in this regard?

6. Evaluation approach and methodology

6.1. Approach

The evaluation will analyze the data and evidence at the portfolio level, in addition to using evidence at the project-level. This will include a selection of a representative sample of project actions from the portfolio to establish the evidence-based analyses. In this regard, the evaluation will take a two-pronged approach in developing a focus for collecting data in this evaluation: (a) meta-review or 'shallow dive' into lessons and findings from previous GEF evaluations in the sub-region for GEF 4-7; and (b) a deep dive into 4-7 recently completed country and/or regional projects, including obtaining primary data using mixed-methods described below. Country level projects that feed into the regional projects will be analyzed for consistency as well as evidence of project interventions that are designed to influence regional outcomes. Ongoing projects will also be reviewed in each country to look at the continuation and consistency of interventions as well as any shift in directions required over time. The sampling method for selection of evaluation reports and deep-dive projects is presented in the following paragraphs.

A mixed methods approach is proposed as this type of evaluation requires both deductive and inductive analysis to be used to assess performance and processes. Mixed methods combining key informant interviews (KII), desk review of key documents, community discussions/focus groups and site visits/transect walks will enable the ET to triangulate information and perspectives from multiple sources drawing on quantitative and qualitative data.

Using the proposed EQs presented above, the ET has developed a preliminary evaluation matrix mapping the EQs and areas of inquiry, as well as indicative methods and sources of data that will enable the evaluation to address the EQs systematically. The matrix will be further developed with judgement criteria, indicators and data sources, and following the desk review (see Section 5.4).

6.2. Sampling method

Focal area/thematic focus: In consultation with the GEF Secretariat, it has been decided to exclude from this evaluation the thematic focus on the blue (coastal-marine) and brown (chemical and industrial wastes) either because other evaluations addressed them, or there are too few projects to produce a robust analysis. Therefore, the thematic focus of the evaluation will be on sustainable ridge to river basin ecosystem (R2RBE) management (surface and groundwater resilience-building) of the middle and lower Mekong Basin. As described above, a preliminary analysis of the 175 interventions funded in the three countries under GEF1-7 revealed that 38 interventions were from GEF phases 1-3, 28 were coastal/marine or chemical/pollution-focussed, 23 were global projects and 61 were not considered by the evaluation team to be relevant due to their technical focus (see Annex 3). This resulted in a definitive list of 25 projects within the temporal, thematic and geographical scope of the evaluation.

Desk review and deep-dive: the ET will conduct a rapid review and analysis of these 25 projects, focussing on available findings and evidence from completed projects, as documented in mid-term and terminal evaluation reports, and on design/progress documents for ongoing projects. The desk review will be used to gather preliminary evidence in response to the EQs, and will also examine the degree to which ongoing projects, in particular, have provided continuity and applied learning from earlier GEF projects to address key environmental challenges in the region.

During the desk review, the team will select 4-7 projects that will be the subject of a deep dive into the available documentation, followed by triangulation in the field data collection phase. The selection criteria include (but are not limited to) the following:

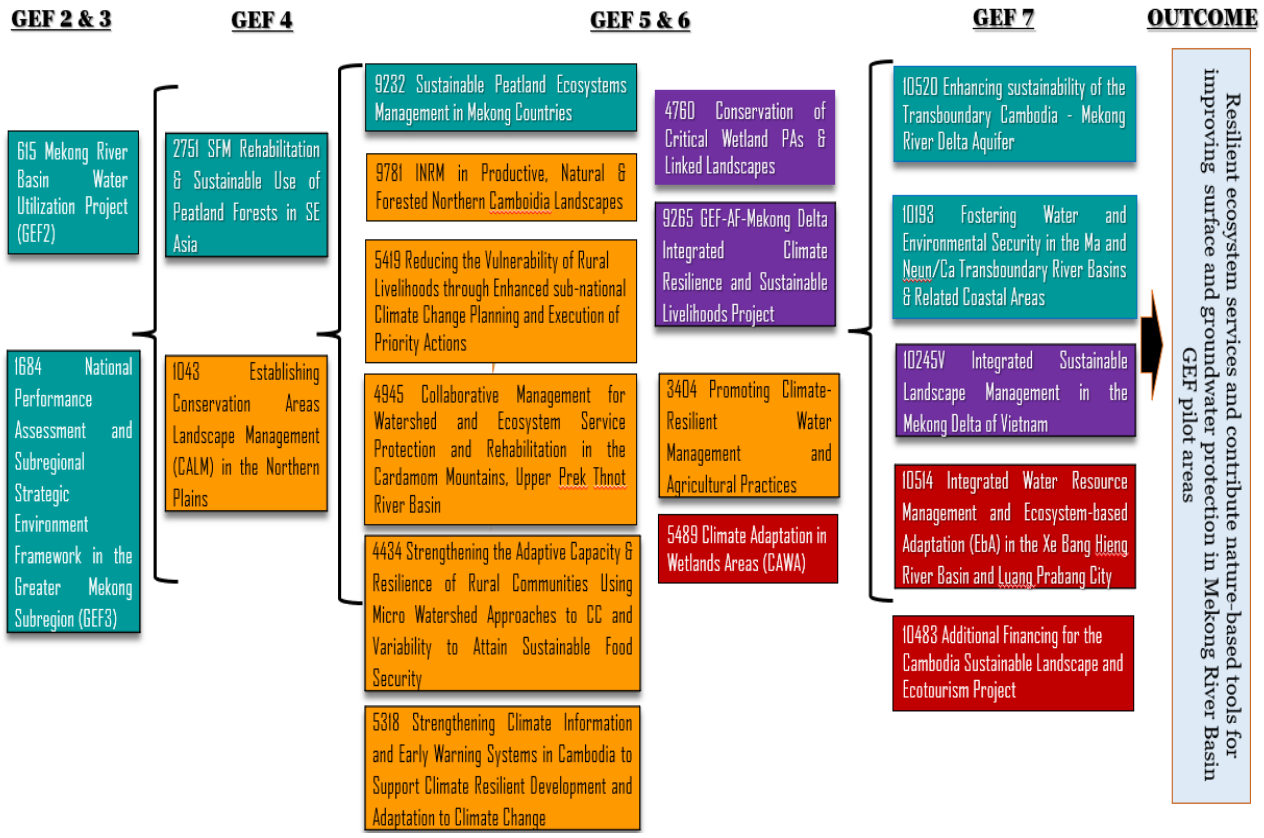
- Coverage of critical landscapes in each country's R2RBEs influencing the Mekong River Basin.
- Nature-based solutions contributing to community and R2RBEs adaptation and resilience.

- Adequacy of data available for the analysis.
- Project size.
- Contribution to Strategic Action Plans for the Mekong River Basin.

Most of the target projects have been or are being executed by the UNDP (9) and the FAO (5), while other organizations have been responsible for the remaining thematic portfolio projects (World Bank (3), and one each for the ADB, IUCN and IFAD).

A preliminary mapping of significant projects to be considered for the deep dive is presented below in Figure 4 (although as indicated above, those under GEF 2 & 3 will be used for contextual purposes only).

Figure 4 Overview of the Mekong Basin Watershed portfolio projects



(Key: green=regional; purple=Viet Nam; orange =Cambodia, Red=Lao PDR)

6.3. Evaluation process and outputs

On finalisation of the inception report, the ET will move to the desk review phase during which a meta-review of the existing evaluation reports on the 19 shortlisted projects which cover GEF grants from phase 4 onwards will be undertaken to map key lessons and recommendations. This will then feed into a further refinement of the evaluation matrix and field data collection tools/interview protocols, before moving on to the data collection phase in the three countries and at regional level. The overall process post-inception will be as follows:

- Desk review and meta-analysis – identify key issues and lessons over the years as GEF has evolved.
- Finalisation of evaluation matrix and data collection tools.
- Field data collection in two parts – (1) key informant interviews, and (2) community/beneficiary interviews and survey teams in the 3 countries.
- Development of audio-video products.

- Data analysis and presentation of preliminary findings
- Draft report, comments and finalisation.

6.4. Data collection methodology

Document review for meta-analysis: The desk review of previous evaluation reports will concentrate on all independent evaluations undertaken by the GEF agencies in the selected countries on all the 19 projects selected above. The meta-review will map the key lessons and significant recommendations in these reports and draw out any pattern emerging from these.

Key informant interviews with stakeholders: These will be held with key informants listed in Table 1 (stakeholder list). In-depth consultations will be held in the main evaluation phase using the EQs and interview tools based on the judgment criteria. As the evaluation progresses, stakeholder consultations will be used increasingly to elicit opinion or explore in more detail specific aspects emerging from the literature review and initial analyses. Additional key informants may be added through snowball technique as the evaluation progresses. To start with the following key informants will be targeted:

Table 1: Stakeholders identified for interviews and focus groups

Stakeholder group	Key informants	Potential No. of KIIs
GEF	Regional Coordinator and programme focal point;	6 KII
UNDP	GEF focal point in RBAP Bangkok; GEF programme staff in Lao PDR, Cambodia, Viet Nam (staff at both country office level and in the provinces)	12 KII
FAO	GEF focal point in HQ; GEF programme staff in Lao PDR, Cambodia, Viet Nam (staff at both country office level and in the provinces)	10 KII
UNEP	Focal point in regional office and in Lao PDR, Cambodia and Viet Nam	4 KII
World Bank & ADB	Regional focal point in Bangkok; country focal points in Lao PDR, Cambodia and Viet Nam	6 KII
Government executing agencies	Concerned Ministries/Departments of the national and provincial governments in Lao PDR, Cambodia and Viet Nam	12 KII
Communities/ beneficiaries	Interviews and focus groups with selected communities in 3 countries	90 community interviews and 12 FGDs
Others	Individuals, NGOs, civil society, researchers, academics	6 KII
Total		

An important element in the stakeholder consultation process will be community/beneficiary interviews and feedback. A sizeable sample of beneficiary/target communities in a few activities implemented by the lead partners will be selected in each of the three countries. The exact process of selection of the communities will be determined in due course in consultation with the GEF Secretariat and GEF agencies in different countries. The target will be 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 (see below) in each country. The ET will be supported in this by local research teams in each country.

6.5. Analytical methods

As several outputs and GEF outcomes focus on institutional capacity of various institutions and interventions on the ground by multiple institutions, the evaluation will need to consider the fact that the results are not usually attributable to one specific intervention/project, but rather are the culmination of multiple interacting factors and institutions. There may be multiple funding agencies and lead agencies, besides GEF, who may be assisting in delivery of the same output/outcome, and they may often be complementary. Hence the methodology will need to assess the *contributions made* by key GEF-financed interventions, rather than attribute the entire range of outcomes to GEF or any single project. The evaluation will therefore ensure that data gathering is able to identify the unique *contribution(s)* of GEF funding, in particular. The main steps in such a contribution analysis will involve the following:

- Take stock of the theory of change[7] and assumptions for major projects/interventions;
- Assess the resulting performance or contribution story for each of the outputs within each major project;
- Gather performance data at output and outcome levels;
- Reassess the contribution story and challenges to it in light of what the data is telling us;
- Seek out additional empirical evidence; and
- Revise and strengthen the contribution story – what has worked and what has not?

***Process tracing*:** Contribution analysis will be used together with process tracing techniques, as well as case-based analytical methods that test contribution. This will involve tracing the changes *within-case* and then comparing these against alternative cases. Process tracing is a method for within-case analysis and can be used to analyze causal inference from the output to impact level. Expected as well as unexpected effects may be explored through the development and evidence-based testing/nullification of alternative or rival causal theories – i.e., interrogating the evidence through alternative explanations (for example, could the outcome A be attributed to the contribution of Z (non-GEF partner). Through a process of elimination of alternative causal factors, one can test the strength of evidence (for GEF contribution) for each step in the causal chain under examination.

***Case studies*:** We envisage the use of case-based analytical methods that will draw on data from the deep dive portfolio projects to test contribution and/or attribution of the GEF interventions to the overall hypothesis (*GEF-funded watershed-related GEF have contributed effective nature-based tools for improving surface and groundwater resilience in selected Mekong River Basin watershed areas*) and will complement the ToC based contribution analysis. Within the selected projects, specific sub-projects will be selected for the case studies that aim to investigate specific assumptions and cause-effect relationships in the project design, to verify and ground-truth findings, and to provide detailed context-specific observations for the evaluation analyses. A case-oriented approach will be applied to gathering in-depth information from a range of sources and generating observations for comparison between cases. The selection of case studies will be determined from the project portfolio of interventions following the KIIs with GEF and selected lead partners staff in the early part of the data collection. Case studies will require data from a range of sources (including existing project level evaluations, project documentation, and interview data) to derive their theoretical logic, the key themes and categories to be examined and to develop an analytical framework.

The evaluation team recognizes that evaluations face potential biases that can pose a serious threat to the reliability of results. Rigorous data triangulation will be undertaken to validate data gathered during the course of the evaluation. This will be done mainly through comparing information gathered through multiple sources and methods. Where discrepancies occur that cannot be resolved, the ET will be careful in using such data for drawing conclusions or lessons and recommendations. This evaluation will utilize three types of triangulations that will serve to highlight any inconsistencies between different data sources. These are:

- Methods triangulation - both qualitative and quantitative data will be used to elucidate complementary aspects of the same subject;
- Data source triangulation - which involves examining the consistency and reliability of different data sources within the same methods;

[7] If well-articulated theory(ies) of change do not exist for all major projects, the ET will try to understand the underlying theory(ies) and assumptions through discussions with key stakeholders and project /programme managers.

- Theory triangulation - which involves using alternative theories to interpret and examine the data obtained.

Table 2 summarises the aim of each EQ, preliminary judgment criteria and proposed method for each question.

Table 2: Evaluation matrix

Evaluation question (EQ)	Aim of the EQ	Judgment Criterion	Methods/analysis
EQ1: How has 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/value does GEF demonstrate in the area of integrated ridge to river basin management, and how coherent are these approaches with other donors and RSAPs?	To assess portfolio coherence with thematic focus, synergy and complementarity with other donors and RSAPs vis-à-vis the overall aims of the GEF in the subregion.	The GEF's watershed Portfolio is coherent with RSAPs and adds value to the needs of the subregion in response to climate change and alterations of the river basin dynamics	Document reviews; KII and site visits
EQ2: To what extent does the evolution of the GEF programme at the regional level and in the three countries reflect country and regional priorities?	Application of adaptive management principles, replication of good practices and uptake and mainstreaming of results into national and regional strategic action plans.	Lessons have been captured, good practices have been institutionalised and mainstreamed into subregional policy and legislative frameworks	Document reviews; assessment of robustness of M&E systems; KII and site visits
EQ3: What has been the performance (outcomes, impacts) of the interventions at the country and regional level, and to what extent has learning from previous phases been integrated into ongoing and new projects and into GEF 8 with the aim of transforming ridge to river ecosystem management strategies for building social, economic and ecosystem resilience in the region?	Identification of outcomes based on M&E data.	Extent to which R2RE country-level and regional projects have been effective in achieving their intended outcomes/impact, and have contributed to the MRC and other regional strategic action plans (RSAPs) and provided distinctive added value to MRC 5-year Strategic Action Planning and prioritized challenges.	Document reviews; assessment of robustness of M&E systems (PIR, tother pertinent M&E systems, etc.); KII and site visits
EQ4: To what extent has GEF contributed to more inclusive/interactive	Institutional development and capacity building at subregional level and	The targeted projects have contributed to more inclusive top-down and	Document reviews; assessment GEF project results

governance, and to what extent has it strengthened local, regional and national capacities to sustain GEF's investments? To what extent has GEF enabled executing agencies to engage with civil society and the private sector in their respective countries, and what potential exists for further development in this regard?	country level; changes in policies and practices on aspects related to watershed and environment management; changes in community resilience and livelihoods systems.	horizontal governance processes that includes marginalized beneficiaries, as well as capacities to sustain the investments in response to climate change and alterations of the river basin dynamics.	matrices; KII and site visits

6.6. Evaluation Timeline

The evaluation timetable is summarised below.

Key dates will be those for the field-level data collection which, following consultation with the national research partner, has been proposed to commence in Aug 2022.The precise locations and timing of data collection in each country will be determined in a field data collection plan. This will be based on the detailed methodology following identification of the sampled projects and case studies.

Activity	Timeline (by)
Inception – finalisation of scope and preliminary evaluation design	22nd April 2022
Desk review and meta-analysis	13th May 2022
Finalisation of evaluation matrix and data collection tools.	13th May 2022
Field data collection in two parts (1) Key informant interviews (2) Community/beneficiary interviews and survey teams in the 3 countries.	 10th September 2022 25st September 2022
Data analysis, triangulation, synthesis	29th October 2022
Evaluation Report (draft) Evaluation Report (final)	16th November 1st December
Presentation to stakeholders	TBC
Audio-visual concept sign-off	15th August 2022
Development of audio-video product(s)	26th September 2022
Delivery of audio-visual product(s)	14th November 2022

As shown in the evaluation timetable, the conceptualisation of the audio-visual products foreseen in the ToR will be developed and agreed in the next phase, by 22nd August 2022, thus allowing the evaluation team to, firstly, finalize the approach and overall methodology of the evaluation before proceeding with concepts and storyboard plans.

Once the overall approach is agreed, the data collection methodology will be finalized, focussing on the most effective way to utilise the available resources to develop an audio-visual presentation of the Mekong River basin context, with animation focussed on the findings of the evaluation in relation to beneficiaries.

Annex 1: Main Environmental Challenges in the Mekong River Basin (MRC 2018)

● *No immediate concerns* ● *Some significant concerns to address* ● *Considerable concern, urgent action needed*

Strategic indicators	Key strategic questions		Status /condition	Challenges
Environment				
Water flow conditions in mainstream	*Are the conditions of water flow in the Mekong mainstream acceptable?*	●	Generally compliant with PMFM, but induced changes in flow regime are of some concern	Managing the impacts of an apparent decrease of wet season flow during the recession period, the increase in dry season low flows and the increase in daily fluctuation in flows experienced in some reaches of the mainstream
Water quality and sediment conditions	*Are the conditions of water quality and sediment acceptable?*	●	Generally compliant with PWQ, but sediment concentrations much reduced	Identifying and implementing practical measures to mitigate the effects of reduced sediment concentrations and minimise further reductions
Status of environmental assets	*Are key environmental assets in the Mekong basin being adequately preserved and protected?*	●	Loss of wetlands and riverine habitats continues, pressure on capture fisheries becoming evident	Taking urgent action to protect remaining assets and to better manage fisheries Addressing the lack of sufficient data on wetland and riverine habits
Social				
Living conditions and well-being	*What social benefits, direct and indirect, are being derived from water resource developments in the Mekong basin?*	●	Living conditions improving but water sector impacts unclear	Provincial and district levels data needed to better understand relationship with water-related sectors alongside greater consistency of data quality and accuracy.
Employment in MRC water-related sectors	*How are the river-related livelihoods in each country being affected by land and water management decisions?*	○	*More information is needed to form a view*	*As above*
Economic				
Aggregate economic value of MRC water-related sectors	*What economic value does each Member Country derive from the use of the Mekong river system within the water-related sectors?*	○	*More information is needed to form a view*	Comprehensive data on all water-related sectors need to be assembled and analysed. Promotion of economic development consistent with the aims of the 1995 Mekong Agreement.
Contribution to basin economy	*How important is the economic value of the water-related sectors to the economy of the basin?*	○	*More information is needed to form a view*	*As above*
Climate change				
Greenhouse gas emissions	*To what extent is the Mekong Basin contributing to global GHG emissions?*	●	LMB countries (as a whole) emission is about 1.5% of global total	Promote development practices within the basin that minimise GHG emissions consistent with each country's Nationally Determined Contribution under the Paris Agreement
Climate change trends and extremes	*Is there evidence of climate change within the basin?*	●	Some evidence of rising temperatures and sea-levels. Flood damages are also higher. Other CC impacts are not seen.	Continued monitoring needed Continued assessment of potential future CC impacts based on latest available global and regional forecasts
Adaptation to climate change	*How resilient are the current water infrastructure and plans to climate change?*	●	All countries have policies and strategies in place and 166 climate adaptation projects identified (2016)	To ensure that climate change is fully factored into development plans and that resilience is assured

Annex 2: Bibliography

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Annex 3: Portfolio/cluster of relevant projects

No.	GEF ID	Project title	GEF phase	Agency	Country	Focal area
1	10539	Sustainable Forest and Forest Land Management in Viet Nam's Ba River Basin Landscape	GEF - 7	UNDP	Viet Nam	Multi Focal Area
2	10520	Enhancing sustainability of the Transboundary Cambodia - Mekong River Delta Aquifer	GEF - 7	FAO	Regional	International Waters
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
4	10499	Lao PDR Landscapes and Livelihoods Project	GEF - 7	World Bank	Lao PDR	Multi Focal Area
5	10245	Integrated Sustainable Landscape Management in the Mekong Delta of Viet Nam	GEF - 7	FAO	Viet Nam	Multi Focal Area
6	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
7	9927	Building Resilience of Cambodian Communities Using Natural Infrastructure and Promoting Diversified Livelihood	GEF - 6	UNEP	Cambodia	Multi Focal Area
8	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
9	9265	GEF-AF-Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project	GEF - 6	World Bank	Viet Nam	Multi Focal Area
10	9232	Sustainable Management of Peatland Ecosystems in Mekong Countries	GEF - 6	IUCN	Regional	Multi Focal Area
11	5824	Sharing Knowledge on the Use of Biochar for Sustainable Land Management	GEF - 5	UNEP	Global	Land Degradation
12	5489	Climate Adaptation in Wetlands Areas (CAWA)	GEF - 5	FAO	Lao PDR	Climate Change
13	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
14	5005	Integrating Biodiversity Conservation, Climate Resilience and Sustainable Forest Management in Trung Truong Son Landscapes	GEF - 5	ADB	Viet Nam	Multi Focal Area
15	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
16	4826	Developing National Biodiversity Strategy and Action Plan and Mainstreaming Biodiversity Conservation into Provincial Planning	GEF - 5	UNDP	Viet Nam	Biodiversity

17	4652	GMS Forest and Biodiversity Program (GMS-FBP) - Creating Transboundary Links Through a Regional Support	GEF - 5	ADB	Regional	Multi Focal Area
18	4650	GMS-FBP: Strengthening Protection and Management Effectiveness for Wildlife and Protected Areas	GEF - 5	World Bank	Lao PDR	Multi Focal Area
19	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
20	3873	Developing and Demonstrating Replicable Protected Area Management Models at Nam Et - Phou Louey National Protected Area	GEF - 4	World Bank	Lao PDR	Biodiversity
21	3627	SFM: Promotion of Sustainable Forest and Land Management in the Viet Nam Uplands	GEF - 4	IFAD	Viet Nam	Multi Focal Area
22	3404	Promoting Climate-Resilient Water Management and Agricultural Practices	GEF - 4	UNDP	Cambodia	Climate Change
23	2762	SFM VIET NAM Country Program Framework for Sustainable Forest Land Management (COUNTRY PROGRAM)	GEF - 4	World Bank	Viet Nam	Multi Focal Area
24	2751	SFM Rehabilitation and Sustainable Use of Peatland Forests in South-East Asia	GEF - 4	IFAD	Regional	Multi Focal Area
25	2416	Mainstreaming Biodiversity in Agricultural and Land Management Policies, Plans and Programmes	GEF - 4	UNDP	Lao PDR	Biodiversity

Table 3 Non-relevant projects

No.	GEF ID	Title	GEF phase	Agency	Country
1	10483	Additional Financing for the Cambodia Sustainable Landscape and Ecotourism Project	GEF - 7	World Bank	Cambodia
2	10177	Promoting Climate-Resilient Livelihoods in Rice-Based Communities in the Tonle Sap Region	GEF - 7	FAO	Cambodia
3	9837	Strengthening Capacity in the Agriculture and Land-use Sectors for Enhanced Transparency in Implementation and Monitoring of Cambodia's Nationally Determined Contribution (NDC)	GEF - 6	FAO	Cambodia
4	9741	Developing a Comprehensive Framework for Practical Implementation of the Nagoya Protocol	GEF - 6	UNDP	Cambodia
5	9640	Low-carbon Development for Productivity and Climate Change Mitigation through the Transfer of Environmentally Sound Technology (TEST) Methodology	GEF - 6	UNIDO	Cambodia
6	9201	Climate Adaptation and Resilience in Cambodia's Coastal Fishery Dependent Communities	GEF - 6	FAO	Cambodia
7	9103	Building Adaptive Capacity through the Scaling-up of Renewable Energy Technologies in Rural Cambodia (S-RET)	GEF - 6	IFAD	Cambodia
8	5421	Reduction of GHG Emission through Promotion of Commercial Biogas Plants	GEF - 5	UNIDO	Cambodia
9	5419	Reducing the Vulnerability of Cambodian Rural Livelihoods through Enhanced sub-national Climate Change Planning and Execution of Priority Actions	GEF - 5	UNDP	Cambodia
10	5295	Generating, Accessing and Using Information and Knowledge Related to the Three Rio Conventions	GEF - 5	UNDP	Cambodia
11	4905	Strengthening National Biodiversity and Forest Carbon Stock Conservation through Landscape-based Collaborative Management of Cambodia's Protected Area System as Demonstrated in the Eastern Plains Landscape (CAMPAS Project)	GEF - 5	UNEP	Cambodia
12	4042	TT-Pilot (GEF-4): Climate Change Related Technology Transfer for Cambodia: Using Agricultural Residue Biomass for Sustainable Energy Solutions	GEF - 4	UNIDO	Cambodia
13	3976	Reducing Greenhouse Gas Emissions through Improved Energy Efficiency in the Industrial Sector	GEF - 4	UNIDO	Cambodia
14	3890	Vulnerability Assessment and Adaptation Programme for Climate Change in the Coastal Zone of Cambodia Considering Livelihood Improvement and Ecosystems	GEF - 4	UNEP	Cambodia
15	3636	BS Building Capacity for the Detection and Monitoring of LMOs in Cambodia Biosafety Program	GEF - 4	UNEP	Cambodia

16	3635	SFM Strengthening Sustainable Forest Management and the Development of Bio-energy Markets to Promote Environmental Sustainability and to Reduce Green House Gas Emissions in Cambodia	GEF - 4	UNDP	Cambodia
17	3427	LDC/SIDS Portfolio Project: Capacitiy Building in and Mainstreaming of Sustainable Land Management in Cambodia	GEF - 4	UNDP	Cambodia
18	10187	Climate Smart Agriculture alternatives for upland production systems in Lao PDR	GEF - 7	FAO	Lao PDR
19	10039	Strengthening Lao PDR's institutional capacity to comply with the Enhanced Transparency Framework under the Paris Agreement	GEF - 6	UNEP	Lao PDR
20	9146	Vientiane Sustainable Urban Transport Project	GEF - 6	ADB	Lao PDR
21	8022	Building the Capacity of the Lao PDR Government to Advance the National Adaptation Planning Process	GEF - 6	UNEP	Lao PDR
22	6940	Sustainable Forest and Land Management in the Dry Dipterocarp Forest Ecosystems of Southern Lao PDR	GEF - 6	UNDP	Lao PDR
23	5743	Reducing of Green House Gas Emissions in the Industrial Sector through Pelletization Technology	GEF - 5	UNIDO	Lao PDR
24	5462	Strengthening Agro-climatic Monitoring and Information Systems to Improve Adaptation to Climate Change and Food Security in Lao PDR	GEF - 5	FAO	Lao PDR
25	4554	Effective Governance for Small Scale Rural Infrastructure and Disaster Preparedness in a Changing Climate	GEF - 5	UNDP	Lao PDR
26	4152	Rural Electrification Phase II	GEF - 4	World Bank	Lao PDR
27	4034	Improving the Resilience of the Agriculture Sector in Lao PDR to Climate Change Impacts	GEF - 4	UNDP	Lao PDR
28	3642	BS Support the Implementation of the National Biosafety Framework of LAO PDR	GEF - 4	UNEP	Lao PDR
29	3173	Meeting the Primary Obligations of the Rio Conventions through Strengthening Capacity to Implement Natural Resources Legislation	GEF - 4	UNDP	Lao PDR
30	78	Wildlife and Protected Areas Conservation	Pilot Phase	World Bank	Lao PDR
31	10703	Promoting the blue economy and strengthening fisheries governance of the Gulf of Thailand through the Ecosystem Approach to Fisheries (GoTFish)	GEF - 7	FAO	Cambodia,Malaysia,Thailand,Viet Nam,Regional
32	10628	Promoting Resource Efficiency and Circularity to Reduce Plastic Pollution for Asia and the Pacific	GEF - 7	ADB	Indonesia,Philippines,Thailand,Viet Nam,Regional

33	9120	Support to Preparation of the Third National Biosafety Reports to the Cartagena Protocol on Biosafety - Asia Pacific Region	GEF - 6	UNEP	Multiple[8]
34	6984	Building Resilience of Health Systems in Asian LDCs to Climate Change	GEF - 6	UNDP	Bangladesh,Cambodia,Lao PDR,Myanmar,Nepal,Timor Leste,Regional
35	5815	Building Climate Resilience of Urban Systems through Ecosystem-based Adaptation (EbA) in the Asia-Pacific Region	GEF - 5	UNEP	Bhutan,Cambodia,Lao PDR,Myanmar,Regional
36	3957	Removing Barriers to Invasive Species Management in Production and Protection Forests in SE Asia	GEF - 4	UNEP	Cambodia,Indonesia,Philippines,Viet Nam,Regional
37	3853	Building Capacity for Regionally Harmonized National Processes for Implementing CBD Provisions on Access to Genetic Resources and Sharing of Benefits	GEF - 4	UNEP	Brunei,Cambodia,Indonesia,Lao PDR,Malaysia,Myanmar,Philippines,Singapore,Thailand,Timor Leste,Viet Nam,Regional
38	2777	Barrier Removal to the Cost-Effective Development and Implementation of Energy Standards and Labeling Project (BRESL)	GEF - 4	UNDP	Bangladesh,China,Indonesia,Pakistan,Thailand,Viet Nam,Regional
39	1902	Development and Application of Decision-support Tools to Conserve and Sustainably use Genetic Diversity in Indigenous Livestock and Wild Relatives	GEF - 4	UNEP	Bangladesh,Pakistan,Sri Lanka,Viet Nam,Regional
40	10787	Promote Wildlife Conservation and Responsible Nature Based Tourism for Sustainable Development in Viet Nam	GEF - 7	UNDP	Viet Nam
41	10355	Strengthen Viet Nam’s capacities to manage data flows and report information adequately to fulfill the enhanced transparency framework of the Paris Agreement requirements	GEF - 7	UNDP	Viet Nam
42	9529	Strengthening Partnerships to Protect Endangered Wildlife in Viet Nam	GEF - 6	World Bank	Viet Nam
43	9484	Integrated Approaches for Sustainable Cities in Viet Nam	GEF - 6	ADB	Viet Nam
44	9361	Mainstreaming Natural Resource Management and Biodiversity Conservation Objectives into Socio-economic Development Planning and Management of Biosphere Reserve in Viet Nam	GEF - 6	UNDP	Viet Nam

[8] Afghanistan, Bahrain, Bangladesh, Bhutan, Cambodia, China, Fiji, India, Indonesia, Iraq, Jordan, Kazakhstan, Kiribati, Kuwait, Kyrgyz Republic, Lao PDR, Lebanon, Malaysia, Maldives, Marshall Islands, Mongolia, Myanmar, Nauru,Niue, Oman, Pakistan, Palau, Papua New Guinea, Philippines

45	6924	Promoting Climate Resilience in Viet Namese Cities Management	GEF - 6	ADB	Viet Nam
46	5653	Capacity Building for the Implementation of the Nagoya Protocol on Access and Benefit Sharing	GEF - 5	UNDP	Viet Nam
47	5555	Local Development and Promotion of LED Technologies for Advanced General Lighting	GEF - 5	UNDP	Viet Nam
48	5464	Reducing Greenhouse Gas and ODS Emissions Through Technology Transfer in Industrial Refrigeration	GEF - 5	UNIDO	Viet Nam
49	5412	Promotion of Energy Efficient Industrial Boiler Adoption and Operating Practices	GEF - 5	UNIDO	Viet Nam
50	5365	Energy Efficiency Improvement in Commercial and High-Rise Residential Buildings	GEF - 5	UNDP	Viet Nam
51	5097	Enhancing Capacity for Implementing Rio Conventions	GEF - 5	UNDP	Viet Nam
52	4801	Promotion of Non-fired Brick (NFB) Production and Utilization	GEF - 5	UNDP	Viet Nam
53	4766	Implementation of Eco-industrial Park Initiative for Sustainable Industrial Zones in Viet Nam	GEF - 5	UNIDO	Viet Nam
54	4760	Conservation of Critical Wetland PAs and Linked Landscapes	GEF - 5	UNDP	Viet Nam
55	4659	LME-EA: Coastal Resources for Sustainable Development: Mainstreaming the Application of Marine Spatial Planning Strategies, Biodiversity Conservation and Sustainable Use	GEF - 5	World Bank	Viet Nam
56	4286	Wildlife Consumption: Reforming Policies and Practices to Strengthen Biodiversity Conservation	GEF - 4	World Bank	Viet Nam
57	3972	Viet Nam Clean Production and Energy Efficiency Project	GEF - 4	World Bank	Viet Nam
58	3755	Phasing out Incandescent Lamps through Lighting Market Transformation in Viet Nam	GEF - 4	UNEP	Viet Nam
59	3603	Removing Barriers Hindering PA Management Effectiveness in Viet Nam	GEF - 4	UNDP	Viet Nam
60	3594	CF: Promoting Industrial Energy Efficiency through System Optimization and Energy Management Standards	GEF - 4	UNIDO	Viet Nam
61	3103	Climate-resilient Infrastructure in Northern Mountain Province of Viet Nam	GEF - 4	ADB	Viet Nam

Annex 4: Portfolio Analysis

Table 4: Project Financing Amount of selected projects (n=25) by Country/Region and Focal Area

Country/ Region	Project Financing Amount by Focal Area					Project Financing Amount Total
	Biodiversity	Climate Change	International Waters	Land Degradation	Multi Focal Area	
Cambodia		$11,934,649		$1,100,917	$3,863,267	$16,898,833
Global				$1,826,484		$1,826,484
Lao PDR	$3,144,000	$10,047,031			$14,192,664	$27,383,695
Regional			$23,000,000		$8,123,659	$31,123,659
Viet Nam	$909,091				$18,078,022	$18,987,113
Grand Total	**$4,053,091**	**$21,981,680**	**$23,000,000**	**$2,927,401**	**$44,257,612**	**$96,219,784**

Figure 5: Project Financing Amount of selected projects (n=25) by Focal Area

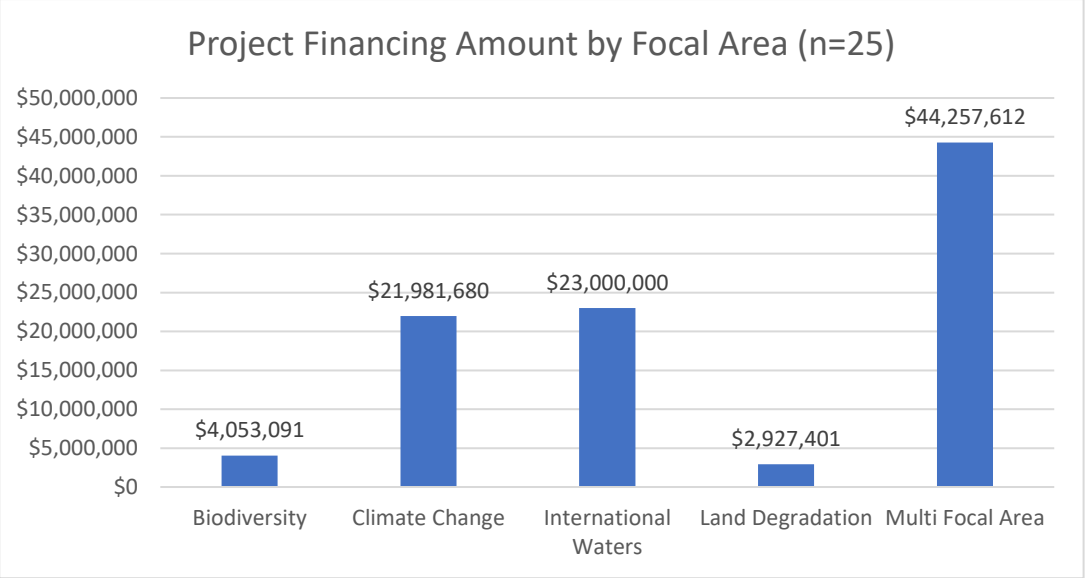

Figure 6: Project Financing Amount of selected projects (n=25) by Country/Region

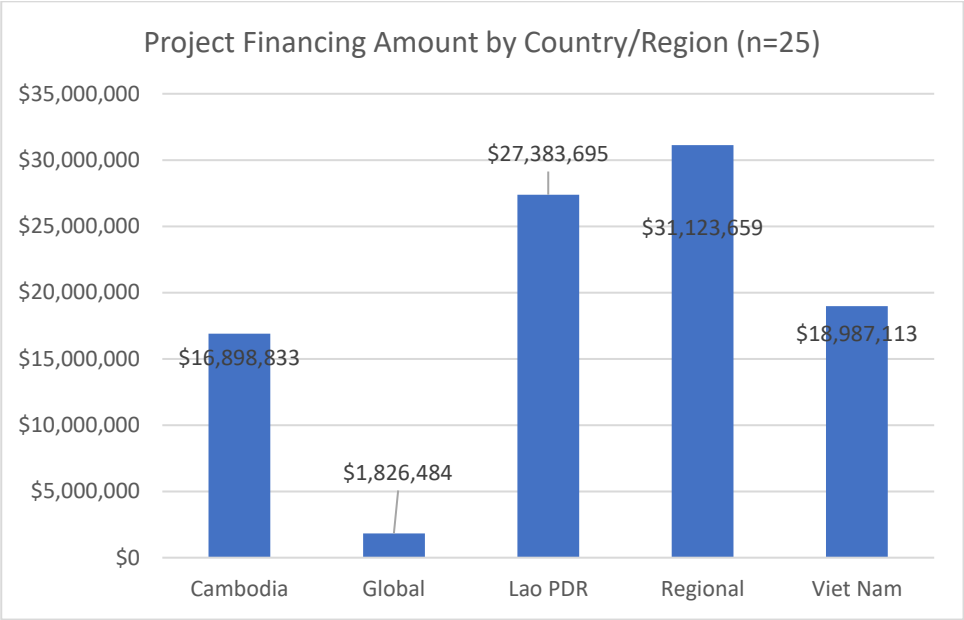

Figure 7: Total Project Financing Amount of selected projects (n=25) by Focal Area and Country/ Region

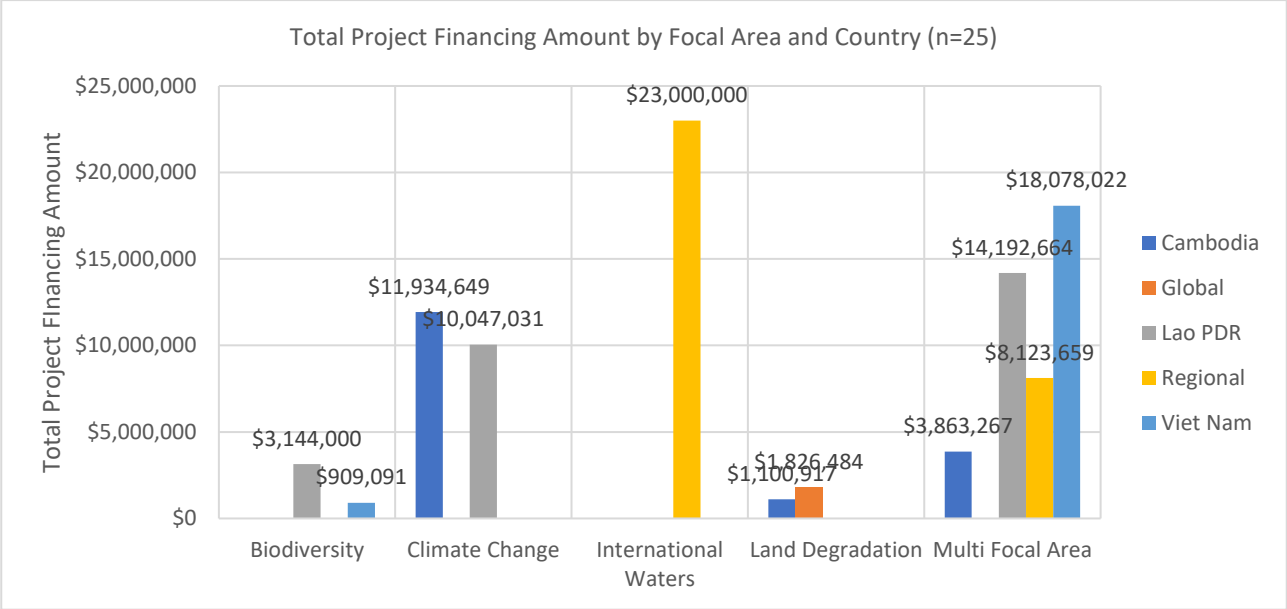

Table 5: Number of Projects and Project Financing Amount of selected projects (n=25) by Lead Agency

Lead Agency	Number of Projects	Total Project Financing Amount
ADB	2	$4,712,385
FAO	5	$38,246,530
IFAD	2	$4,953,709
IUCN	1	$2,907,064
UNDP	8	$21,888,170
UNEP	2	$2,349,431
World Bank	5	$21,162,495
Grand Total	**25**	**$96,219,784**

Figure 8: Total Project Financing Amount by Lead Agency (n=25)

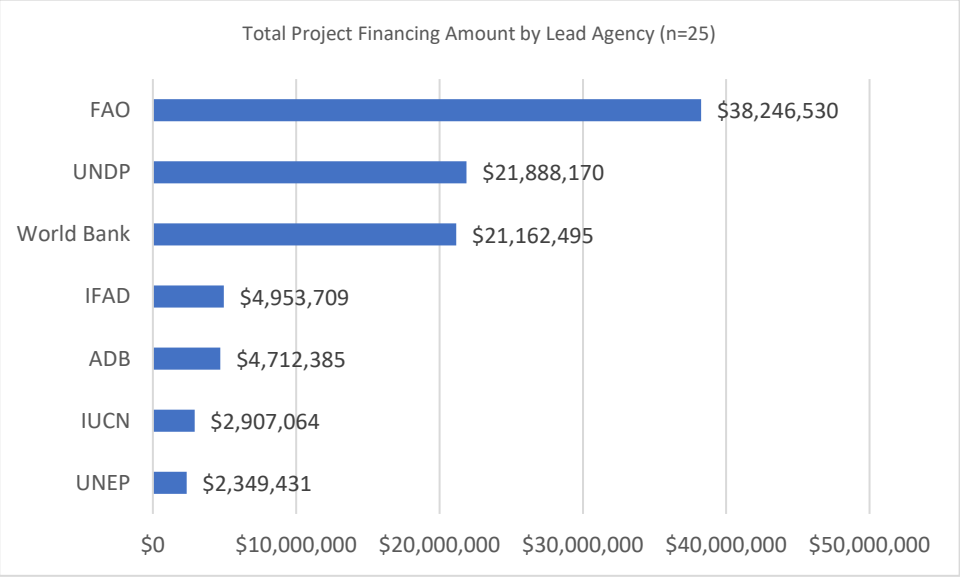

Table 6: Total Project Financing Amount of selected projects (n=19) by Lead Agency and Country/ Region

Lead Agency	Cambodia	Global	Lao PDR	Regional	Viet Nam	Total
ADB				$917,431	$3,794,954	$4,712,385
FAO	$5,174,364		$4,717,579	$23,000,000	$5,354,587	$38,246,530
IFAD				$4,299,164	$654,545	$4,953,709
IUCN				$2,907,064		$2,907,064
UNDP	$11,201,522		$7,594,452		$3,092,196	$21,888,170
UNEP	$522,947	$1,826,484				$2,349,431
World Bank			$15,071,664		$6,090,831	$21,162,495
Total	**$16,898,833**	**$1,826,484**	**$27,383,695**	**$31,123,659**	**$18,987,113**	**$96,219,784**