1. Background and Introduction

1.1 Project Overview

1.1.1 Study Context

The Lao People's Democratic Republic (Lao PDR) is pursuing a strategy of expanding its renewable energy sector for domestic consumption and export to support socio-economic development targets. The power sector has grown rapidly over the past 20 years, with installed generating capacity rising from 700 megawatts (MW) in 2006 to 6,264 MW in 2016. Hydropower is the dominant energy source in the country, and the government of Lao PDR has ambitious plans to further expand hydropower generating capacity over the coming years. Some thermal energy development is also planned. Several feasibility studies for wind and solar power are underway, but these sectors are in their infancy in Lao PDR.

Although renewable energy, particularly hydropower, has the potential to help Lao PDR meet its development targets, the pace of change carries risks of significant environmental and social impacts. Individually, hydropower projects can affect the aquatic and terrestrial environment, ecosystem services, communities, and peoples' livelihoods. Cumulatively, multiple projects within the same watershed can magnify these damages by altering catchment and basin flow regimes, water quality, sediment transport, and biodiversity distribution, with subsequent effects on native biota, agriculture, navigation, and other river uses.

In recognition of these challenges, the government of Lao PDR has introduced and strengthened the policy and regulatory framework governing the renewable energy sector, as described in Section 2.1.

In recent years, IFC has spearheaded the cumulative impact assessment (CIA) approach as outlined in the *Good Practice Handbook on Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets* (IFC 2013).

IFC has assisted the Ministry of Natural Resources and Environment with developing draft CIA guidelines for Lao PDR. The project is part of IFC's Hydro Advisory Program, which is supported by the Australian Department of Foreign Affairs and Trade and the Japanese government.

The CIA guidelines have been developed in accordance with IFC's *Good Practice Handbook* and through consultations and workshops with the Ministry of Natural Resources and Environment, businesses, development partners, hydropower project proponents, and relevant stakeholders, including regional and non-governmental organizations. The objectives of the CIA guidelines are to improve and strengthen the CIA process and implementation, support studies, and promote sustainable development of natural resources while enhancing basin management planning. It is further intended to define the scope of the studies required for preparation of a CIA and to allow for consideration and subsequent decision making on the appropriateness of the construction, operation, and decommissioning or rehabilitation of hydropower projects under the Law on Environmental Protection 2012 and other relevant legislation. This CIA of the Sekong Basin aims to serve as a pilot of the draft CIA guidelines and to determine improvements required.

1.1.2 Study Objectives

To pilot the draft CIA guidelines, IFC has agreed with Lao PDR government partners to conduct a basin-wide CIA of the Sekong River Basin (this study).

The objectives of the study are threefold:

1. Plan and execute an integrated assessment of the **cumulative impacts of renewable energy development** in the Sekong River Basin, including power optimization and development scenarios.

2. Lead the participatory design of a **framework for ongoing river basin co-management** in the Sekong Basin, including collaborative environmental and social impact monitoring and management.

3. **Increase the capacity** of Sekong River Basin stakeholders to conduct CIAs and to co-manage power generation and water resources with hydropower developers and other stakeholders.

1.1.3 Scope of Work

The broad scope of work for this study comprises the following objectives and tasks:

Objective 1: Integrated Cumulative Impact and Power Optimization Assessment

- Review regulatory framework
- Scope the CIA
- Scope activities and environmental drivers for the full development pathway
- Determine present conditions of valued environmental components (VECs)
- Assess cumulative impacts of the full development pathway
- Collaborate in developing power generation scenarios for the Sekong River Basin
- Assess cumulative impacts from various scenarios
- Design cumulative impact management measures and monitoring plans
- Provide recommendations to reduce cumulative impacts and optimize power generation
- Coordinate data management and mapping

Objective 2: Design the Sekong Basin Cumulative Impact Co-Management Platform

This includes designing a framework for involving the public and private sectors in addressing identified cumulative impacts in the river basin, including collaborative environmental and social impact monitoring and management. Based on lessons learned from this and related initiatives, the work comprises facilitation of a participatory design of a framework for a Sekong River Basin Co-Management Platform.

Objective 3: Build Capacity

The objective is to increase the capacity of Sekong River Basin renewable energy stakeholders to conduct CIAs and to co-manage power generation and water resources. This has involved building the capacity of government and private developers in CIA and basin co-management through workshops and training exercises, as well as learning by doing through exposure to the study.

1.2 Approach and Methodology

1.2.1 General

This section provides a brief background for this study and how it was undertaken. As one purpose of this study was to pilot the CIA guidelines, attempts have been made to apply the approach and methodologies prescribed in the guidelines.

1.2.2 Definition of Cumulative Impacts

Cumulative impacts are those resulting "from the successive, incremental, and/or combined effects of an action, project, or activity when added to other existing, planned, and/or reasonably anticipated future ones" (IFC 2013).

Assessing cumulative impacts might require more than just adding up all impacts from individual projects or developments. Although the combined impacts of several projects may be larger than the sum of individual impacts because interactions may amplify their collective impacts, one project added to another can also lead to fewer severe cumulative impacts than the sum of the impacts of both projects.

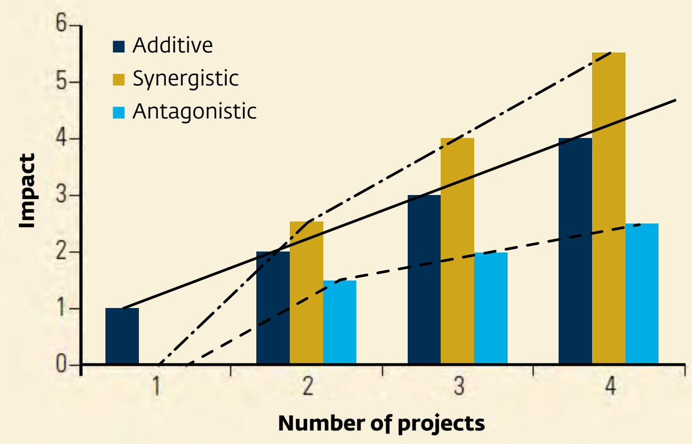
Cumulative impacts can occur through different *interactive pathways* (Bain, Irving, and Olsen 1986). Three basic interactions can be discerned among these (Figure 1.1).

1. Strictly additive: Total impact is equal to the sum of individual impacts
2. Synergistic: Total impact is more than the sum of individual impacts
3. Antagonistic: Total impact is less than the sum of individual impacts

Cumulative impacts can also be related to passing certain thresholds. For instance, some habitat loss may not have a large impact on wildlife, but when a certain threshold is passed, an entire population can be wiped out because the habitat becomes too fragmented.

In some cases, the impact of multiple small-scale projects may be greater than the impact of a single large-scale project, for example, when total impacts from a cascade of small hydropower plants exceed those that would have occurred with a single larger dam with the same power generating capacity.

Figure 1.1: Cumulative Impact Assessment Interactive Pathways



Source: World Bank 2014.

Note: The solid line denotes a strictly additive effect: the impact of two projects is twice the impact of one. The dash-dot line shows the synergistic cumulative effect: the net effect is more than the sum of its constituents. The dashed line shows an antagonistic cumulative effect.

1.2.3 Definition of Valued Environmental Components

VECs are parts of the environmental and social fabric of Lao PDR that the proponent, stakeholders, the community, environmental and social scientists, anthropologists, and government representatives involved in the assessment process consider important. Attributes of a VEC can be biological, cultural, ecological, physical, or social and include changes in the livelihoods of affected peoples, resettlement, and any other attributes of concern identified as relevant during a CIA. In some studies, VECs are defined with a narrow focus on elements of the biophysical environment (Szuster and Flaherty 2002; Bérubé 2007; Noble 2010) but are often understood to encompass social aspects (for example, Shoemaker 1994; Olangunju 2012). In this study, the broader definition of VECs is used.

1.2.4 Cumulative Impact Assessment Approach

The activities that were undertaken in each step are briefly summarized below, with additional detail presented in the appendixes. Appendix A lists the hydropower projects used in the assessment.

Step 1: Geographic boundaries and timeframes for the CIA were identified in consultation with stakeholders.

Step 2: VECs were identified in cooperation with the Ministry of Energy and Mines and in consultation with stakeholders. Identification of VECs involved collection and analysis of information from several sources and engaging with stakeholders at the local, provincial, national, and transboundary levels. Such a participatory approach provided a sound base for identification, ranking, and consideration of VECs and relevant external natural and social stressors affecting them.

Step 3: The current condition (baseline) of the VECs was assessed based on a wide range of secondary data sources.

Step 4: Cumulative impacts of alternative development pathways were assessed. Identification and selection of VECs included identifying all existing and proposed projects to be clustered into three development pathways as a basis for the CIA in this step:

1. Full development pathway
2. Conservative development pathway
3. Intermediate development pathway

Step 5: The cumulative impacts of renewable energy development on VECs by 2030 under each pathway were evaluated. The full development pathway CIA included a power generation and optimization study to explore possible benefits of coordinated operation of planned hydropower projects in the Sekong mainstream.

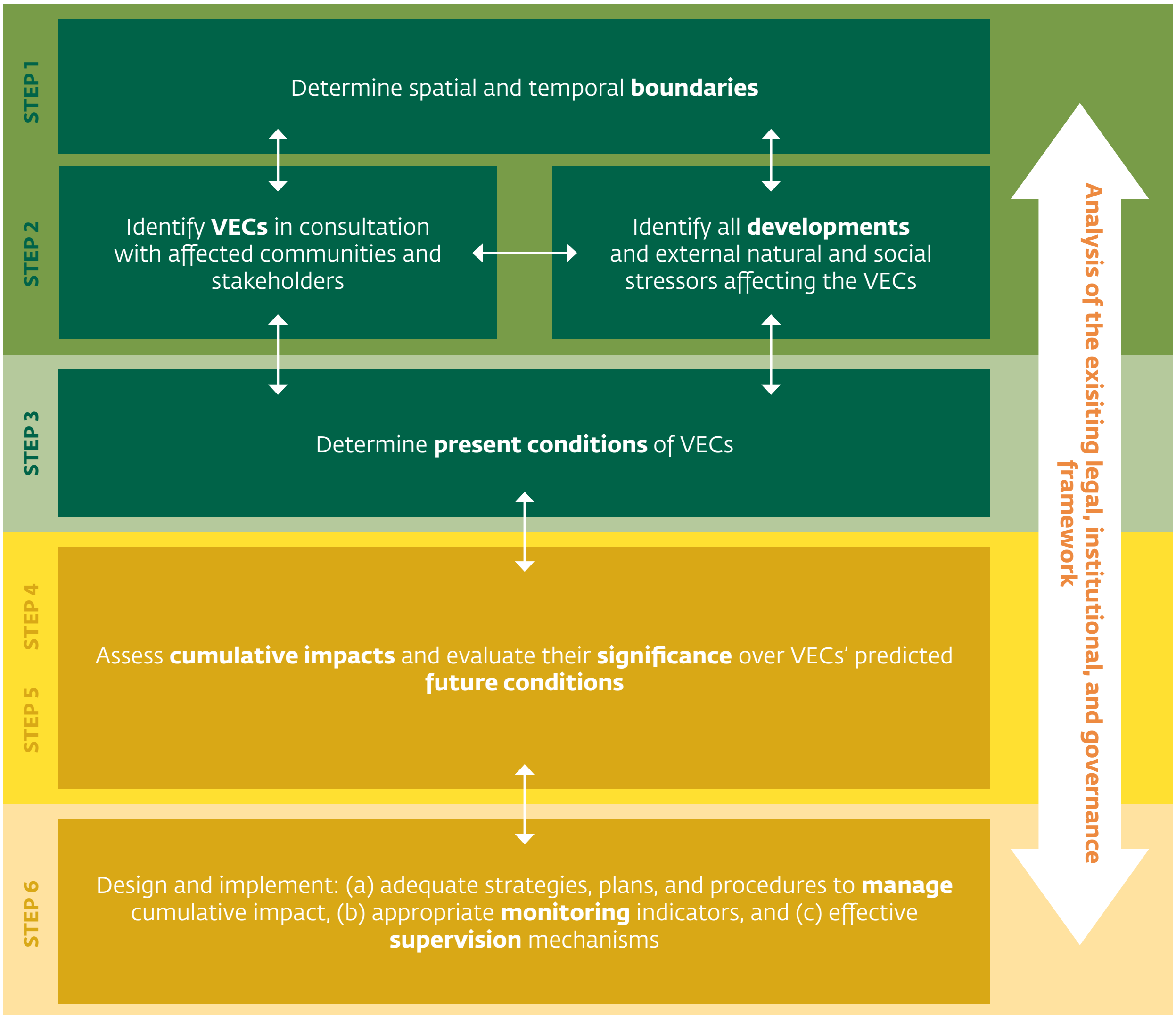
Step 6: Mitigation measures and actions for policy makers, decision makers, and planners were proposed. Institutional and operational modalities needed to ensure effective implementation of coherent mitigation measures and monitoring to minimize impacts and risks were described.

The steps followed in this study closely follow the framework stipulated in the CIA guidelines and IFC's *Good Practice Handbook* (Figure 1.2).

1.2.5 Modeling

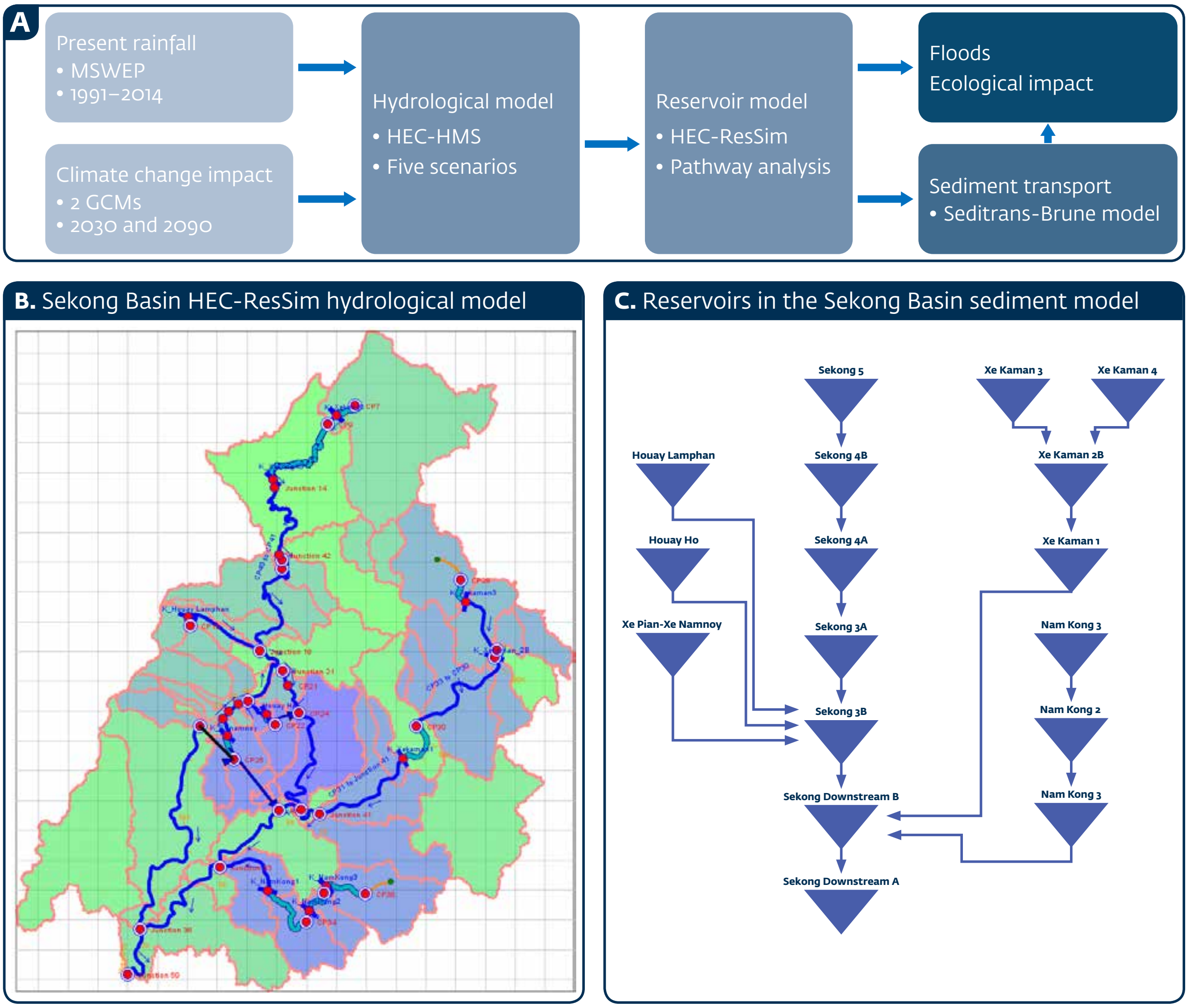
The modeling chain for impact analysis for this study is illustrated in Figure 1.3. Daily rainfall data for 24 years are entered into a hydrological model, the U.S. Army Corps of Engineers, Hydrologic Engineering Center, Hydrologic Modeling System (HEC-HMS), and the results of this model provide input for the Hydrologic Engineering Center, Reservoir System Simulation (HEC-ResSim) hydropower model. The latter has been used to simulate the various pathways with different configurations of hydropower plants in the Sekong Basin. The impact has been assessed in terms of such things as ecology, sediment, and floods. Appendix B presents the climate change assessment and hydrological, hydropower, and sediment modeling in detail.

Figure 1.2: IFC's Six-Step Process for Cumulative Impact Assessment



Source: IFC 2013.
Note: VEC = valued environmental component.

Figure 1.3: Modeling Chain for Impact Analysis



Source: HEC-ResSim, U.S. Army Corps of Engineers, Hydrologic Engineering Center Reservoir System Simulation.

Note: MSWEP = multi-source weighted-ensemble precipitation; GCM = General Circulation Model; HEC-HMS = Hydrologic Engineering Center - Hydrologic Modeling System; Hec-ResSim = Hydrologic Engineering Center - Reservoir System Simulation.

1.2.6 Stakeholder Identification and Engagement

1.2.6.1 Stakeholder Identification

Engagement with multiple stakeholders at all levels is critical to the success of a CIA. Institutions and stakeholders were identified early in the study and during implementation. Stakeholders were identified in the following three categories.

1. Ministries and departments involved in the planning, assessment, and permitting process for renewable energy projects and other infrastructure projects such as roads and mining
2. International non-governmental organizations and other international and local organizations and communities involved in renewable energy projects and other projects such as biodiversity conservation
3. Private developers of renewable energy projects in the Sekong River Basin

Stakeholders were identified in consultations and workshops with the Ministry of Energy and Mines and other line ministries, the business community, development partners, hydropower project proponents, and non-governmental organizations at the national, local, regional, and transboundary levels. Stakeholders are listed in Table 1.1.

Table 1.1: Roles and Responsibilities of Relevant Institutions and Stakeholders

Institution	Roles and responsibilities
Government	
Ministry of Energy and Mines	
• Department of Energy Business	Independent power producer project development
• Department of Policy and Planning	Energy policy and power system planning
• Department of Energy Management	Energy regulation and monitoring
• Institute for Renewable Energy Promotion	Renewable energy development
• Électricité du Laos Generation Public Company	Generation, transmission and distribution
• Department of Mines	Mining sector project development and licensing
Ministry of Natural Resources and Environment • Department of Water Resources • Department of Natural Resources and Environment Policy • Natural Resources and Environment Inspection Office	Water resource management, environmental impact assessment processes and environmental permits
Ministry of Planning and Investment • Department of Planning and Cooperation	Screening and providing final approval for foreign and domestic investment projects, including energy projects; coordinating closely with Ministry of Energy and Mines and Ministry of Natural Resources and Environment
Ministry of Agriculture and Forestry • Department of Forestry • Department of Irrigation • Department of Fisheries • Living Aquatic Resources Research Center	Screening and assessing forestry and plantation projects, planning and overseeing irrigation projects and implementing fisheries law
Ministry of Public Works and Transport • Department of Roads	Planning and implementing major road projects
National University of Lao PDR • Faculty of Environment	Research on fish passage
Ministry of Industry and Trade, Vietnam • Department of Energy Efficiency and Sustainability • Planning Department	Industrial development, including hydropower development
Ministry of Natural Resources and Environment, Vietnam	Environmental protection, including environmental impact assessment studies and environmental permits
Ministry of Mines and Industry, Cambodia • Department of Energy	Industrial development, including hydropower
Ministry of Environment, Cambodia	Environmental protection, including environmental impact assessment studies and environmental permits

Ministry of Agriculture, Forestry and Fisheries, Cambodia	Freshwater fisheries and fisheries administration
Department of Foreign Affairs and Trade, Government of Australia	Mekong Region Water Resources Program
International Organizations	
Mekong River Commission Secretariat • Lao National Mekong Committee • Vietnam National Mekong Committee • Cambodian National Mekong Committee	Implementation of programs and collection of data on the Mekong River Basin
Deutsche Gesellschaft für Internationale Zusammenarbeit	Support to the Mekong River Commission program
National Heritage Institute	Studies on the Mekong River Basin and finalizing report on the Sekong River Basin
International Union for Conservation of Nature	Work on policy level regarding water resource and biodiversity challenges in the region; studies on combined Sekong, Sesan, and Srepok river basins
World Wildlife Fund	Biodiversity programs and projects in Lao PDR and the region
International Water Management Institute	Work for World Bank on the Energy-Water Nexus Project: the Nam Ou and Sekong basins
WorldFish	Non-profit organization conducting research on fish migration and fisheries in the Mekong
Consultants	
Compagnie Nationale du Rhône	Consultant for the World Bank's Energy-Water Nexus Project in Lao PDR
Developers	
Viet Lao Power JSC	Developer of Xe Kaman 1, 3, and 4; Xe Kaman–Sanxai
RATCH-Lao Services Co. Ltd.	Developer of Xe Pian–Xe Namnoy and Sekong 4A and 4B
Chaleun Sekong Energy Co.	Developer of Nam Kong 2 and 3
China International Water and Electric Corp.	Developer of Nam Kong 1 and Xe Kaman 2B
Vientiane Automation and Solution Engineering Lao PDR	Developer of Dakchaliou 1, Dakchaliou 2, Nam Pangou, and Lower Xe Pian
Construction and Investment International Co. Ltd.	Developer of Houay La Ngea

Électricité du Laos—Public Generation Company	Developer of Nam Bi 1, Nam Bi 2, and Nam Bi 3
V & H Corporation	Developer of Sekong Downstream A
Asia Investment and Development	Developer of Sekong 3A and 3B
Kaleum Wind Farm	Developer of wind farm in Sekong Province, Kaleum District
Xe-Pian Xe-Nam Noy Power Co. Ltd.	Xe-Pian–Xe-Namnoy
Inter Rao Engineering	Developer of Sekong 5
Impact Energy Asia Co. Ltd.	Developer of Monsoon Wind Farm
Financial Institutions and Donors	
IFC	Funding and overseeing implementation of cumulative impact assessment for the Sekong River Basin
World Bank	Funding and overseeing implementation of theEnergy-Water Nexus, Lao-Vietnam Interconnector, and Mekong-Integrated Water Resources Management projects
Asian Development Bank	Funding and overseeing various energy sector and transportation sector projects in Lao PDR

1.2.6.2 Stakeholder Engagement

The study team has actively engaged with stakeholders during the various stages of the study. Engagement activities have taken different forms, such as meetings and discussions with stakeholder groups to identify, analyze, and rank the VECs. Table 1.2 at the end of the chapter outlines the concerns raised by shareholders at various venues. (See Table 4.1, Chapter 4, for the final selection of VECs). Teleconferences and e-mail correspondence have also been used to reach stakeholders that are not in the region. The main meetings and workshops are the following:

- Inception period missions (2) and meetings with various ministries, developers, and other stakeholders
- Two-day inception and scoping workshop (August 23–24, 2018) at which geographic boundaries and timeframe for the CIA and VECs were jointly explored and VECs were identified
- Provincial and local consultations in the provinces of Champassak, Sekong, and Attapeu (September 24–28, 2018) to inform stakeholders at the provincial, district, and village levels about the CIA project and to inform them of the relevance and ranking of the identified VECs
- Interim workshop (October 31 to November 1, 2018)
- Consultations with key transboundary basin stakeholders (Sekong and Mekong river basins) in Vietnam and Cambodia (April 2019)
- Final CIA technical workshops (May 2019)
- Final project workshop (October 2019)

1.2.6.3 Transboundary Stakeholder Concerns

In addition to consulting national and local Sekong Basin stakeholders in Lao PDR, stakeholders in Vietnam and Cambodia were consulted to capture broad transboundary environmental and social concerns and possible effects of the proposed projects. Concerns of other riparian countries have been considered along with local concerns in selecting VECs and associated assessment parameters. Key inputs include the following:

- General concerns were expressed about flow change, river erosion, sediment transfer reduction, ecosystem degradation, deforestation, and changing cultural and livelihood conditions of communities.
- Estuarine salt intrusion into the Mekong Delta as a consequence of hydropower development in the Lower Mekong Basin is of concern.
- Sediment flow is important for riparian communities because it affects nutrient transport, bank erosion, and wetlands.
- Sediment transport from the Sekong River into the Mekong River is considered very important in Cambodia; a large reduction in sediment would be a concern.
- Water quality and flow changes from hydropower development will change the ecosystem and affect livelihoods. The reduced seasonal river flow fluctuations (runoff more evenly distributed) will affect livelihoods both positively and negatively in the Sekong Basin.
- Hydropower development will affect fish resources in the Sekong and thereby the livelihoods of people that depend on them. It will also affect endangered fish species.
- Dam safety was a concern in Cambodia in the context of a dam break in Lao PDR in 2018.
- Climate change has exacerbated cumulative effects, as extreme events (drought, salinization, flow change, and river erosion) exemplify.
- Hydropower development in Lao PDR will affect flow into the Tonle Sap.

1.3 Geographic Boundaries and Timeframe

1.3.1 Geographic Boundaries

The primary geographic boundary (study area) for the CIA is the basin boundary of the Sekong River (in Vietnam, Lao PDR, and Cambodia), from the Vietnamese highlands to the confluence with the Srepok River in Cambodia. The CIA considers downstream transboundary impacts[5] (for example, in Cambodia, along the Lower Mekong River, and as far as the Mekong Delta) beyond the boundaries of the Sekong Basin itself.

1.3.2 Timeframe

The approach sets a primary timeframe for this CIA to 2030, by when it is expected that all current development plans and practices proposed will be operational. This timeframe will also apply for alternative development scenarios, the "pathways." A secondary timeframe has been applied for assessment of impacts of climate change and set to 2090.[6]

1.4 Study Limitations

1.4.1 Climate Change and Hydrological Modeling

Although a sophisticated method for assessment of the hydrological regime in the Sekong Basin was used, there are major uncertainties related to the impact of climate change on precipitation and to the hydrological modeling based on meteorological input. In this section, the limitations of this method are explained.

For climate change, the assessment outcome depends heavily on availability of climate change models for the region and their accuracy. There are many models, and their outcomes often deviate widely, sometimes having opposite results: that is, they may predict either a decrease or an increase in rainfall. To address this uncertainty, it was decided to use a model that represents an average of the result of several models and a worst-case outcome, which in this case meant a model that predicts a severe decrease in rainfall.

Availability of reliable rainfall data was the main limitation for hydrological modeling in this study. Data were available from only a small number of monitoring sites within the Sekong Basin over a short time span, during which there were data gaps. To decrease uncertainty related to data sparsity, it was decided to make use of global rainfall datasets spanning 24 years. The use of global data has certain limitations. Particularly for short-duration events, such as floods, the data are less reliable than using on the ground meteorological measurements because each series

[5] For example, such impacts include potential flow regime changes and effects on sediment transport and fish migration.

[6] Selected to be a timespan that represents climate conditions and variability and interannual variability of the future time horizon. Climate datasets run until 2100, and data for 2080 to 2100 were used. This represents the conditions in 2090 more than the conditions in 2100, so 2090 was selected.

represents average rainfall over a grid cell of approximately 25 square kilometers, which means that extreme values are leveled out, resulting in missed flood events in the modeling. Nonetheless, for the purposes of water resource management and long-term hydropower simulation, it is a better alternative than the limited measured rainfall data.

1.4.2 Hydropower Data Availability

Data availability regarding existing and planned hydropower projects was a limiting factor in this study and is described in the following sections.

1.4.2.1 Technical Data

Information about the technical design of many of the built and planned hydropower projects is limited. Feasibility study summary reports were available for approximately half of the projects included in the CIA. For the remaining projects, information was sourced from power company webpages and Mekong River Commission databases. In a few cases, only megawatts and gigawatt-hours are known, with other data estimated based on knowledge of the river basin and general principles of hydropower design. The details of project components, such as gates and fish passes, are generally unknown.

1.4.2.2 Hydropower Operation and Power-Trading Data

Data related to hydropower operation and power purchase agreements are deemed commercially sensitive and so are mostly not publicly available. Rules for hydropower operation and power trading have therefore been estimated based on knowledge of the Lao PDR hydropower sector and the power system.

1.4.2.3 Sediment Data

No empirical sediment measurement data are available for the Sekong River Basin. A sediment yield of 280 tons per square kilometer per year has been applied to the entire catchment area based on data for the nearby Kon Tum massif in neighboring Vietnam (Kondolf, Rubin, and Minear 2014).

1.4.3 Data on Valued Environmental Components

1.4.3.1 Socio-Economic Data

For VECs related to social aspects of impact, such as fisheries, agriculture, and ethnic customs, gender and culture, this study was limited to information that could be extracted from past studies on the Sekong River Basin, project environmental and social impact assessments (ESIAs), and resettlement and feasibility project reports. Analysis of maps showing project locations, footprints, and layouts (for example, dam, powerhouse, reservoir, and transmission line access roads) was used to identify potential impacts in terms of physical and economic displacement. For addressing ethnic customs and gender, consultations were used to complement information obtained from ESIAs and resettlement plans. For social VECs, in particular, it was difficult to define thresholds and acceptable limits for significance of impacts on VECs and to estimate uncertainty.

1.4.3.2 Aquatic Biodiversity and Ecosystems

Information on fish ladders to be installed at planned hydropower projects on the Sekong River and its tributaries is lacking, so it is challenging to assess their potential for facilitating fish migration. Information on environmental flows (EFlows, water provided within a river or wetland to maintain ecosystems and the benefits they provide for people that depend on these ecosystems) is also limited.

1.4.3.3 Terrestrial Biodiversity and Ecosystems

Data on the presence, absence, and estimated population sizes of some of the endangered wildlife species in the basin are limited, which might lead to under- or overestimation of the impacts of basin-wide hydropower plant development. Data on workforce influx from future development that might affect wildlife are also limited.

Table 1.2: Sekong Valued Environmental Components and Associated Stakeholder Concerns at the District and Local Levels

VEC groups	Examples	Stakeholder concerns and messages
Natural resources important for livelihoods	• Forest and plant species and products (terrestrial, riparian, and wetlands) valued for economic, medical, food, important ecosystem function, or biodiversity reasons • Plant and tree species for food, medical, and traditional use • Timber resources including hardwood • Non-timber forest products (NTFPs) • Mainstream and tributary fisheries • Wet-rice agriculture and dry season riverbank gardens	• Livelihoods based on forest and river resources are considered the most important VEC, especially by district officials. • Villagers and district officials considered NTFPs and wildlife to be the most important VEC. • Many considered natural resources (especially forest) to be the most important VECs because of income and food from hunting and collection of NTFPs. • Timber and NTFPs are becoming scarcer, and sale of domestic animals (chickens) is replacing them as source of income for villagers. • NTFP species such as malva nuts, bamboo, and rattan shoots are collected, although they have become scarce. • Commercial hardwood tree species important for income and house construction have largely been depleted. • Hydropower development has decreased access to forest resources. • Establishment of rubber and fruit tree plantations has decreased availability of agricultural land for small-scale farming, although villagers work on plantations. • Plantations are putting pressure on resources and availability of cultivatable land for villagers. • Youth, who used to collect and sell NTFPs, now work on banana and coffee plantations.
Fish and aquatic habitats	• Fish and aquatic habitats valued for economic reasons or conservation status (threatened species) • Super-endemic fish (species only found in the Sekong) (Meynell 2014) • Endangered and critically endangered fish species • Important (economically and environmentally) migratory fish species	• River-dependent livelihoods (fish for consumption) were assessed as an important VEC. • Fish stocks are widely used for subsistence. • Women fish in smaller streams, and men fish in the Sekong. Most fish are consumed in the village. People increasingly depend on raising livestock and growing crops because fish stocks in rivers and streams are declining. • Fishing is still important for household consumption, although some important species have declined. • Villagers rely on fishing and somewhat on cultivation of vegetables in riverbank gardens for consumption and income.
Cultural and ethnic archaeology and heritage	• Gender roles, cultural diversity, traditional knowledge, social identity, and tourism	• Many consider traditional culture and customs to be a high-priority VEC (ritual ceremonies, native language, songs, and dances). • Traditional and cultural practices have changed; large livestock are no longer sacrificed, and traditional clothes are no longer worn. • Women's status, influence, and position in society have improved over the past decade; they participate in decision making.
Terrestrial habitat areas (for example, protected areas and critical habitats)	• Terrestrial habitats important for human use and for biodiversity values • Restricted protected areas • Key biodiversity areas • Endangered and critically endangered terrestrial species	• Number of wildlife species (tiger, elephant, bear, and gaur) have reportedly disappeared from the area. • Hunting is mainly done for household consumption, but wildlife populations are declining. • Wildlife and hunting (birds, wild pigs, barking deer, reptiles, and squirrel) used to be important as a source of food, but populations have declined significantly.