

**PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE**

Report No.: 66837

Project Name	Mekong Integrated Water Resources Management
Region	EAST ASIA AND PACIFIC
Sector	General water, sanitation and flood protection sector (100%)
Project ID	P104806
Borrower(s)	LAO PDR, Mekong River Commission (MRC)
Implementing Agency	<p><i>Lao PDR:</i> Ministry of Natural Resources and Environment (MONRE) 856 21 260981, ounakone@gmail.com</p> <p><i>Mekong River Commission</i> PO Box 6101, Unit 18 Ban Sithane Neua Sikhottabong District Vientiane 01000 Lao PDR Tel: (856-21) 263-263 Fax: (856-21) 263-264 mrcs@mrcmekong.org</p>
Environment Category	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
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I. Country and Sector Background

1. *The proposed project is regional in its geographic context.* The Mekong River (the Mekong), an international river, originates in China's Yunnan Province, flows through Myanmar, Thailand, Lao PDR, Cambodia, and empties into the South China Sea in Vietnam. The catchment of the Mekong comprises 795,000 km², and stretches about 2,600 kilometers from the Tibetan Plateau to its southern most point at the Mekong Delta, ranking as the 21st largest river basin worldwide.¹ The total population living in the Lower Mekong Basin (LMB) – comprising Cambodia, Lao PDR, Thailand and Vietnam -- is estimated at approximately 66 million, with a majority living in rural areas. It is estimated that by 2020, the population will reach 80 million. Much of the population still lives under the poverty line and relies mainly on the exploitation of natural resources of the Mekong for basic food security and livelihood. At the same time, water infrastructure development is still limited compared to most other river basins in the world.

¹ State of Basin Report 2003, Mekong River Commission, June 2003

2. ***The Mekong River Basin is a precious resource of significant socio-economic, environmental and cultural value.*** Annual runoff averages around 475 cubic kilometers per year, with *per capita* water resources availability estimated at 8,500 cubic meter per person per year, which is ‘plentiful’ in comparison to most other international river basins. Among the direct uses, capture fisheries is of particular importance, and the seasonal flooding of the wetlands and flood plains (covering nearly 10 percent of the basin) is a critical determinant of the high productivity of the natural fisheries. Fisheries and aquatic animals provide the great majority of animal protein in the LMB. Rice cultivation, also crucial to the needs of the basin’s population, is largely dependent on the natural flooding regime, which also helps to maintain soil fertility. Furthermore, flooded rice fields provide wet season habitat for fisheries, which in turn contributes to soil fertilization.

3. ***The key issues under water resources management in the LMB are flood and drought.*** The Mekong itself, as well as many of its tributaries, is characterized by highly seasonal discharge patterns, with considerable flows during the wet season both as a result of the snow melt in the Himalayas and monsoon rains in the LMB. During the dry season, flows in the major tributary rivers are reduced to a fraction of the wet season discharge and many of the smaller streams completely dry up. This still largely unchanged hydrological regime of alternating periods of high and low flows has shaped the dominant rural livelihood patterns (with agriculture as the predominant water user in the LMB, relying mostly on seasonal rains and the natural flooding of low-land croplands associated with them), while also creating rich wetlands and estuaries resulting in a significant biodiversity and abundant capture fisheries supporting the basic livelihood of communities.

4. ***Climate change poses a new challenge to the LMB countries, and impacts from natural hazards are expected to increase.*** While the models predict overall temperature increases, predictions regarding precipitation are less certain. Extreme weather events -- both floods and droughts -- are likely to become more frequent, with less predictability in weather patterns. Also, with the rapid pace of development in the basin, there is an increasing concentration of people and more physical assets that are exposed within the floodplain. Flood and drought events pose particular risks to poor rural communities. For example, in the parts of the Mekong Delta close to the seashore, a major impact could occur on agriculture production due to sea water rise and resulting salinity intrusion.

5. ***The governments of the LMB countries have recognized that sustainable development of water resources in the Mekong is a key to economic development and poverty reduction.*** Substantial scope exists for water resources development in the LMB, both for hydropower and for dry-season irrigation. The full development potential for hydropower is estimated at 30,000 MW, and only 10 percent has been developed to date.² Countries have the potential both to increase energy access within their own borders, and to generate revenues from the sale of power to neighboring countries. At the same time, awareness has increased on the importance of the social and environmental benefits that can be reaped through sound water resources management. The Governments of Lao PDR, Cambodia and Vietnam are working together with the Government of Thailand to address water resources management in a regionally-coordinated

² Based on topography of the area, much of the potential for energy generation in the Mekong River Basin lies in the waters of rivers that are tributaries of the Mekong.

manner through the MRC, an inter-governmental river basin organization for the Mekong River. Collaboration on water resources management among the four LMB countries has intensified during the last few years.

6. *Water resources management in the Mekong River Basin is at a critical juncture.* Pressure is growing for increased utilization of water resources to sustain the regional economic growth. In the upper part of the Mekong River, China has already developed five hydropower stations, and flow regimes, water quality and/or sedimentation may be affected. In the Lower Mekong Basin, there are a large number of hydropower stations in operation and/or planned in the tributaries, and 11 mainstream dams are either at the planning or inception stages. In the meantime, there has been growing interest in accelerating work on flood mitigation and irrigation infrastructure to address flood and drought risks in light of possible climate change impacts. Interest and concerns have been heightened by the historically extreme levels of the Mekong River reached in recent years: very high level in 2008 and very low level in 2010.

7. *Effective planning on water resources management, with a holistic approach incorporating risk, is needed.* This will require assessment of exposures, vulnerability and tools for quantifying expected losses from floods and droughts. Such tools should support the design of response and early warning, territorial planning, and inform cost benefit analysis of investments. Longer-term climate forecasting must also be an essential building block in decision making regarding development of new hydrological infrastructure including hydroelectric facilities. The MRC has started a regional analysis on climate change impacts on the hydrology of the Mekong using a modeling approach. However, existing data and information collection systems are still largely inadequate to capture the complexities of the basin. The LMB countries have recognized the need to upgrade their own hydro-meteorological (hydromet) networks to address the risks posed by both present and future weather events, share information among riparian countries, and develop regional and improved national systems for flood and drought forecasting and warning.

8. *Careful coordination is needed to manage tradeoffs and address cross-country impacts.* Because of the hydrological connectivity, investments for flood and drought risk mitigation, irrigation and hydropower in the main Mekong tributaries need environmental consideration and careful coordination among the riparian countries, since trade-offs and development risks expand across national boundaries. In response, the MRC has started to take actions to proactively promote the implementation of integrated water resources management (IWRM)³ in the Mekong. Promotion of IWRM is a guiding principle for MRC, which is currently preparing a Basin Development Plan outlining different development scenarios and their costs and benefits, together with a strategic environmental assessment for potential mainstream hydropower stations

³ IWRM emphasizes integration of the management of land and water resources, of surface water and groundwater, of upstream and downstream uses, of sectoral approaches, of economic production and environmental sustainability, and of the state and non-state stakeholders. From a Mekong Basin perspective, the following definition of IWRM is highly relevant and relates closely to the 1995 Mekong Agreement: "Integrated Water Resources Management (IWRM) is the coordinated development and management of water, land and related resources in order to maximise economic and social welfare without compromising the sustainability of ecosystems and the environment. IWRM helps to protect the world's environment, foster economic growth and sustainable agricultural development, promote democratic participation in governance, and improve human health." Global Water Partnership (<http://www.gwp.org>)."

to assess possible cumulative impacts. The MRC is also increasing cooperation with upper riparian countries, namely China and Myanmar.

II. Objectives

9. The development objective of the proposed Adaptable Lending Program (APL, comprising Phases 1 and 2) is to establish key examples of integrated water resource management practices in the LMB at the regional, national, and sub-national levels, thus contributing to more sustainable river basin development in the Lower Mekong. In order to achieve this objective, the APL is designed to: (i) support implementation of tools and pilot activities for integrated water resource and natural disaster management in the four riparian countries of the LMB (i.e., Thailand, Lao PDR, Cambodia, and Vietnam), together with improved communications and dialogue; (ii) improve institutional capacity for integrated water resources management in selected countries, including strengthening hydromet systems; and (iii) support improved floodplain management and aquatic resources management in areas of regional significance for regional environmental benefits and the enhancement of rural livelihoods in pilot areas.

10. *Proposed Phases.* The program would be implemented in two phases. The APL Phase 1 Project (2012-2017) aims at supporting: (i) development, through MRC, of shared approaches to addressing trans-boundary critical IWRM issues and a communications strategy; (ii) policy and institutional development for water resources management at national level in Lao PDR, including upgrading the hydromet system; and (iii) floodplain management in priority basins in Lao PDR and regionally significant wetland, aquatic resources and fisheries management in Lao PDR.⁴

11. APL Phase 2 Project would cover Cambodia, Vietnam, and the Mekong River Commission and aims at supporting: (a) aquatic resources and fisheries management; (b) flood and drought risk monitoring and assessment in the LMB, including upgrading the hydromet network and support for the regional disaster risk analysis; and (c) application of integrated water resources management, including floodplain management and enhancing climate change resilience in the upstream part of the Mekong Delta. The Governments of Cambodia and Vietnam, which are not included in the Phase 1 APL, have both expressed an official commitment to the APL and are preparing for the Phase 2 APL with support from the Japan PHRD Grant.

12. This is a 'horizontal' APL, where two phases of activities are designed so that they are complementary but independent. The aim is to keep the momentum of the Phase 1 going, so it is envisioned that once Phase 1 APL activities are off to a successful start, Phase 2 of the APL would proceed as soon as Cambodia, Vietnam and the MRC jointly fulfil the following readiness criteria: (a) adaption of the project implementation plan for the APL 2 by Cambodia, Vietnam and the MRC, and (b) maintaining the Project Steering Committee to oversee both Phase 1 and Phase 2 APL.

⁴ Originally, Phase 1 included Cambodia (under a part of the project then labeled as Component 3-3); however, the Cambodian part will now be included in Phase 2 instead.

III. Rationale for Bank Involvement

13. *The Bank has been engaged in policy dialogue on various water resources management issues in the LMB for many years, and has been providing technical and financial support for the MRC since its establishment in 1995.* The proposed project follows-up on the Mekong Water Resources Assistance Strategy (MWRAS) for the LMB, developed jointly with the Asian Development Bank (ADB) in 2006 to provide strategic direction for the Bank and the ADB in terms of supporting water resources management in the LMB. The strategy's recommendations, endorsed by the LMB countries and the MRC, emphasize the need for an Integrated Water Resources Management (IWRM) approach which: (i) balances environmental, social and economic considerations; (ii) recognizes the linkages between ecological integrity of the Lower Mekong and sustainable management of key areas which impact local people, such as fisheries, wetlands, and flood and drought management; (iii) provides for transparent decision making processes, balancing the needs of upstream and downstream users, as well as consumptive (e.g., irrigation, water supply) and non-consumptive uses (e.g., hydro-electric development, fisheries, biodiversity and other ecosystem services such wetlands and flood management); and (iv) delineates complementary roles for national and regional river basin organizations regarding coordinated management of basin resources.

14. *At the country level, the Bank has had significant involvement over time in water resources investments and planning in the LMB countries, including in the areas of agriculture, forestry and fisheries.* Currently, the Bank is funding water resources projects in Vietnam, which include investments in the Mekong Delta, and in Cambodia, where the Bank has been supporting the forestry sector (to protect the watersheds of the Mekong Basin) while also supporting decentralization and rural development. In Lao PDR, the Bank is supporting a number of projects. The most important ones include: the Nam Theun 2 Hydroelectric Project (NT2), which promotes a best practice approach for sustainable hydropower development; the Lao Environmental and Social Project (LEnS), which enhances country capacity on safeguards and conservation through operation of the Environmental Protection Fund; and the Technical Assistance Project in the Hydropower and Mining Sectors, which aims to increase the Government's capacity to promote best practice hydropower and mining operations in the country.

15. *In addition, the Bank also has extensive experience and expertise in water resources management, in general, and particularly in international river management.* The Bank has been active in supporting activities in the Nile, Senegal, and Congo in Africa, as well as the Danube and Aral Sea in Eastern Europe and Central Asia. The Bank has also supported the development of water-related legislative frameworks in numerous countries.

IV. Description

16. Costs for implementing the Mekong-IWRMP Phase 1 APL are estimated at US\$26.59 million, of which US\$26.0 million would be financed by IDA (US\$18.0 million for Lao PDR and US\$8.0 million for the MRC) and the remainder by counterpart funds from Lao PDR, including contributions in kind. The Phase 1 APL would supplement the MRC's US\$5.6 million equivalent program financed by AusAID under a parallel arrangement. The project is comprised of three components, which are described as below.

17. **Component 1: Regional Water Resources Management: (estimated cost: US\$8.00 million).** The objective of this component is to promote IWRM at regional level through: (i) facilitating trans-boundary dialogue on critical water resources management issues among LMB countries to promote regionally-harmonized solutions (Subcomponent 1-1; see details below); (ii) establishing a regional approach on environmental and disaster risk assessment (Subcomponent 1-2); (iii) promoting understanding of regional IWRM principles to a broad range of stakeholders (Subcomponent 1-3); and (iv) facilitating implementation of the project activities at the national level, supporting integration of the entire set of project activities under the Phase 1 APL Project (Components 2 and 3), and providing technical assistance for the preparation for Phase 2 APL Project. The Component would benefit all the LMB countries, including Lao PDR, Cambodia, Vietnam, and Thailand, and the IDA Regional Program would be used to finance the Component.

18. **Component 2: National Water Resources Management (estimated cost: US\$6.01 million).** The key objective of this component is to support legal, institutional, and human resources strengthening to implement IWRM and better water resources planning in Lao PDR through: (i) development of a new Water Resources Law considering the regional enabling implementation of the IWRM in the Mekong River; and (ii) installing essential institutional capacity regarding water quality monitoring, hydromet modeling, and collection and analysis of the hydromet networks. Lao PDR accounts for more than one third of the flow of the Mekong River; hence, strong and accountable systems at the national level are key to sound water management at regional level, specifically to: (i) regional harmonization of the underpinning legal framework for the IWRM; (ii) implementation of the procedures for water quality (PWQ), which were agreed among the LMB countries; (iii) better water resources infrastructure planning, considering upstream and downstream impacts; and (iv) sharing hydromet data with neighbouring countries and the MRC for integrated regional flood and drought forecasting.

19. **Component 3: Improved Floodplain and Aquatic Resources Management in Regionally Significant Areas (estimated cost: US\$12.58 million).** The component objectives is to contribute to establishment of a pilot common approach among the LMB countries for: (i) sustainable floodplain management, balancing livelihood support for local communities with enhancing regional ecological and biodiversity values in wetlands which are of basin-wise significance; and (ii) sustainable community fisheries co-management in key spawning and feeding habitats of regional significance. Under APL 1, two wetlands in the southern Lao PDR and important fishing grounds in the Lao PDR have been selected as the project sites. The proposed activities under the Component would benefit the concerned riparian communities, but would also induce considerable environmental benefits to the upstream and downstream countries such as: (i) conservation of indigenous fish, most of which are migratory; and (ii) increased dry season flows for downstream.

V. Financing

Source:	(\$m.)
Government of Lao PDR	0.59
International Development Association (IDA)	26.00
Total	26.59

VI. Implementation

20. . In addition, representatives of the Governments of Cambodia and Vietnam would also be included in light of the forthcoming Phase 2 of the APL. The PSC would oversee the implementation of the project as well as AusAID-funded activities under the M-IWRMP. The Phase I project will be implemented by the following entities: (i) the *MRC* for Component 1; and (ii) *Lao PDR* for Component 2 and Sub-components 3-1 and 3-2. In order to ensure coherence and consistency in the project implementation, the MRC would be responsible for coordinating and facilitating the implementation of the three components of the Project. A project steering committee (PSC), would be established at the MRC Secretariat (MRCS), comprising the representatives from the National Executing Agencies (NEA) in Lao PDR, the representatives from the four National Mekong Committees (NMCs), and the MRCS. In addition, a representative of the Government of Vietnam would also be included in light of the forthcoming Phase 2 of the APL. The PSC would oversee the implementation of the project as well as AusAID-funded activities under the M-IWRMP.

21. The MRC has established a unit named the Project Coordination and Monitoring Unit (PCMU) at the Planning Division of the MRCS. The responsibilities of the PCMU would be: (i) implementing Component 1, including coordination with the relevant programs and section(s) of the MRC; (ii) serving as a secretariat to the PSC to compile an overall progress report and organize PSC meetings; (iii) coordinating information exchange (together with Lao PDR) between components 1, 2 and 3 to ensure cooperation on IWRM; and (iv) facilitating the formulation and monitoring related to the implementation of projects under Components 2 and 3 as required.;

22. MONRE in Lao PDR would be responsible for activities under Components 2 and 3-2, including both technical and fiduciary aspects. MONRE will establish project management units (PMUs) to assume overall implementation responsibilities in Lao PDR.

23. The activities under the Phase 1 APL Project in Lao PDR would cover multiple sectors such as irrigation and flood protection, fisheries, as well as overall water resources management. Implementation arrangements have been developed to engage concerned ministries/departments as implementing agencies to implement sector-specific components, while the MONRE would maintain the overall responsibilities as the NEA. In particular, MONRE will be implementing Component 2, and Subcomponent 3-1-1 while the Department of Irrigation (DOI) and the Department of Livestock and Fisheries (DLF) of the Ministry of Agriculture and Forestry (MAF) will be responsible for Subcomponent 3-1-2 and Component 3-2, respectively. Component 2 management will be done through an established unit (called “KDP C2”), created for the Bank-financed Khammouane Development Project (KDP). In order to maintain the integrity of various activities in Lao PDR, a national steering committee, chaired by the MONRE, would be established to oversee the progress in project activities in Lao PDR.

VII. Sustainability

24. In general, public investments in Lao PDR would continue to depend on support from development partners in the immediate future. However, to the extent possible, financial sustainability has been considered in defining the project activities. In particular, the incremental

operation costs for river basin organizations to be established under the project would be modest and manageable within budget constraints, since these organizations would be staffed mainly by government officials seconded from the concerned ministries and provinces until funding mechanisms are defined and implemented under the new (Lao PDR) Water Resources Law.

25. During project preparation, agreement has been reached with the Government of Lao PDR to ensure adequate allocation of budget and technical staff to sustainably operate and maintain the proposed investments over the longer-term (e.g., such as the water quality monitoring and hydromet networks in Component 2 and hatcheries in Subcomponent 3-2). The planned investments in flood and irrigation facilities under Subcomponent 3-1, and rural infrastructure under Subcomponent 3-2, are of small scale and would be operated and maintained by the concerned communities. Hatcheries proposed under Subcomponent 3-2 are also of appropriate scale; the concerned provincial agriculture and forestry offices (PAFOs) have already assigned technical staff and agreed to take over operation and maintenance after the project ends.

26. *Replicability.* The Government of Lao PDR is committed to scaling up the outcomes piloted under Component 3 upon completion of the project. In particular, for Component 3-1, Government intends to establish river basin organizations in other tributaries based on the experience, and modify the standard design of the irrigation and flood protection facilities incorporating environmental benefits. For Component 3-2, the approach to integrate the rural livelihood and fisheries management would be expanded to other regionally significant habitats.

VIII. Lessons Learned from Past Operations in the Country/Sector

27. The project design reflects the lessons learned regarding: (i) regional operations, (ii) river basin and water resources management projects, and (iii) fiduciary aspects in Lao PDR.

28. *Regional Operations.* A 2010 Quality Assurance Group review of regional projects⁵ confirmed the strategic importance of regional integration. It outlined a number of recommendations, some of which (e.g., those concerning recommendations for a new business model) go beyond the mandate of this operation. Those which are most relevant for the proposed project are summarized below:

- *Regional operations should be well grounded in analytical and knowledge products, in order to ensure relevance.* This operation builds on the Bank's earlier analytical work and a large body of knowledge produced by the MRC Secretariat.
- *In recognition of the additional complexity of regional operations, sufficient time should be given in preparation to build country and regional ownership, and there should be realism regarding project objectives.* Identification and preparation of the project began in early 2007. Since then, preparation works have been focused within each country and the MRC through a number of national and regional consultations, to ensure both country and regional ownership. The project was approved, in principle, at the MRC Council Meeting in November 2009.
- *Project design should be sufficiently flexible to allow for the different pace of implementation between countries, and for the possibility that some activities may move forward faster than others.* The horizontal APL design is well suited to address these risks.

⁵ Regional Projects: A QAG Learning Review (Draft). February 2, 2010, Quality Assurance Group, World Bank.

- *Project scale should be sufficient to ensure country ownership and tangible impacts.* The activities proposed under the project would be sizable for Lao PDR (and for Cambodia and Vietnam under the APL Phase 2), and would make tangible impacts through institutional strengthening as well as on-the-ground investments.
- *Sufficient support on fiduciary and legal aspects during preparation and implementation is key.* Following fiduciary capacity assessments, project design provides for support during implementation. Hands-on support, during supervision from staff based in the region, is also planned.
- *The following lessons learned from the Bank’s Greater Mekong Sub-Region Power Trade Project (Lao PDR: P105329 and Cambodia: P105331) have been incorporated:* (i) roles and responsibilities -- of the independent procurement agency (IPA) and implementation agencies (IAs) -- regarding procurement have been clearly identified and agreed at appraisal; and (ii) a regional institution (MRC) has been engaged to facilitate the regional dialogue and cooperation.

29. *Lessons from recent river basin projects in the region* which are incorporated in the project design include the following:

- Experience indicates that capacity building, policy development, and modeling at the central level alone are insufficient to build an IWRM approach. Investments in water resources management are also needed which benefit local people and ensure local ownership of IWRM approaches.
- More broadly, to facilitate implementation on the ground, technocratic approaches (e.g., modeling, mapping, guidelines, etc.) need to be accompanied by effective dissemination with other agencies and communications and consultation, as appropriate with concerned communities, so that the benefits of IWRM are widely understood and “owned;” and
- Considering the asymmetric nature of the riparian countries’ capacity, adequate attention needs to be provided to institutional and human resources development in the relatively low capacity countries.

30. *Operations in Lao PDR.* Lessons learned from recent implementation of projects in Lao PDR (and, for APL Phase 2, in Cambodia) suggest that the financial management and funds flow mechanism should be as simple as possible, and training for the implementing agencies, on procurement and financial management, will be necessary.

IX. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP 4.01)	[X]	[]
Natural Habitats (OP/BP 4.04)	[X]	[]
Pest Management (OP 4.09)	[X]	[]
Indigenous Peoples (OP/BP 4.10)	[X]	[]
Physical Cultural Resources (OP/BP 4.11)	[]	[X]
Involuntary Resettlement (OP/BP 4.12)	[X]	[]

Forests (OP/BP 4.36)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Safety of Dams (OP/BP 4.37)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Projects on International Waterways (OP/BP 7.50)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Projects in Disputed Areas (OP/BP 7.60)*	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Please see Annex 1: Environmental Analysis, attached at the end of this document, for more information.

X. List of Factual Technical Documents

Feasibility Studies for proposed hatcheries for Lao PDR under the Project
 Feasibility Studies for Flood Gate Rehabilitation
 Environmental and Social Management Framework

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* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas*

Annex 1: Environmental and Social Aspects

1. As part of the ESMF, an initial impact assessment (i.e. an Initial Environment and Social Impact Examination (IESE)) has been carried out jointly by the respective government agencies with support of a team of international and national consultants. The study was conducted through desk review of available documents and reports, including various safeguard instruments being used in the countries; field visits; and meeting with agencies, local authorities, and local communities, including carrying out consultation with ethnic groups during the finalization of the IESE report and safeguard instruments. The IESE provided background on the lower Mekong as well as key project sites and carried out a simple checklist for potential negative impacts and proposed mitigation measures. The IESE also verified that the proposed Project will not adversely affect sites with archaeological, paleontological, historical, religious, or unique natural values and will not involve logging or large forest clearance as defined in the Bank's *Forestry Policy (OP. 4.36) and Physical Cultural Resources (OP. 4.11)*. It concluded that the overall impacts would be positive socially and environmentally and the potential negative impacts could be mitigated.

2. Major land acquisition or adverse negative impacts on ethnic peoples would not be involved. Nevertheless, a *Compensation and Resettlement Policy Framework (CRPF)*⁶ was prepared for Lao PDR to mitigate possible impacts due to small land acquisition, land donations, and/or resources-uses restriction. The CRPF describes the basic principles, key issues, and implementation arrangement for the Project as well as provides Technical Guidelines in line with the Bank's policy on involuntary resettlement describing (a) the entitlements for compensation and mitigation measures for all losses (if any), including guideline for preparation of Resettlement Action Plan (RAP); (b) community consultation and participation process; (c) gender strategies; (d) grievance redress; (e) monitoring and evaluation; and (f) policy on public consultation and disclosure. Voluntary donations will not be applied for any assets, except very minor donation/losses of residential and agricultural land following the criteria and process describes in the CRPF. Relocation of people and assets are not allowed, and this has been included in the "negative list." To guide consultation and participatory process with ethnic peoples in line with the Bank's policy on indigenous peoples, an and an Ethnic Groups Development Framework⁷ (EGDF) was prepared for Lao PDR. The /EGDF describes a preliminary screening of indigenous/ethnic peoples and how the policy is applied to the Project as well as a sample public consultation framework, including the content for the preparation of Ethnic Groups Development Plan and monitoring/reporting requirement. This is to ensure that the project is designed and implemented to maximize benefits for the ethnic people who are considered to be vulnerable in a culturally sensitive manner.

3. The potential negative impacts due to small civil works are expected to be localized and temporary and could be minimized through the application of good construction practices and planned mitigation measures. Close monitoring would be carried out during implementation of the Project. Procurement of large amount of pesticides will be prohibited and included in the

⁶ The term Compensation and Resettlement Policy Framework (CRPF) has been used in Lao PDR to be consistent with the Compensation and Resettlement Decree (2005).

⁷ The term Ethnic Group Development Framework (EGDF) has been used in Lao PDR to be consistent with the Government policy regarding ethnic minorities.

“*negative list*” while application of organic practice and training on safety used of pesticides would minimize the potential impacts due to rehabilitation of community irrigation schemes, and these measures have been a simple policy framework on integrated pest management (IPM) has been developed. Given that there are unidentified activities that may be financed for the rural infrastructure support under Subcomponent 3-2, an Environmental and Social Management Framework (ESMF) was prepared and would be applied to all the Project activities that have not been identified by appraisal. The ESMF comprises a set of negative list, a screening criteria and/or simple check list for impacts assessment, a set of good construction practices, and a simplified policy on IPM. A cross reference to the EGDF and the CRPF for Cambodia and Lao PDR has also been included in the ESMF.

4. The IESE report, the ESMF, and the CRPF and EGDF for Lao PDR were submitted to the Bank for review and found to be satisfactory. The report and safeguard instruments has been disclosed at InfoShop and in the countries.

Actions to Mitigate the Expected Social Impacts

5. *Land acquisition.* No major land acquisition is envisaged. The rehabilitation of flood gates and irrigation schemes would not require any land acquisition and the new hatcheries are proposed to be situated on existing government land. However, there is a possibility of small land acquisition for the construction of community infrastructure such as small foot bridges and access roads, but specific locations will be identified through participatory process during the implementation. If land acquisition is involved, the implementing agencies will explain the basic principles and guidelines provided in the RPF/CRPF during the consultation process and prepare proper documentation and filing. Any objection, concerns, and/or requests by the land owners as well as actions taken by the communities and /or agencies will be documented and any deviation from the CRPF will be consulted with World Bank’s social safeguard specialist as soon as possible. If the affected population is indigenous/ethnic peoples as defined by OP 4.10, consultation will follow the principle and process described in the EGDF and proper documentation and filing will also be required. Special attention will be given to minimize negative impacts on women and other vulnerable groups.

6. *Restriction of access to the natural resources.* Subcomponents 3-2 (Lao PDR) aim to improve fisheries management by providing support for the development of a community-based fisheries management plan, which would include: establishment of fish conservation zones (to protect critical habitats); closed fishing period (to protect spawners); and restriction on fishing gears. While preparation of the fisheries management plan would have positive environmental impacts, it would imply some restrictions on the access to fisheries, which may affect the livelihood at least for the short-term. This issue was discussed during pre-appraisal and the following approach was accepted, in principle, by the local communities and the local authorities as well as the local and international non-governmental organizations active in the Project area:

- First, better fisheries management would benefit the local communities in the long run by establishing sustainable fisheries management;
- Second, the fisheries management plan would be developed through full participation and ownership of the respective communities; and

- Third, the Project also envisages provision of livelihood development options (which will be selected through participatory planning with affected populations) in order to mitigate potential negative impacts.

7. The respective implementing agencies of these two subcomponents will finalize the activities following this approach and keep proper documentation and filing. If the affected population is ethnic minority as defined by OP 4.10, consultation will follow the principle and process described in the EGDF and proper documentation and filing will also be required. Special attention will be given to minimize negative impacts on women and other disadvantage groups.

Actions to Mitigate the Potential Environmental Impacts

8. *Impacts due to civil works:* Implementation of Component 3 will involve the following small civil works: (a) rehabilitation of floodgates, located in the tributaries of the Xebangfai (Subcomponent 3-1); (b) rehabilitation of village-based irrigation schemes (Component 3-1); (c) rehabilitation/construction of small, province-level hatcheries (Subcomponent 3-2); and (d) village-based rural infrastructure to support livelihood for the identified fishing communities (Subcomponent 3-2). Visits to these sites confirmed that the potential negative impacts could be mitigated through application of good construction practices and close supervision and monitoring. The implementing agencies for the civil works activities will include the specific good construction practices (to be included in the Project Implementation Plan) in the bidding and contract documents and ensure that the contractors are aware of this obligation. While *Physical Cultural Resources (OP. 4.11)* is not triggered, the contract will also include a specific clause on “*chance find*”. Large scale civil works or small/medium scale that likely to cause adverse impacts on local environment has been included in “*the negative list*”. Safeguard performance will be properly documented and reported as part of the Project progress report.

9. *Potential impacts on natural habitats, fish migration, and indigenous species.* The present flood gates are not functional and block fish passages. Rehabilitation of the selected flood gates will allow fish passage and this feature has been incorporated into the flood gate design. Implementation of fisheries co-management will enhance conservation of natural habitats and fish migration in critical spawning ground areas while construction /rehabilitation of hatcheries would enable re-stocking of indigenous species and reduction of fishing pressures through promotion of village aquaculture. The implementing agencies will however monitor these impacts periodically and take appropriate actions if negative impacts occur. Proper documentations would be highly recommended.

10. *Potential increase in chemical uses and/or organic sludge from hatcheries.* These impacts would be small and could be managed by adopting a simplified IPM program that comprising: (a) prohibiting procurement of large amount of chemicals and non-FAO pesticides (to be part of the negative list); (b) promoting a new rice cultivation technique, named System of Rice Intensification (SRI) and organic-based rice cultivation; and (c) training of farmers and local officials on the safe use of pesticides, IPM approach, and other options. The implementing agencies will provide appropriate guidance and training to the famers/fishers participated in the Project, including monitoring of their performance. Proper documentation would also be highly recommended.

11. *Preparation of safeguard operation manual.* To facilitate effective implementation and monitoring of safeguard measures, a safeguard operation manual is being prepared, for Lao PDR. The manual would include following items (as well as monitoring template, as needed): (a) List of Prohibited Activities; (b) Safeguard Screening Criteria; (c) Good Engineering Practices; (d) Simplified Policy Framework for Integrated Pest Management (IPM); (e) EGDF; and (f) CRPF. Activities which require a full EIA will *not* be eligible for funding under the Project.

The Environment and Social Management Framework (ESMF)

12. The ESMF describes key steps for safeguard actions comprising: (i) screening for eligible activities using the ‘negative list’; (ii) screening for potential safeguard issues, including the required actions to prepare safeguard documents (IEE, EMP, RAP, etc.) and to secure safeguard clearances as may be required by the Government and/or World Bank; and (iii) implementation of the mitigation measures and/or activities, including monitoring and reporting on safeguard implementation performance. Below outlines the proposed negative list (activities not to be financed by the Project):

- (i) Relocation, and/or structural demolition of any houses or business.
- (ii) Land acquisition that affect more than 200 persons or 40 households.
- (iii) New settlements or expansion of existing settlements inside natural habitats and existing or proposed protected areas.
- (iv) Likely to create adverse impacts on ethnic groups within the village and/or in neighboring villages or unacceptable to ethnic groups living in a village of mixed ethnic composition.
- (v) Loss or damage to cultural property, including sites having archeological (prehistoric), paleontological, historical, religious, cultural and unique natural values.
- (vi) New roads, road rehabilitation, road-surfacing, or track upgrading of any kind inside natural habitats and existing or proposed protected areas.
- (vii) Purchase of gasoline or diesel generators and pumps; guns; chain saws; large amount of pesticides, insecticides, herbicides and other dangerous chemicals; asbestos and other investments detrimental to the environment; if pest invasion occurs, small amount of eligible and registered pesticides in Lao PDR could be allowed.
- (viii) Forestry operations, including logging, harvesting or processing of timber products; however support to sustainable harvesting and processing of non-timber forest products (NTFPs) are allowed if accompanied with a management plan for the sustainable use of the resources.
- (ix) Introduction of non-native species, unless these are already present in the vicinity or known from similar settings to be non-invasive.
- (x) Significant conversion or degradation of natural habitat or where the conservation and/or environmental gains do not clearly outweigh any potential losses.
- (xi) Large scale construction or small/medium scale construction expected to lead to significant negative environmental impacts. Large project that requires full EIA will not be funded.

13. During the screening of safeguards, land acquisition, resource access restriction, potential impacts on ethnic minority, and nature and location of civil works are identified as key criteria for consideration with cross reference to the CRPF, EGDF, and good engineering practices as appropriate. The ESMF also identify the needs for supervision, monitoring, and reporting on safeguard performance and if needed, for information disclosure, approval by the government, and/or clearance by the Bank.

Implementation and Monitoring Arrangements and Training

14. *Lao PDR*. In line with the Project implementation arrangement for Lao PDR, the Department of Water Resources (DWR) of MONRE will be responsible for ensuring overall compliance of the Government and the World Bank's safeguard requirements. Its provincial offices will be monitoring and reporting on the safeguard compliances to the DWR. However, day-to-day management of the safeguard aspects would be entrusted to the following entities engaged in implementing respective components/subcomponents:

- Subcomponent 3-1: (*Management of River Basin and Floodplains in Xebangfai and Xebanghieng Rivers*): KDP C2, a project implementation unit to be established in Thakek, Khammouane Province jointly by the Department of Irrigation (DOI) and Khammouane Provincial Agriculture and Forestry Office (PAFO).
- Subcomponent 3-2: (Fisheries Management for Lao PDR): FCM-L, a project implementation unit to be established in Pakse, Champasak Province jointly by the Department of Livestock and Fisheries (DLF) and Champasak PAFO.

15. Given limited knowledge on World Bank's safeguards requirements and safeguard issues in general, a series of safeguard training will be provided during the first three to four years of the Project.