SFG1131

Vietnam Ministry of Agricultural and rural development (MARD)
Central Project Office (CPO)

Dam Rehabilitation and Safety Improvement Project (DRSIP)

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

May, 2015

FOREWORD

The Environment and Social Management Framework (ESMF) has been prepared by the Central Project Office (CPO) of the Ministry of Agriculture and Rural Development (MARD) for the Vietnam Dam Rehabilitation and Safety Improvement Project. The ESMF provides general policies, guidelines, codes of practice and procedures to be integrated into the design, implementation and monitoring of the proposed Project. This framework document has been prepared based on the environmental and social impact assessment (ESIA) of the 1st year subprojects and in a consultative way. The ESMF establishes clear procedures and methodologies for the environmental and social planning, review, approval and implementation of subprojects to be financed under the project.

The ESMF will be complemented by the Dam Safety Framework (DSF), Ethnic Minorities Policy Framework (EMPF) and the Resettlement Policy Framework (RPF). The ESMF will be applied to all the subprojects to be financed under the Project. The ESMF will be a guiding document for sub-project specific: (i) Environmental and Social Screening; (ii) Alternative Analysis; (iii) Assessment of impacts (both positive and negative); (iv) Public Consultation and Disclosure; (v) Preparation of site specific Environmental and Social Management Plan (ESMP); (vi) Implementation of ESMP and bidding specifications/general environmental code of practice (ECoP); and (vii) Monitoring and reporting.

The Project Management Unit (PMU), which was established within the CPO of the MARD, will be responsible for the overall implementation of the Project including the implementation of the ESMF. The Provincial Project Management Unit (PPMU) established at the Provincial People's Committee (PPC) is responsible for preparation and implementation of subproject specific ESIA along with ESMP, ECoP, Dam Safety Plan (DSP), Ethnic Minority Development Plan (EMDP) and Resettlement Action Plan (RAP) in consistency with this ESMF, DSF, EMPF and RPF. Each subproject will have provision of adequate budget for preparation and implementation of ESIA and different plans. Each plan will be monitored and reported regularly. ESMP, ECoP and DSP will be part of the biding document.

EXECUTIVE SUMMARY

E 1.0 Introduction

The Vietnam Dam Rehabilitation and Safety Improvement Project (DRSIP) is a World Bank-assisted project which aims to support implementation of Vietnam's National Dam Safety Program. DRSIP is intended to improve the safety of the dams and related works, as well as the safety of people and socio-economic infrastructure of the downstream communities as defined in Decree 72 - governing the management of dam safety in Vietnam. The project would be an optimized mix of both structural and non-structural measures. Structural measures include rehabilitation and upgrading safety works of existing dams, including instrumentation, such as safety monitoring equipment.

The proposed project will be financed by the World Bank and the Government Socialist Republic of Vietnam. The Environment and Social Impact Assessment (ESIA) of the subprojects will require fulfilling the policies and legislative requirement of the World Bank and the Government. Since the subprojects to be funded under the projects will be identified during the implementation phase, the project has adopted a framework approach. The ESMF has been prepared based on the: (i) reviewing the environmental and social policy requirement of the World Bank and the requirement of the national legislation; (ii) environmental and social impact assessment of twelve (12) subprojects of the first year; (iii) experience of similar kind of the World Bank supported project implementation; (iv) stakeholders consultations during project preparation; and (v) identification of the institutional barriers and capacity building needs for environmental management. The ESMF sets the process for screening, assessment, review and clearance, and compliance monitoring of dam rehabilitation sub-projects. It also provides guidelines in the conduct of safeguards activities and the preparation of documentary requirements. This will be used in conjunction with the Dam Safety Framework (DSF), the Resettlement Policy Framework (RPF) and the Ethnic Minorities Policy Frameworks (EMPF).

E 2.0 Project Description

Project Development Objective and Components

The development objective of DRSIP is to support the implementation of the Government dam safety program by rehabilitating and/or upgrading the structures of priority dams and reservoirs, upgrading their safety and operational management framework and providing resources for emergency response in case of dam failure. The project will consist of 4 components:

Component 1: Dam safety rehabilitation (US$ 385 million) **-** This component will improve dam safety through physical rehabilitation of existing infrastructure. This would include support to (i) detailed design, supervision and quality control of rehabilitation works for prioritized dams and associated infrastructure; (ii) rehabilitation works, including civil works, hydro-mechanical works and installation of hydrological and safety monitoring equipment; (iii) preparation of Operation and Maintenance Plans and Emergency Preparedness Plans; and (iv) adoption of standardized checklist for community-managed dams.

Component 2: Dam safety management and planning (US$ 60 million) - This component will improve the planning and operational framework for dam management to safeguard the people and socio-economic infrastructure within downstream communities. This would include support to: (i) hydrological observation network and information systems; (ii) integrated development planning; (iii) regulatory and institutional support; (iv) technical specifications, safety standards and regulations to internationally-accepted levels; and (v) capacity enhancement.

Component 3: Project management support (US$ 15 million) - This component will provide the necessary enabling environment to support the project implementation. This will include support for the following: (i) Project Steering Committee; (ii) Project Management Unit (PMU); (iii) Technical Assistance for beneficiary departments; (iv) Establishment and operations of a National Dam Safety Review Panel; (v) Independent audits of prioritized dams before and after rehabilitation; and (vi) Incremental operating costs for project related activities.

Component 4: Disaster contingency (US$ 0 million - no fixed allocation, but not to exceed 20% of the total project cost) - This component will improve the response capacity of the Government in case of an emergency relating to dam failure during project implementation.

Locations

DRSIP will be implemented in 31 provinces in the North, Central and Highland regions. Around 400 dams will be selected for consideration under the project. The number of dams and provinces may vary due to the extent of the rehabilitation and safety work and the availability of the budget. The dams will be supported by DRSIP must be under the dams identified for national dam safety program. Eligibility criteria will be used to identify the priority dams for DRSIP.

E3.0 Policy, Legal and Administrative Frameworks

GoV Policies

The New Environmental protection Law of Vietnam was in effect in 2015. The Law provides an umbrella framework for environmental management and protection in Vietnam, and the prime authority is the Ministry of Natural Resources and Environment (MoNRE). At the provincial level, the Provincial Department of Natural Resources and Environment (DONRE) is the operating unit for overall environmental management in the province. In addition, other national laws are also important for environmental protection and natural resources management. Vietnam has a State Plan on Environmental and Sustainable Development, 1991-2000 (1991), National Biodiversity Action Plan up to 2010 and Orientations towards 2020 (2007) as well as the Tropical Forest Action Program, Cleaner Production Action Plan, Forest Protection and Development Law No.29/2004/QH11, the Socialist Republic of Vietnam on Forest Protection and Development (2014); the People's Health Protection Law (1989); Land Law (2015); Law of Oil and Petrol; Mineral Resources Law (No.60/2010/QH12), Water Resources Law (No.17/2012/QH13); Law on judicial record (No. 28/2009/QH12); Dykes Protection Ordinance (2000); Ordinance of Resources Taxes (1989) and update the article 6 of Ordinance of Resources Taxes of 07/2008/PL-UBTVQH12; Ordinance of Aquatic Resource Protection (1989), Ordinance of Radiation Safety and Control (1996), Ordinance of Vegetation Protection and

Quarantine (1993). Most recently, a Biodiversity Law came into effect in 2009 and a revised Cultural Heritage Law came into effect in 2011.

World Bank Policies

Eight World Bank policies have been triggered for the project. These are: Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Pest Management (OP/BP 4.09), Physical Cultural Resources (OP/BP 4.11), Indigenous Peoples (OP/BP 4.10), Involuntary Resettlement (OP/BP 4.12), Safety of Dams (OP/BP 4.37) and Projects on International Waterways (OP/BP 7.50). According to WB Operational Policy (OP 4.01), the nature of environmental assessment to be carried out for a particular sub-project would largely depend on the category of the sub-project. Considering the environmental risk and complexity related to a large number of subprojects to be implemented in a widespread area, the project has been classified as category 'A'. However, the subprojects to be funded under the projects can be categorized as 'A' or 'B' depending on the extent, scope and impact of the specific subproject.

The project physical activities would only work on existing dams and are not expected to lead to conversion or degradation of critical or semi-critical natural habitats. However, it is required to scope, screen and assess potential impacts to natural habitants as part of the subproject ESIA. The project will not finance any procurement of fertilizers and pesticides. However, since the dam rehabilitation work will increase the agriculture command areas, there are chances of more uses of fertilizers and pesticides in the project influence areas. The project will promote the application of Integrated Pest Management (IPM) and guidance will be included in ESMF.

There is also possibility that some rehabilitation work and access road may pass through areas with physical cultural resources. The impacts will be examined as part of the environmental screening/assessment of different subprojects. In addition, 'Chance find' procedures conforming to local legislation on heritage would be evaluated so that any physical or cultural resources are not impacted.

The project may intervene in areas where indigenous people live (specific subproject locations will be determined during implementation). In addition, the project may require land acquisition and resettlement. As such, an Ethnic Minority Policy Framework (EMPF) and Resettlement Policy Framework (RPF) are required for the project and will be prepared separately.

The project will not finance construction of any new dams or significant change in dam structure. This policy is triggered as the project will finance rehabilitation and improvement of existing dams including large dams (15 meters or more in height). The project will establish an independent Panel of dam safety Experts (PoE) who will carry out independent review of dam safety reports and proposed mitigation measures.

There are six transboundary river basins in the country; however Vietnam is an upstream riparian only in the Sesan-Srepok basin – a tributary of the Mekong, upstream of Cambodia, and the Bang Giang-Ky Cung basin, upstream of China. So, it is expected that some of the dams will be located on international river basins, and therefore the policy is triggered.

The WBG guidelines provide guidance on certain EHS issues, which include standards for environmental parameters (ambient air quality, water and wastewater quality, noise level, waste management), hazard and accident prevention, occupational and community health and safety (during commissioning and decommissioning works) etc. These guidelines will be directly applicable to the proposed project. As a general rule, the WBG guidelines should complement the existing Vietnam guidelines or standards. In case the Vietnam guidelines or standards differ from the WBG guidelines, project is expected to follow the more stringent ones.

The World Bank access to information policy would be directly followed. The project will make the environmental/social assessment and ESMF documents available to the public by publishing it in their websites. In addition, Hard copies of these documents in English (including Vietnamese language) will be made available in the MARD/CPO and provincial levels.

E4.0 Subproject Description and Baselines

The project will support the physical rehabilitation of the existing irrigation dams most of which were built during the 1980s and 1990s. About 90% of the dams to be rehabilitated are earthen structures and are considered as small dams with height of less than 15m and design volume of less than 3 million cubic meters (MCM). The proposed project is not intended to support significant structural modifications or expansions beyond what is needed to ensure safety. The rehabilitation will mainly be limited to reshaping of the main and auxiliary dams, slope stabilization by either concrete slab or in-situ or stone paving, strengthening or expansion of existing spillways to increase the discharge capacity, refurbishment of existing intake structures, replacement of mechanical and electrical systems of intakes and spillways, grouting for seepage control and improvement of existing access management roads.

The ESMF provides the details guidelines on how to describe the sub-project for better understanding in the ESIA. The descriptions will include location of sub-project-related development sites and the sub-project's area of influence, including on- and off-site ancillary facilities to be covered under the ESIA study. The description will include general layout of facilities at project-related development sites, drawings of facilities, size, capacity, flow, pre-construction activities including demolishing of existing structures before rehabilitation, management/transportation/disposal of debris, construction activities including cofferdam, diversion channels, siting of labor camps, transportation of raw materials and schedule, commissioning, operation and maintenance activities and staffing. It also provide guidelines on assemble and evaluate baseline data on the physical, biological and socioeconomic characteristics of the project area and area of influence.

E5.0 Subproject Alternative Analysis

Alternative analysis is an important part of the impact assessment. The primary objective of the "analysis of alternatives" is to identify the location/design/technology for a particular sub-project that would generate the least adverse impact, and maximize the positive impacts. For the rehabilitation of dam, each subproject will compare the environmental and social benefits along with the cost involvement for the following options: (i) No sub-project scenario; (ii) Physical rehabilitation of dam without any change in reservoir height and dam size; and (iii) Physical rehabilitation of dam including change in reservoir height and dam size from safety point of view.

Based on the first year sub-project results, about 7 sub-project will increase the height of dam (min: 0.5m, max 1.6m in height), 9 sub-projects will extend the surface of dam (min 0.2m, max 2.5m in width) and 6 subprojects will repair the spillway by increasing the width with min 25m and max 75m. But all the mentioned sub-projects are not increase the reservoir capacity, only for strengthening the dams and ensuring flooding control in rainy season.

E6.0 Potential Impacts and General Mitigation Measures

Twelve (12) priority dams have been identified as sub-projects for rehabilitation under the first year of the project. This priority dams have been selected through prioritization criteria. Based on the 12 sub-projects identified for first year implementation, the anticipated types of rehabilitation and safety improvement works would be limited and related to: (i) dam repair (embankment dam, auxiliary dam), seepage treatment, excavation, expansion the crest of dam, embankment height elevation, extending the length of dam; surface dams hardness, the upstream and downstream slopes reinforcement, erosion control; intimacy treatment; (ii) spillway reparation and upgrade, new bridge over the spillway construction, stilling basin, spillway crest reparations; (iii) new drainage layouts at the toe downstream slopes construction or reparation; (iv) seepage treatment and groin reparation, outlet works reparation or new construction (v) rehabilitation or new construction a manager house; (vi) public service roads upgrade by concrete material or new construction.

All rehabilitation/upgrade works will be intended to improve dam safety by repairing damage and correcting design defects and deficiencies (Table - E6.1), strengthening and reinforcing existing structures. The repairs/upgrade may fully restore dam functions, but would not support increase the reservoir's original design capacities unless required safety point of view.

Table -E6.1: Structural, design issues and proposed repair/upgrading works

Structural/Design issues	***Proposed works***
1. Inappropriate design or spillway damaged	- Repair or extension of spillways - Construction of a new bridge over the structure - Repair or construction of a new stilling basin - Repair or construction of a new spillway crest or training slope
2. Damage to or Absence of Outlet Works	- Repair of existing or construction of a new outlet work - Repair of existing or replacement of outlet works/intake valves - Repair of existing or construct of a new power house (outlet works) and its facilities
3. Broken Dam due to Overtopping	- Construct a new auxiliary dam - Seepage treatment by using jet grouting technique - Hardnosed, extension, leveling the crest of dam, or embankment extension - Hardnosed the top of dam and its slopes - Treatment of termite caves - Repair and/or construction of a new toe drainage layout at the downstream slope

These activities may include: acquisition of new lands and right of way, clearance for construction site (tree cutting and gabbing, leveling ground), material and waste transportations; (iv) auxiliary work constructions: stockpile, disposal site, campsite for workers, material storage areas; (v) gathering machines and material (vi) construction of domestic waste collecting, wastewater treatment and constructing a drainage water systems, power station at construction site; (vii) mud dredging, sludge transportation; and (viii) mines clearance and quarry material blasting.

The civil works will entail: (i) generating solid waste, demolition old constructions, remove original land surface, ground leveling, solid waste generating from construction materials use and exploitation, from workers at construction site and camps site; (ii) generating domestic wastewater from workers, from cleaning machines (iii) generating dust and exhaust gas due to site clearance, machines operation and transportation; (iv) increasing noise and vibration. However, these impacts are most likely to be localized and temporary and close monitoring and immediate suspension of the construction works in case of the abnormality would be adequate.

The primary objective of the project is to improve dam safety. The project thereby increases protection to people and socio-economic infrastructure downstream of dams facing high risk of failure and improves dam safety management at national and scheme level. Positive economic impacts are anticipated due to short term employment during construction but also due to increased productivity of dam-dependent livelihoods such as agriculture, fishery and tourism. Increased stability and improve investment climate is expected due to stable supply of electricity, water and reduced risk to life and property. However, the rehabilitation works will also entail quarrying or the use of borrow pits. The civil works may require acquisition of land or temporary rights of way, necessitating temporary or permanent relocation of homes and farms. Quarrying and new construction activities may thus encroach into previously undisturbed areas which may have unexploded ordinance from the recent war or archaeological artifacts.

On the other hand, the side effect of the construction can be counted to dramatically affect the existing infrastructure and community services, the rapid increase in population levels, or "boom-town" effect and to vulnerable to local by spreading out diseases from worker to local person and to the public utilities.

Domestic waste generates from the camping site and constructing site without proper management and treatment are the main issues impacting to local health (mosquitoes, flies). The hazardous chemicals such as pesticides, used oil can contaminate surface and groundwater.

E7.0 Screening, Impact Assessment and Management Plan

Key steps in subproject preparation are safeguard screening and impact assessment. The safeguard screening includes two steps, eligibility screening and technical screening for assessment of potential impacts, policies triggered and instruments to be prepared. The technical screening needs to be carried out all the major components of the subprojects. For example, if a dam rehabilitation subproject includes development of access road or construction of manager house etc., separate technical screening needs to be carried out.

Eligibility Safeguard Screening

The eligibility criteria for inclusion in the project require that any dam to be financed under the project is first included in the estimated 1,150 dams on the Government's dam safety program. The subproject selected through prioritization criteria will be further examined using the eligibility safeguard screening. The purpose of eligibility screening is to avoid adverse social and environmental impacts that cannot be adequately mitigated by project or that are prohibited by the national legislation, or a World Bank policy, or by international conventions.

Determination of Environmental Category and Other Requirements

After subprojects are determined to be eligible for financing, a technical screening will be carried out. The purpose of the technical screening is to: (i) classify subprojects into A, B, or C categories; (ii) identify the World Bank safeguard policies triggered; and (iii) to determine the type of safeguard instrument that needs to be prepared for the subproject (e.g., full scale ESIA, partial ESIA, or ESMP). The subprojects to be funded under the Dam Rehabilitation and Safety Improvement Project will have mainly Category A and Category B subproject. No Category C subproject has been envisaged under the project. The subproject will therefore be screened for the extent of the potential impacts on air/noise/vibration; land/soil/water; solid wastes; natural habitats/fisheries/aquatic life; livelihoods and local resident disturbance; and other aspects such as local floods, public safety/risks, off-site impacts etc.

Subproject will be screened for the nature and extent of potential negative impacts on local people related to land acquisition, resettlement, land donation, relocation of graves, and/or involvement with ethnic minority. If the impacts exist, RAPs and/or EMDPs will be prepared in line with the Resettlement Policy Framework (RPF) and/or the Ethnic Minority Policy Framework (EMPF) which has been developed for the Project. Due attention should also be given to address the issues related to gender, ethnic minority, and other disadvantage groups, especially when they are likely to be affected by the natural disaster. Relocation of graves will be in line with the WB policy on PCR. Relocation of graves will be carried out based on the principle of replacement cost and in accordance with local cultural practices, taking into account cultural preferences which are typical for each ethnic group as set out in the RAPs and EMDPs. WB approval of the RAPs and EMDPs will be mandatory.

Impact Assessment

The subproject will be further assessed to identifying the level of potential impacts. The level of impacts to be assigned should be as follows: None (N) – no impact; Low (L) – Small works, minor impacts, localized, reversible, temporary; Medium (M) – Small works in sensitive areas, medium scale works with moderate impacts of which most are reversible, reducible and manageable, localized, temporary; High (H) –Medium scale works in sensitive area, large scale works with significant impacts (socially and/or environmentally) of which some are irreversible and require compensation. Both M and H impacts need development and implementation of mitigation measures, monitoring program, and adequate institutional capacity on safeguard and this will be used as the basis for development of an ESIA and ESMP for the subproject.

The scope of the ESIAs will depend on the screening results. Data collection, field survey, and consultation with local communities and affected population will be carried out. ESIA will examine the subproject level potential negative and positive environmental impacts. The scope of category 'B' subproject ESIA will be narrower than that of Category 'A' subproject. The Annex C –C1 provides standard guidelines for carrying out Subproject ESIA.

Mitigation Measures and Public Consultation

Mitigation Measures: Appropriate mitigation measures will be identified according to the nature and extent of the potential negative impacts. The primary objective of the environmental and social management plan (ESMP) is to record environmental and social impacts resulting from the sub-project activities and to ensure implementation of the identified "mitigation measures", in order to reduce adverse impacts and enhance positive impacts. Besides, it would also address any unexpected or unforeseen environmental and social impacts that may arise during construction and operational phases of the sub-projects.

The ESMP will clearly define actions to assess and mitigate risks as well as to mitigate potential impacts during site clearance and construction and to reduce the risks during operation, the ESMP should clearly lay out: (a) the measures to be taken during pre-construction, construction and operation phases of a sub-project to eliminate or offset adverse environmental impacts, or reduce them to acceptable levels; (b) the actions needed to implement these measures; and (c) a monitoring plan to assess the effectiveness of the mitigation measures employed.

The environmental and social management program will be carried out as an integrated part of the project planning and execution. It must not be seen merely as an activity limited to monitoring and regulating activities against a pre-determined checklist of required actions. Rather it must interact dynamically as a sub-project implementation proceeds, dealing flexibly with environmental and social impacts, both expected and unexpected. For all sub-projects to be implemented under the project, the ESMP should be a part of the Contract Document. The ESMP is sub-project and location specific. In addition, the Bid Specification: General Construction Management and Contractors' Responsibilities or ECoP. The costing for implementation of the ESMP and ECoP needs to be carried out. In addition to ESMP and ECoP, the Contractor for all category 'A' project will prepare (within one month awarding the contract) specific Environmental Action Plan (EAP) with details of the equipment, schedule, technologies and manpower.

Monitoring Plan: The primary objective of the environmental and social monitoring is to record environmental and social impacts resulting from the sub-project activities and to ensure implementation of the "mitigation measures" identified earlier in order to reduce adverse impacts and enhance positive impacts from project activities. Apart from general monitoring of mitigation/enhancement measures, important environmental and social parameters will be monitored during the construction and operation phases of the sub-projects. The requirement and frequency of monitoring would depend on the extent and scope of sub-project and field situation.

Public Consultation: Preparation and implementation of the subproject safeguards documents during project preparation need to follow the Bank requirements for public consultation under

OP 4.01. The objectives of consultation are to generate public awareness by providing information about a sub-project to all stakeholders, particularly the sub-projects affected persons (PAPs) in a timely manner and to provide opportunity to the stakeholders to voice their opinions and concerns on different aspects of the project. Consultation would help facilitate and streamline decision making whilst fostering an atmosphere of understanding among individuals, groups and organizations, who could affect or be affected by the sub-projects.

E.8.0: Implementation Arrangement

The Ministry of Agriculture and Rural Development (MARD) will be responsible for overall implementation and management of the project. MARD will work closely with Ministry of Industry and Trade (MoIT) and Ministry of Natural Resources and Environment (MoNRE) in proceed to the project through the beneficiary agreements to execute specific activities. The Program Steering Committee (PSC) for the National Dam Safety Program will coordinate the policy and strategic issues, provide overall guidance and assist in coordination. The Central Project Office (CPO) within MARD would provide the support to all the three Ministries and responsible for overall coordination and monitoring of the project. The implementation of the rehabilitation works and preparation of dam safety plans, including safeguard and fiduciary, would be decentralized to the provincial level authorities. A National Dam Safety Review Panel (DSRP) will be established under the project. In addition, in compliance with the World Bank Safety of Dams Policy, an international Panel of Experts (PoE) will be engaged to provide support during implementation. The independent PoE will be expected to visit at least twice a year for a period of two weeks, at a minimum, to review, assess and advise Government on the program.

Further to that, PMU will hire the services of the International Qualified Environment and Social (E&S) Consultant Firm for review and clearance of subproject ESIAs, supervision and monitoring of ESIAs and other plans, reporting and capacity building. E&S Consultant will develop a system for proper tracking of environmental and social safeguard issues in the project. The Consultant will prepare detailed Half-Yearly report on Safeguard implementation and monitoring. This will be an addition to safeguard reporting in Project Progress Report.

An Independent Third Party Monitor will carry out regular, independent evaluations of project activities. The Third Party Monitor will also evaluate compliance with the applicable the Safeguard Policies and implementation of the various safeguard instruments, including the Environmental Management Plans/Environmental Codes of Practice, Resettlement Policy Framework/Resettlement Action Plans, Ethnic Minority Development Plans, and Gender Action Plans among others. The Figure - E-8.1 shows the implementation arrangement.

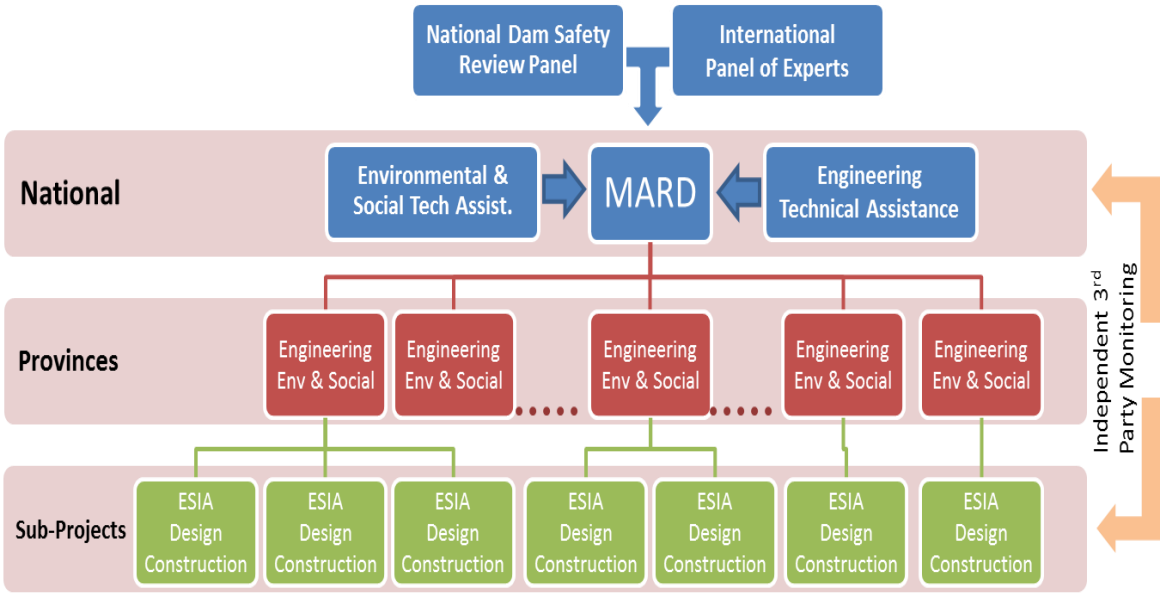

Figure - E8.1: Project Implementation Arrangement

E9.0: Capacity Building, Training and Technical Assistance

Effective implementation of this Environment and Social Management Framework (ESMF) will require technical capacity in the human resource base of implementing institutions as well as logistical facilitation. Implementers need to understand inherent social and environmental issues and values and be able to clearly identify indicators of these. Even with existence of policies and laws such as the Law on Environment Protection 2015 evidence on the ground still indicates that there is significant shortcoming in the abilities of local and district level stakeholders to correctly monitor, mitigate and manage environmental performance of development projects. Sufficient understanding of the mechanisms for implementing the ESMF will need to be provided to the various stakeholders implementing subprojects of DRSIP. This will be important to support the teams appreciate their role in providing supervision, monitoring and evaluation including environmental reporting on the projects activities.

E10.0: ESMF Implementation Budget

According to the cost calculation of the first year subprojects, the total estimation cost for environmental and social management framework is around USD 92 million (VND 1,970 bill.). Each subproject will have adequate budget for environmental and social assessment, preparation and implementation of plan, monitoring and reporting.

E11.0: Grievance Redress Mechanism

The grievance redress mechanism (GRM) is an integral project management element that intends to seek feedback from beneficiaries and resolve of complaints on project activities and performance. The mechanism will base on World Bank requirements, IFC instructions and most

important is base on Vietnam's grievance redress mechanisms to solve the uprising problem between project owner and local resident, specially affected person by the subproject. According to Vietnam regulation, the process of the grievance redress mechanisms have to consider on four stages and the maximum time for solving problem is about 45 to maximum 60 days.

E12.0: Guidelines for Physical Cultural Property Management (PRC)

There are a number of historical sites and/or sites with a cultural value in each of the provinces. These sites have been well-protected by local communities and government. The sub-projects under the Dam Rehabilitation and Safety Project will involve significant excavation works, movement of earth and temporary flooding. The provinces have religious institutions, sites of archaeological importance, old academic institutions, public libraries, community centers, which can be considered PCRs. However, the sub-project area of influence may or may not intersect these regions (since the sub-projects are generic in nature, actual locations of most of them still undetermined). The subproject will follow the guidance on identification of PCR, assessment of project impacts on PCR and assessment of Archaeological Impact.

E13.0: ESMF Consultation and Disclosure

The project has provision for each subproject level consultations with the project affected peoples, local community and other relevant stakeholders. This consultation will provide information on the following aspects: a) purposes of the project; b) results of the environmental and social evaluation; and c) presentation of the complementary studies required in the case that they apply.

The ESMF has been prepared through a detailed consultative process both at the field level and central level. Extensive consultation taken place at the provincial levels during the twelve (12) priority dam's ESIA preparation. These consultations provided valuable information for the ESIAs preparation as well as developing the ESMF. In addition, a national level workshop has been held on June 2015 to present the draft ESMF and collect feedback for its finalization.

The draft ESMF document and Executive Summary of twelve (12) subprojects ESIAs with Vietnamese version will be disclosed both in the MARD website and the Bank's Infoshop for public comments. The hard copies of the document have also been made available at CPO office and provincial levels.

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ABBREVIATIONS

BOD	Biochemical oxygen demand
CAO	Compliance Advisor Ombudsman
CEMA	Ethnic Minority and Mountainous Area Affairs
CEMC	Community environmental monitoring consultant
COD	Chemical oxygen demand
CPC	Commune People's Committee
CPMO	Central Project Management Office
CPO	Central Project Office
CRES	Centre for Natural Resources and Environment
CSC	Construction Supervising Consultant
CSEP	Contract-based specific environmental plan
DARD	Department of Agriculture and Rural Development at province level
dBA	Decibel, sound measurement unit
DMC	Disaster Risk Management Committee
DMDP	Dredge Materials Disposal Plan
DMS	Detailed measurement survey
LDMUs	Local Dam Management Units
DO	Dissolved oxygen
DoNRE	Department of Natural Resources and Environment at provincial level
DPC	District People's Committee
DRM	Disaster Risk Management
DRSIP	Dam rehabilitation safety improvement project
DSF	Dam Safety Framework
DSR	Dam Safety Report
DSRP	National Dam Safety Review Panel
DSU	Dam Safety Unit
DUC	Dam under construction
EA	Environmental Assessment
EAP	Environmental Action Plan
ECO-ECO	Institute of Economics ecology
ECOP	Environmental Code of Practices
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EMC	Environmental Management Consultant
EMDP	Ethnic Minority Development Plan
EMPF	Ethnic Minority Policy Framework
EPC	Environment Protection Commitment
EPP	Emergency Preparedness Plans
ESIA	Environmental and Social Impact Assessment
ESMF	Environment and Social Management Framework
ESMoP	Environment and Social Monitoring Plan
ESMP	Environment and Social Management Plan
ESU	Environment and Social Unit
FGD	Focus Group Discussion

FPIC	Free, Prior and Informed Consultation
FS	Feasibility Study
GDWR	General Department of Water Resources
GoV	Government of Vietnam
ha	Hectare
H_2S	Hydro sulfite
HH	Household
HIV/AIDS	Social evil disease
ICOLD	International Commission on Large Dams
IER	Institute of Environment and Resources
IFC	International Finance Corporation
IMCs	Irrigation Management Companies
IPM	Integrated Pest Management
ISDS	Integrated Safeguards Data Sheet
IUCN	International Union for Conservation of Nature
CITES	Convention on International Trade in Endangered Species
IWGIA	International Work Group for Indigenous Affairs
KK	Air sample code
L	Liter
LEP	Law of Environmental Protection
LURCs	Land User Right Certificate
LWR	Law of Water Resources
MARD	Ministry of Agriculture and Rural Development
MCM	Million Cubic Meter
ML	Million liter
MoC	Ministry of Construction
MoIT	Ministry of Industrial and Trade
MoNRE	Ministry of Natural Resources and Environment
MPN	Most Probably Number
ND-CP	National legal document
NGOs	Non-Government Organization
NH_3	Ammonia
NRDMP	National Risk and Disaster Management Project
NTU	Water turbidity measurement unit
O&M	Operation and Maintenance
^oC	Temperature
OP/BP	Operation Policy of World Bank
PAP	Particular affected person
PC	Public consultation
PCM	Public Consultation Meeting
PCN	Project Concept Note
PCR	Physical Cultural Properties
PDARD	Province Department of Agricultural and Rural Development
pH	Measurement of Acidity or Alkalinity
PID	Project Information Document
PMU	Project Management Unit

PoE	Panel of Experts
POM	Project Operation Manual
PPC	Provincial People's Committee
PPE	Personal Protective Equipment
PPMU	Provincial Project Management Unit
QCVN or TCVN	National Technical Regulations
QH	National assembly
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
SEA	Social Environmental Assessment
SO_2	Monodioxite sulfite
THC	Total hydrocarbon
ToR or TOR	Term of Reference
TSP	Total suspended particles
TSS	Total suspended solid
US$	United state dollars
UXO	Unexploded Ordnance
VACNE	Vietnam Association for Conservation of Nature and Environment
VDIC	Vietnam Development Information Center
VND	Vietnam currency (dong)
VN-Haz project	Vietnam Hazard project
WB	World Bank
WBG	World Bank group

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CHAPTER I. INTRODUCTION

1.1 General information

DRSIP is intended to improve the safety of the dams and related works, as well as the safety of people and socio-economic infrastructure of the downstream communities as defined in Decree 72 - governing the management of dam safety in Vietnam. The decree adopts the international convention in defining dams based on height and volume. Specifically, the Decree defines the following: (i) large dams from 15m high or with reservoir capacity of three million cubic meters or more; (ii) medium dams from 10m to 15m high or dams with reservoir capacity from one to three million cubic meters; and (iii) small dams from 5m to 10m high or dams with reservoir capacity between 50,000 and one million cubic meters.

The project would be an optimized mix of both structural and non-structural measures. Structural measures include rehabilitation and upgrading safety works of existing dams, including instrumentation, such as safety monitoring equipment. Non-structural dam safety activities, which are a critical and key component of the Bank-supported activities under the project, would include support to strengthen the legal and institutional framework; safety monitoring; operational procedures, operations and maintenance (O&M); and emergency preparedness plans.

The project would cover about 400 large, medium and small dams in 31 provinces in three regions[1]: north, central and the highlands where most dams are in critical need of safety upgrade. 12 priority dams have been identified for rehabilitation during the first year of project implementation. The safeguards requirements for these dams, including the conduct of ESIA have been prepared as part of the project preparation. The rest of the dams will be identified and prepared only during the project implementation. This framework provides guidelines for appraising the safeguards of the rest of the dams to be rehabilitated under DRSIP. This framework is developed based government's appraisal of the 12 first year priority dams.

1.2 Purpose of the ESMF

The Environmental Management and Social Framework (ESMF) sets the process for screening, assessment, review and clearance, and compliance monitoring of dam rehabilitation sub-projects. It also provides guidelines in the conduct of safeguards activities and the preparation of documentary requirements. Specifically, this ESMF:

(a) Establishes clear procedures and methodologies for the environmental and social planning, review, approval and implementation of subprojects to be financed under the project

(b) Specifies appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to sub-projects

(c) Determines capacity building needed to successfully implement the provisions of the ESMF

[1] The number of subprojects and provinces are indicative at this stage. The number can vary during the implementation phase based on the subprojects cost requirement and budget availability.

(d) Establishes the project funding required to implement the ESMF; and

(e) Provides practical information resources for implementing the ESMF.

The ESMF serves as the main framework for the sub-projects safeguards compliance process. Other frameworks have been prepared to guide sub-project compliance with other specific safeguards policies, namely:

(a) The Dam Safety Framework (DSF) which outlines the requirements for ensuring compliance with the World Bank Safety of Dams Policy (OP/BP 4.37), including a technical guideline for preparation of Dam Safety Report (DSR).

(b) The Resettlement Policy Framework which provides guidelines in preparing and executing a Resettlement Action Plan in compliance with World Bank's Involuntary Resettlement Policy (OP/BP 4.12); and

(c) The Ethnic Minorities Policy Framework which provides guidelines for undertaking free, prior and informed consultation with ethnic minorities in the project sites and the preparation of Ethnic Minorities Development Plan required under the World Bank's Indigenous Peoples Policy (OP/BP 4.10).

This ESMF will be used in conjunction with these other frameworks.

1.3 Approach and Methodology for Developing ESMF

The proposed project will be financed by the World Bank and the Government Socialist Republic of Vietnam. The Environment and Social Impact Assessment (ESIA) of the subprojects will require fulfilling the policies and legislative requirement of the World Bank and the Government. Since the subprojects to be funded under the projects will be identified during the implementation phase, the project has adopted a framework approach. Based on the experience of the earlier World Bank funded projects implemented MARD and findings of the ESIA of the first year 12 subprojects, the ESMF has been prepared by MARD.

The ESMF will be complemented by the Dam Safety Framework (DSF), the Resettlement Policy Framework (RPF) and the Ethnic Minorities Policy Frameworks (EMPF). The ESMF was prepared based on the agreed Terms of Reference (ToR) with the World Bank and taking into consideration of the Vietnam In-Country Technical Guidance Note: Environmental and Social Management Framework Toolkit for World Bank-Financed Projects in Vietnam (February, 2015).

In addition to the consultations carried out for preparation of first year subproject ESIAs, two consultations meeting were carried out during the preparation of the ESMF.

1.4 Structure of ESMF

The ESMF has the following chapters:

Chapter I: Introduction

Chapter II: Project Description - Provides a brief description of the project objectives and summarizes its main component.

Chapter III: Policy, Legal and Administrative Framework – Describes relevant national environmental and social management requirements, the World Bank safeguards policies applicable to the project and its subprojects

Chapter IV: Sub-Project Description and Baselines – Explains the key information required to describe a subproject, how to define a subproject influence area and collect baseline information.

Chapter V: Sub-Project Alternative Analysis – Explains the steps and elements in presenting Sub-Project Alternative Analysis.

Chapter VI: Potential Impacts and General Mitigation Measures – Describes the potential positive and adverse impacts and typical mitigation measures.

Chapter VII: Screening, Impact Assessment and Management Plan – Explains the procedures for screening, review, clearance and implementation of safeguard instruments. It also describes the process for subproject level consultation, public awareness, disclosure and grievance redress mechanism.

Chapter VIII: Implementation Arrangement – Provides the responsibility for ESMF implementation and reporting

Chapter IX: Capacity Building, Training and Technical Assistance – Describes the capacity building, training and technical assistance included in the project for effective implementation of ESMF.

Chapter X: ESMF Implementation Budget – Estimates the budget needed to implement the ESMF.

Chapter XI: Grievance Redress Mechanism – Describe the mechanism to receive and facilitate resolution of affected peoples' concerns, complaints, and grievances about the project's performance, including environmental and social impacts and issues.

Chapter XII: Cultural Property Action Plan – Provides guidelines how to carry out investigation and inventory of physical cultural resources, assess the nature and extent of impacts and prepare and implement mitigation plan.

Chapter XIII: ESMF Consultation and Disclosure – Describes the consultation during the ESMF preparation and how ESMF has been disclosed.

CHAPTER II. PROJECT DESCRIPTION

2.1 Project Development Objective and Components

The development objective of DRSIP is to support the implementation of the Government dam safety program by rehabilitating and/or upgrading the structures of priority dams and reservoirs, upgrading their safety and operational management framework and providing resources for emergency response in case of dam failure. The project will consist of the following components:

Component 1: Dam safety rehabilitation (US$ 385million) - This component will improve dam safety through physical rehabilitation of existing infrastructure. This will also include two different approaches requirement for the rehabilitation of large/medium and small, community-managed dams. The difference between the two relates is not only remained to the types of works and the regulatory framework, but also the institutional and implementation arrangements required to undertake such works and ensure their sustainable operation and maintenance. This would include support to (i) detailed design, supervision and quality control of rehabilitation works for prioritized dams and associated infrastructure; (ii) rehabilitation works, including civil works, hydro-mechanical works and installation of hydrological and safety monitoring equipment; (iii) preparation of Operation and Maintenance Plans and Emergency Preparedness Plans; and (iv) adoption of standardized checklist for community-managed dams.

Component 2: Dam safety management and planning (US$ 60 million) - This component will improve the planning and operational framework for dam management to safeguard the people and socio-economic infrastructure within downstream communities. This would include the provision of support to: (i) hydrological observation network and information systems; (ii) integrated development planning and operational coordination mechanisms between irrigation and hydropower reservoirs; (iii) regulatory and institutional support and strengthening on coordination mechanism including national dam policy on registration, regulation, inspection, safety compliance and penalties; (iv) technical specifications, safety standards and regulations to internationally-accepted levels; and (v) capacity enhancement, basin-wide integrated dam reservoir operation plans, emergency preparedness plan including dam break analysis, downstream flood mapping and benchmarking, awareness raising and evacuation drills for local communities living downstream.

Component 3: Project management support (US$ 15 million) - This component will provide the necessary enabling environment to support the project implementation. This will include support for the following: (i) Project Steering Committee composed of MARD, MoIT and MoNRE to coordinate all project interventions; (ii) Project Management Unit (PMU) within MARD to provide the necessary support services for timely and effective project implementation, including monitoring & evaluation, procurement, financial management, safeguard monitoring, etc.; (iii) Technical Assistance for beneficiary departments within MoIT and MoNRE to provide the necessary support services for timely and effective project implementation; (iv) Establishment and operations of a National Dam Safety Review Panel; (v)

Independent audits of prioritized dams before and after rehabilitation; and (vi) Incremental operating costs for project related activities.

Component 4: Disaster contingency (US$ 0 million - no fixed allocation, but not to exceed 20% of the total project cost) - This component will improve the response capacity of the Government in case of an emergency relating to dam failure during project implementation.

2.2 Coverage of the Project

DRSIP will be implemented in 31 provinces in the North, Central and Highland regions (Figure – 2.1). The lists of the 31 provinces along with general ecological and socioeconomic conditions of the regions are briefly presented in Table-2.1. Around 400 dams will be selected for consideration under the project. The number of dams and provinces may vary due to the extent of the rehabilitation and safety work and the availability of the budget. The dams will be supported by DRSIP must be under the dams identified for national dam safety program. Eligibility criteria will be used to identify the priority dams for DRSIP.

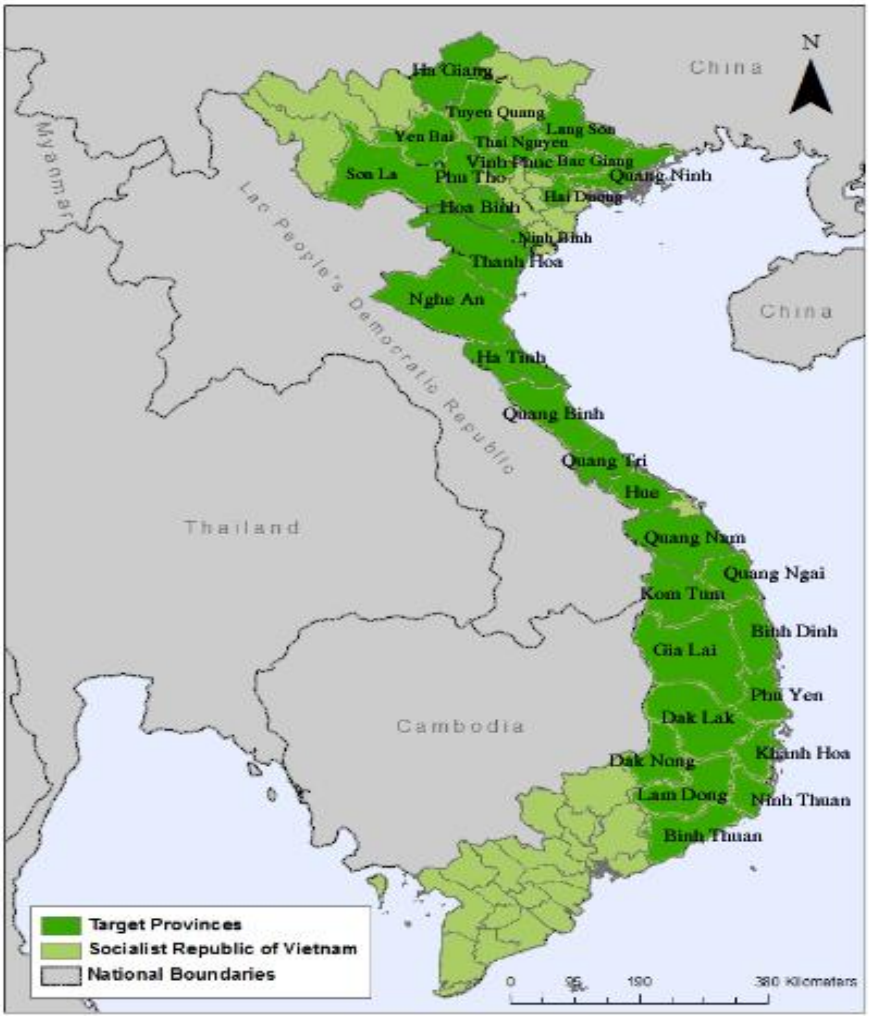


Figure 2. 1. Provinces to be covered by the DRSIP

Table 2. 1. Ecological and Socioeconomic Profile of Project Areas

Zone/ Region	*Ecological and Socioeconomic Profile*	*Provinces*
North	The general topography is characterized by mountainous terrain with narrow valleys and alluvial soil offering better opportunities for stable agriculture. The variation in elevation and the unevenness of topography contribute to shaping an environment that has diverse agro-ecological zones with specific development needs and priorities It stretches from the Red River valley to the Gulf of Tokin. Apart from having the topical characteristic features of a tropical forest area. The climate condition in Northern region is the tropical climate with intensive rainfall. The total annual rainfall in this region varies from 1400-1800mm. The rainy season usually from May to September, the precipitation covers 50-55% of the total annual rainfall. Flash floods associated with mud and rocks have removed a number of agricultural cultivation areas, towns and hamlets, of which the Muong Lay town in Lai Chau province had been relocated due to being subjected to numerous flash floods. In rainy season, erosion events abundantly occurred, caused traffic interruptions that had been hindering relief efforts as well as affecting to people's daily living. The area is home to various ethnic minorities. In the Northwest, the programs on poverty eradication have consequently brought about many remarkable outcomes. More particularly, the National Targeted Program for Sustainable Poverty Reduction 2012 – 2015 sets a goal of reducing poverty among minorities in the North-West mountainous and Central Highlands by 4% per annum (17,4% at the present 2015). In the period 2006-2010, the Committee for Ethnic Minority Affairs and the UNDP evaluated that the poverty rate in the Northwest, of all provinces, Lai Chau and Ha Giang witnessed the sharpest reduction of poverty rate with their figures being at 5%/year and 7%/year, respectively. Currently, the rate of the poor households in regards to the new poverty line is 29.5%. Besides, the program involving sustainable poverty reduction was successfully implemented and gains lots achievements in 5 years. During this period, many innovative models have been constructed in 218 villages whereas the program finally supports 30.000 poor households to improve production and investment. As a result, nearly 65% of them were released from poverty (UNDP, 2010).	1. Ha Giang 2. Tuyen Quang 3. Yen Bai 4. Phu Tho 5. Quang Ninh 6. Hoa Binh 7. Son La 8. Dien Bien 9. Cao Bang 10. Bac Giang 11. Hai Duong 12. Ninh Binh 13. Vinh Phuc
Central	Central part is sloping and narrow, its mountains, plains are closing to its coastline. The part is cut and divided by rivers originating from western mountain ranges flowing into the South	1. Thanh Hoa 2. Nghe An 3. Ha Tinh

Zone/ Region	*Ecological and Socioeconomic Profile*	*Provinces*
	China Sea. Along the coastline are small plains. Between sloping mountainsides are narrow and deep valleys. *Central region* is divided into two regions: North Central Region includes the province of Thanh Hoa, Nghe An and Ha Tinh, Quang Tri, Quang Binh, Thua Thien Hue. The climate under the tropical monsoon climate, abundant rainfall regimes, with annual rainfall fluctuations from 1500-2.300mm, Accounting for 80-85% of risk of floods occurrence during the monsoon period. The rain fall volume is unevenly distributed over time and location. Flooding season from July to November. Dry Season from December to June next year. *Central and South* Central stretches from Quang Ngai province, Quang Ngai, Phu Yen, Khanh Hoa, Binh Dinh in climates divided into two seasons: dry and rainy season. From the dry season begins in January to August, during this period in May and June, it appears heavy and intensive rain fall caused high flooding levels to the areas. Central region is a long-stretching and narrow region which is frequently subjected to flood and storm disasters. Storms affected to Central provinces of Vietnam are often originated from tropical storms and depressions come from the South China Sea (East Sea), and from tropical and cold fronts. Severe storm with strong wind is often engaged with heavy rains, causing river water level rising and flood. In case a storm or tropical depression occurs together with a cold front, it can result in long and torrential rains, causing serious flood over river basins of the Central region. The rainy season begins from September to December. As consider, the rainy season just started in four months, but it covers more than 80% of total volume of water in a year. The ethnic minority groups in the areas are diverse, counting for more than 90 percent of ethnic minorities are living in poverty. The survey and analyzed results show that income of people in the subproject areas was not high. Most of the households have medium income, accounting to 28% (Nghe An), 80% (Quang Ngai); the rate of households have high income than average level were 12% in Binh Thuan, 40% in Nghe An and Thanh Hoa province have high poverty rate of 22.9%. The most incomes of the household in the areas from agriculture, for instance, the income from agriculture covers 96% of total household income in Thanh Hoa subproject.	4. Quang Binh 5. Quang Tri 6. Hue 7. Quang Ngai 8. Quang Nam 9. Binh Dinh 10. Khanh Hoa 11. Phu Yen 12. Ninh Thuan 13. Binh Thuan
Central	Within the southern portion of Vietnam is a plateau known as	1. Gia Lai

Zone/ Region	*Ecological and Socioeconomic Profile*	*Provinces*
Highlands	the central highlands approximately 51,800km^2 of rugged mountain peaks, extensive forests, and rich soil. Comprising 5 relatively flat plateaus of basalt soil spread over the provinces of Dak Lak, Gia Lai, and Kon Tum, the highlands account for 16% of the country's arable land and 22% of its total forested land. Climate of the central Highland has two main seasons including rainy season from May to October with the total rainfall of about over 80% of the annual rainfall, and dry season from November to March, it relatively high annual rainfall of about 1800-2000mm per year and the evaporation is only about 60% of the annual rainfall. Monthly mean temperature in the Central Highlands ranges from 20 to 25^{o}C. The coldest temperature occurs in December and January. The warmest temperature occurs in April and May. The maximum (minimum) of monthly mean temperature occurs in April (December). Annual variation of monthly mean temperature in the Central Highlands is relatively small. The Central Highlands had a total area of 3,868,400ha, correlative with forest wood reserves of 411,301,215m and bamboo reserves of 3.5 billion plants, of which protective forests accounted for 39% and forest of special use 28%. Moving to the present, the forest area of the Central Highlands remains 2,902,000ha, with large forest coverage of 55% and diverse flora and fauna. Many rare flora and fauna species are found in this area. There have been 14 reservation zones and national parks along with tens of small reservation areas and other special-use forest, totaling 460,000ha (accounting for 8.3% of the total natural area) The decline of the forest resource is the main reason for unusual weather such as droughts, floods, a long dry season, and higher temperature. Central Highland is a crucial area of Vietnam for planting coffee, an important industrial crop of Vietnam. All Central Highlands general poverty rate was 45.35% in 1996 and 24.1% in 2008, then down to 15% in 2015 according to new poverty standards. Poverty alleviation in the Central Highlands provinces was still difficult to achieve. So far, the general poverty rate in the region was still over 20%. For instance, the general poverty rate was 21.96% in Kon Tum, 18.12% in Gia Lai, 15% in Dak Lak, 16.58% in Dak Nong, and 13.22% in Lam Dong in 2008. The rich and poor gap was larger, the gap among provinces with highest poverty rates was nearly two times of that among provinces with lowest poverty rate. Some ethnic minorities	2. Dak Lak 3. Dak Nong 4. Lam Dong 5. Kon Tum

Zone/ Region	*Ecological and Socioeconomic Profile*	*Provinces*
	experienced higher poverty rates from 27% to 40% and the life of the households living in remote areas was more difficult. Each year hundreds of thousands of ethnic minority households still suffer hunger.	

In general, the gap in welfare between the majority and minority groups has grown over the decade, resulting in a situation where ethnic minorities are 39 percent of all poor people, despite representing only 14 percent of the total population of Vietnam. This represents a near-doubling of the proportion of ethnic minorities in the poor population in many years. If these trends remain unchanged, this graph suggests that poverty in five years' time will be overwhelmingly an issue of ethnicity. In the North West, the poorest region in the country by a significant margin, ethnic minorities have experiences far fewer gains in every region of the country except the Mekong Delta. With the exception of the Mekong Delta, ethnic minority poverty rates are above 50 percent in every region and are well above 70 percent in several regions. In the South Central Coast, data show that more than 90 percent of ethnic minorities are living in poverty. This is particularly true in the North East and the North West, where 42 percent and 28 percent of ethnic minorities respectively have forestry land.

These groups rely mainly on farm income, with very limited access to infrastructure, education, health services and non-farm opportunities. They have a very high poverty rate in The areas belong to the North, Central and Central Highlands of Vietnam, the poverty rate is 3.5 times, higher than other places in Vietnam in comparison. Most of the districts in the identified places are mountainous landscape and close to frontlines. About 90% of the population is ethnic minorities, and their income per annual per year is an approximately VND 4.724.9 thousand VND/person/year (equally US$ 200/person/year). The incomes sources come from agricultural production. With an average annual revenue of 3 billion years/distinct, meaning that the budget is not enough to support poverty people overcome their issues.

2.3 Implementation Arrangements

The Ministry of Agriculture and Rural Development (MARD) will be responsible for overall implementation and management of the project. MARD will work closely with Ministry of Industry and Trade (MoIT) and Ministry of Natural Resources and Environment (MoNRE) in proceed to the project through the beneficiary agreements to execute specific activities. The Program Steering Committee (PSC) for the National Dam Safety Program will coordinate the policy and strategic issues, provide overall guidance and assist in coordination. PSC will include the three Ministries and will be chaired by the Prime Minister's Office or by the National Steering Committee for Flood and Storm control and relief.

The Central Project Office (CPO) within MARD would provide the support to all the three Ministries and responsible for overall coordination and monitoring of the project. The implementation of the rehabilitation works and preparation of dam safety plans, including safeguard and fiduciary, would be decentralized to the provincial level authorities. The

provincial Department of Agriculture and Rural Development (DARD) would be lead agency at the provincial level.

A National Dam Safety Review Panel (DSRP) will be established under the project. In addition, in compliance with the World Bank Safety of Dams Policy, an international Panel of Experts (PoE) will be engaged to provide support during implementation. The independent PoE will be expected to visit at least twice a year for a period of two weeks, at a minimum, to review, assess and advise Government on the program.

CHAPTER III. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORKS

3.1 Country's Environmental and Social Safeguards Policies and Legislations

3.1.1 Environment

Law of environmental protection no.55/2014/QH13 is on regulating strategic environmental assessment, environmental impact assessment and environmental protection commitment. Environmental report should be carried out simultaneously with the establishment of investment projects (Feasibility study report). Requesting time for EA report making, delivery and appraisal are specified in chapter II, article 6, 7, article 14 of chapter IV and article 21 of chapter VI of the Decree no.18/2015/ND-CP.

Decree No. 18/2015/ND-CP dated February 14, 2015 on environmental protection planning, strategic environmental assessment, environmental impact assessment and environmental protection plans replaces Decree 29/2011/ND-CP, but no guiding how to formulate the report of EIA. Therefore, the first yeas sub-project should use the early document of circular 26/2011/TT-BTNMT (detailing a number of articles of the Government's Decree No. 29/2011/ND-CP of 8 April 2011 on strategic environmental assessment, environmental impact assessment and environmental protection commitment) to perform EIA reports. Some information in this section still extracted from the old document of circular 26/2011/TT-BTNMT. ESMF will continue update to resolve issue relating new legal documents.

i) Environmental impact assessment (EIA).

In Vietnam, EIA was first introduced in the early eighties and preparations for EIA procedures were implemented. Activities included training of EIA experts, elaboration of regulatory documents and adaptation of EIA methodologies. Years later there were issuance of EIA related regulations and elaboration and appraisal of EIA reports. After EIAs legal introduction in the Law on Environmental Protection, (LEP 2014), there has been continued training of EIA experts and lots of effort has been put in to improve the EIA system in Vietnam.

In general, rules and regulations on EIAs of either Vietnam or donors tend to rely on common principles on EIAs widely recognized in the world. Many EIAs prepared under principles and regulations of donors have been appraised and accepted by Vietnamese environmental management agencies. However, there exist certain differences in viewpoint for implementation of EIAs. The efforts of Vietnam to harmonize local EIA procedure with those of international donors operating in Vietnam were shown years ago and realized via specific actions.

Table 3. 1. Summary of ESIA Process

Step	***Objective***	***Methodology***
Step 1: Screening	- Screen to identify eligibility of subproject, and safeguard tools to prepared for a subproject if it	- Follow the principles described in section 7.2 of the ESMF

	is eligible to be financed	
Step 2: Scoping	- Prepare Terms of Reference for the preparation of safeguard Tools: ESIA/ ESMP/ECOP	- Detail scope of the ESIA provided in the Annex.
Step 3: Prepare draft ESIA, including public consultation and information disclosure	- Identify the potential impacts, assess the potential negative social and environmental impacts - Propose mitigation measures and management plan for addressing the identified potential negative impacts - create a channel for public participation in decision making process	- Follow the instructions given in Annex C1 of this ESMF
Step 4: Submit draft ESIA for review and clearance	- Obtain comments, and finally clearance from reviewing authorities	- Follow LEP 2015 and this ESMF
Step 5: Post ESIA monitoring, supervision and reporting	- To ensure compliance to ESIA - To verify the effectiveness of mitigation measures - To identify arising issues, if any, and take actions in a timely manner - To withdraw lessons for similar projects in the future	- Incorporate mitigation measures into engineering designs and cost estimation - Incorporate environmental specifications into bidding and contractual documents (both construction and construction supervision contracts) - Recruit independent monitoring consultant for capacity building and independent monitoring - Monitor and supervise the works carried out by the contractor and consultants

ii) EIA appraisal agencies include:

State's Agencies for Environmental Protection at central/local level where the project is implemented (the Management Agencies): According to Article 11, LEP 2014, Consultation on, inspection and approval of the planning for environmental protection, are as follow:

a) The Ministry of Natural Resources and Environment shall consult with Ministries, regulatory agencies and provincial People's Committees in writing and hold an official consultation with relevant regulatory agencies and organizations during the preparation of the national-level planning for environmental protection.

b) Provincial People's Committees shall consult with departments, regulatory agencies and People's Committees of a district, town or city (hereinafter referred to as district-level People's Committee) in writing and hold an official consultation with relevant regulatory agencies and organizations during the preparation of the provincial-level planning for environmental protection.

c) The Ministry of Natural Resources and Environment shall establish a Council for interdisciplinary inspection and prepare the national-level planning for environmental protection for submission to the Prime Minister with the intent to seeking the approval for that planning.

d) Provincial People's Committee shall inspect and approve the report on the provincial-level planning for environmental protection after obtaining written advice from the Ministry of Natural Resources and Environment.

Appraisal Service Organization: is the organization selected by MONRE or provincial people's committee to conduct appraisal of related EIAs. The Organization can participate in the appraisal process under decision by the project approval agency and will bear responsibility for its comments and conclusions on the appraisal work. Decree No.18/2015/ND-CP by the Government regulating in details and providing guideline for implementation of a number of provisions in the Law on Environmental Protection. The list of 12 project groups is mentioned in the Appendix 2 of the Decree. According to Article 15, LEP 2015, main subject-matters of the report on strategic environment assessment will include:

1. Necessity and legal grounds for the task of preparing the strategy, planning and proposal.

2. Method for carrying out the strategic environment assessment.

3. Summary of subject-matters included in the strategy, planning and proposal.

4. Natural and socio-economic environment of an area which is affected by the strategy, planning and proposal.

5. Assessment on the conformity of the strategy, planning and proposal to environmental protection viewpoints and objectives.

6. Assessment and prediction with reference to the positive and negative trend towards environmental issues to be provided in the case of implementing the strategy, planning and proposal.

7. Assessment and prediction with reference to the trend in climate change impacts in the course of implementing the strategy, planning and proposal.

8. Consultation to be required in the process of the strategic environment assessment.

9. Measures for sustaining the positive trends, controlling and mitigating negative trends towards environmental issues in the process of the strategy, planning and proposal.

10. Issues that need to be further researched in the process of implementing the strategy, planning, proposal, and recommended solutions.

EIA consists of the following main components:

- Assessment on current environmental status, environmental management, prediction for trends towards environmental and climate changes

- Environmental zoning

- Biodiversity and forest conservation

- Environmental management of sea, islands and river basins

- Waste management

- Environmental protection infrastructure; environmental monitoring system

- Planning maps representing contents prescribed at Points b, c, d, dd and e of this Clause

- Resources required for the implementation

- Implementation.

iii) State management responsibilities of the people' committees of all levels on environmental protection

Local community plays important role in the process of EIA formulation and appraisal. Participation of local community in the EIA process can be realized through public participation requests as stipulated for in Article 143, LEP 2015. The people's committees of provinces take the following responsibilities of (i) Constructing, promulgating by authority legal documents, policies, programs, planning, plans on environmental protection, (ii) Organizing the implementation of law, strategies, programs, plans and duties on environmental protection (iii) Constructing, managing environmental monitoring system in the locality in suitability with general planning of national environmental monitoring (iv) Organizing appraisal and establishment of environmental report. Communicating, popularizing and educating policies and law on environmental protection (v) Organizing appraisal, approval of environmental protection planning, environmental impact assessment report, endorsing completion of environmental protection works, instructing and organizing the inspection of environmental protection plan by authority (vii) Awarding, extending, revoking licenses, certificates of environmental protection by authorities (viii) Inspecting, investigating, handling law violations of environmental protection; settling claims, accusations, petitions concerning environment in accordance with the law on complaints and denunciations (ix) Organizing the implementation of strategies, programs, plans and duties on environmental protection (x) Coordinating with the people's committees of

districts concerned to settle inter-district environmental problems (xi) Being responsible to the People's committees of provincial levels for any serious environmental pollution in the area.

In case People Committee or Fatherland Front Committee at commune level requires for dialogue, project owners must co-ordinate. Socio-political organizations, socio-occupational organizations take the following responsibilities Socio-political organizations, socio-occupational organizations have the following rights Environmental management agencies of all levels are responsible for creating favourable conditions for socio-political organizations, socio-occupational organizations to exercise the rights as stipulated in Paragraph 2 of this Article.

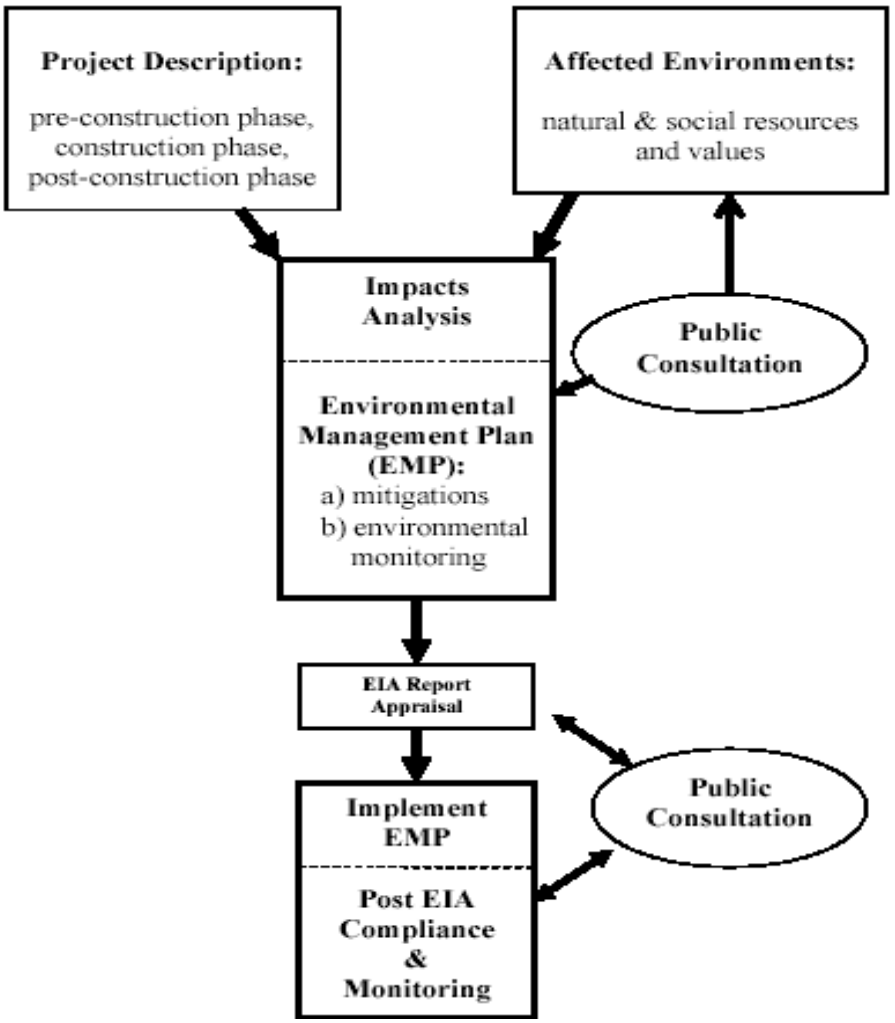


Figure 3. 1. EIA process and public participant

iv) Requirements for writing EIA report

As the EIA report is the document used by the project owner for making assessments on environmental impacts, proposals on mitigation measures for negative impacts on natural, socio-

economic conditions, and also is the document to be appraised and approved by State's Agencies, its presentation must meet following requirements:

1) Use writing style of technical reports with clear and logic contents

2) Ambiguous or double-meaning expressions should not be used; clear and easy to understand statements are expected to make sure involved individuals and organizations understand correctly

3) Detailed explanation, as quantitative as possible, on significant impacts of the projects; "beating-about-the-bush" style of writing is not preferred; secondary, insignificant issues are not expected (for instance: EIA report for a hydro-electricity plant must focus on predicted changes of hydrologic conditions, water currents, erosion in downstream areas, water quality in lakes, resettlement, relocation… rather than on predicted dust volume, domestic wastes).

4) Data, technical terms used in the report must follow the regulations applied in Vietnam.

5) Images, charts, figures must be captioned and noted clearly; color printing is preferred

6) EIA report must include following ordered headings

7) The People's Committees of district shall send a report on registration and implementation of environment protection plans in the district of previous year to the People's Committee of province before every January 1.

8) The People's Committee of the province shall send a report on assessment of reports on SEA; assessment and approval for EIA report; registration and inspection of specific environment protection plans; inspection and approval for environment protection works in the province of the previous year to the Ministry of Natural Resources and Environment before every January 15.

9) Ministries, ministerial agencies shall send reports on assessment of reports on SEA; assessment and approval for EIA report; specific environment protection projects; inspection and approval for environment protection works of the previous year related to project under their management to the Ministry of Natural Resources and Environment before every January 16.

10) The Ministry of Natural Resources and Environment shall provide guidelines

3.1.2 Dam safety regulations

(This part has the separated document, it called DSRF: Dam safety regulation framework. The paragraphs below just summarized the DSRF in general)

Decree no.72/ND-CP on date 07/05/2007 of the government of Vietnam regarding on dam safety management. According to the decree, a big dam is the dam with the height calculating from the floor face to the top of the dam equal to or greater than 15 meters or dam of water reservoirs with the scale of capacity equal to or greater than 3,000,000 m^3 (three million cubic meters). Small dam is the dam with the height calculating from the floor face to the top of the dam smaller than 15 meters. Dam owners are organizations and individuals owning dams to harness the benefits of water reservoirs or assigned to manage, operate and harness water reservoirs by the competent state agencies. Ministry of Agriculture and Rural Development takes responsibility before the Government for the implementation of state management of dam safety. The Ministry of Industry presides over and coordinates with ministries, branches and relative localities to appraise, approve or submit to the Prime Minister for approval of the process of operating hydropower reservoirs. The provincial-level People's Committees implement its state management on dam safety in the areas.

The purpose of this section is to provide a foundation for comparison of the current laws and regulations against the established international benchmarks. The Vietnamese dam safety management legislation comprises laws and regulations enacted by legislative agencies such as the National Assembly of Vietnam (NAV), Standing Committee of NAV and Government, and by-law documents such as Circulars, Instructions, Directives and Decisions issued by Ministers of relevant Ministries or Provincial People's Committees. Laws and regulations dealing with dam safety management analyzed include (1) the Law on water resources (hereafter referred to as the LWR, No.17/2012/QH13); (2) Decree No.72 on dam safety management and (3) the Ordinance on exploitation and protection of irrigation works (hereafter referred to as the Ordinance, 4 April 2001).

In chapter 4 of Decree no.18/2015/ND-CP on date 14/02/2015, from the article 12 to article 17 were specified in the formulation, evaluation and approval of environmental impact assessment reports, the implementation of projects and the designed mitigation measures to protect environment before and after a project officially operation. In the article 12 of this Decree also regards on environmental impact assessment process to the project implementation, the project owner have to organise meetings to public consultants, such as Provincial People's Committees, local authority (Commune People's Committees level- CPC), affected (direct or indirect) people or committees in the local by the project implementation, mandatory; analysis the feedbacks, comments obtained from the affected groups, and consider advantage or disadvantage the impacts of the project to community and to design the mitigation measures to reduce the negative impacts on natural environment, biodiversity, community. According to the annex no.2 of the Decree, the project has to make EIA if the reservoir capacity is of 100,000m^3 or more. According to the regulations of Vietnam Government, the all proposed subprojects under DRSIP project have to perform the report of Environment Impact Assessment (ESIA).

i) Regulatory dam safety management agencies in Vietnam

Institutional arrangements. Institutional arrangements for dam safety management in Vietnam are regulated by Articles 53, 54, 55 of the LWR, Article 24 of Decree No. 72 and Article 30 of the Ordinance. Accordingly, Vietnam has a number of regulatory agencies ranging from the central to the local levels. At the central level, the Ministry of Agriculture and Rural

Development (MARD) is the standing agency which implements the State function related to dam safety management. The General Department of Water Resources (GDWR) is authorized by the MARD to consult for the central government and supervise local dam safety management organizations. In addition, three irrigation management companies are established under the MARD to manage certain dams. At the local level, the general structure of dam safety management of districts and communes resembles that of provinces. Provincial People's Committees have the highest level of statutory powers in dam safety management at the local level. Departments of Agricultural and Rural Development are authorized by Provincial People's Committees to implement the strategic and legal management of dam safety. In addition, provincial irrigation management companies are established to operate and manage certain dams and reservoirs in a direct way. An exception is made at the commune level where agricultural cooperatives and water user associations are established, instead of irrigation management companies, to provide direct operation and management of dams and reservoirs in the commune area.

Statutory powers and responsibilities of regulatory agencies. Statutory powers and responsibilities of the three agencies – the MARD, Ministry of Industry and Provincial People's Committees, are provided in Article 24 of Decree No. 72 and Article 30 of the Ordinance. Both of these Articles stipulate that the MARD take the highest level of statutory powers and responsibilities in dam safety management. Provincial People's Committees are assigned (by the Government) to take responsibility for dams that are located in the province and/or dams that are operated and managed by organizations in the province. Responsibility includes:

- Developing by-law documents and supervising the implementation of these documents

- Conducting inspection, surveillance and review to ensure the proper design, construction and maintenance of dams

- Ratifying dam safety management plans and flood control and mitigation plans

- Determining emergency actions plans and other plans in case dam failures occur in the province

- Issuing necessary permits and procedures; and

- Conducting research on and applying advanced technology to all stages of dam safety management as well as flood control and mitigation.

There are no specific provisions on statutory powers and responsibilities of regulatory agencies at the other local levels, i.e. district people's committees and commune people's committees.

Human and financial resources for regulatory agencies. Human and financial resources for regulatory agencies at both the central and local levels are not regulated in any of the three laws and regulations above. Financial resources for the operation and management of dams are discussed in Articles 12–15 of the Ordinance. Irrigation management companies are funded by the State budget capital and operating pursuant to the public utility regime.

ii) Existing forms of regulatory frameworks in Vietnam

The form of laws and regulations. Dam safety in Vietnam is dealt with either through specific regulations such as Decree No. 72 or as part of general regulatory schemes such as the LWR and the Ordinance.

The contents of laws and regulations. All three laws and regulations reviewed contain only general provisions without giving detailed guidelines, standards and procedures. For example, the LWR provides general provisions that "all organizations and individuals have the responsibility to protect water conservancy works" (Clause 1 of Article 48) and "organizations and individuals who manage and exploit water conservancy works must work out the plan to protect it" (Clause 1 of Article 49).

Registration and classification of dams. Decree No. 72 is the only document that specifies the need for dam registration (Article 4) and dam classification in terms of size (Article 2). Dam managers must register their dams with State competent agencies under Article 4. Article 2 defines large dams as "all dams of 15 m and over in height, or dams with a storage capacity of 3000 ML or more" and small dams as "all dams of less than 15 m in height and with a storage capacity of less than 3000 ML".

3.2. The land acquisition, compensation and resettlement policies

This part has a separated document. Referencing to document of The Resettlement Policy Framework (RPF) for further information

3.2.1. The Legal framework of the Government of Vietnam

The GOV's Legal Framework: The legal framework with respect to land acquisition, compensation and resettlement is based on the Constitution of the Socialist Republic of Vietnam (2013), and the Land Law 2013 (revised), and other relevant decrees/guidelines. The principal legal documents applied for this RPF include the followings:

- Constitution of Vietnam 2013;
- The Land Law 45/2013/QH13 which has been effective since July 1, 2014;
- Decree No.43/2014/ND-CP dated on May 15, 2014 guiding in detail some articles of Land Law 2013;
- Decree No.44/2014/ND-CP dated on May 15, 2014 provides on method to determine land price; make adjusted land price brackets, land price board; valuate specific land price and land price consultancy activities;
- Decree No. 47/2014/ND-CP dated on May 15, 2014 providing compensation, assistance, resettlement when land is recovered by the State;
- Decree No. 38/2013/ND-CP dated on April 23, 2013, on management and use of official development assistance (ODA) and concessional loans of WB;
- Decree No. 72/2007 / ND-CP dated on May 07, 2007 of the Government on management of dam safety;

- Decree No. 201/2013 / ND-CP dated on November, 27, 2013 of the Government detailing the implementation of some articles of the Law on Water Resources;
- Circular No. 36/2014 / TT-BTNMT dated on 30 June 2014, regulating method of valuation of land; construction, land price adjustment; specific land valuation and land valuation advisory;
- Circular No. 37/2014/TT-BTNMT dated on 30 June 2014, regulating compensation, assistance and resettlement when the State acquires land;
- Decision No. 1956/2009/QD-TTg, dated on November 17, 2009, by the Prime Minister approving the Master Plan on vocational training for rural labors by 2020;
- Decision No. 52/2012/QD-TTg, dated on November 16, 2012, on the assistance policies on employment and vocational training to farmers whose agricultural land has been recovered by the State;
- Others.

Other laws, decrees and regulations relevant to land management, land acquisition and resettlement include the Construction Law 50/2014/QH13, dated on 18 Jun 2014, on construction activities, rights and obligations of organization and individual investing in civil works construction and construction activities; Decree 102/2014 / ND-CP on sanctioning of administrative violations in the field of land replaced by Decree No. 15/2013 / ND-CP dated on February, 06, 2013 on quality management of constructions;, Decree No. 12/2009/NĐ-CP of the Government, dated 12 February 2009 on the management of construction investment projects and replacing the Decree 16/2005/ND-CP, the Decree 38/2013/ND-CP of the Government on the management and use of Official Development Assistance (ODA) fund, and Decree 126/2014/ND-CP of the Government on marriage and family Law implementation, stipulating that all documents registering family assets and land use rights must be in the names of both husband and wife; Decisions of project provinces relating to compensation, assistance and resettlement in provincial territory will be also applied for each relevant project province.

Laws, decrees and decisions relevant to public disclosure of information at the Article 67 Land Law No. 45/2013/QH13, require disclosure of information to affected people prior to acquisition of agricultural and non-agricultural lands within minimum 90 and 180 days respectively.

Decrees relevant to protection and preservation of cultural property include Decree No. 98/2010/ND-CP Detailed regulations for implementation of some articles of the Law on Cultural Heritage and the Law on editing and supplementing some articles of the Law on Cultural Heritage requiring that sites currently recognized as cultural and historical vestiges, should be kept intact according to current legal regulations.

Documents relating to complaints and resolve complaints mechanisms: complaints Law 02/2011/QH13 dated on November 11, 2011, Decree No. 75/2012/ND-CP of the Government dated on March 10, 2012: Specific provisions a number of articles of the Law on Complaints

3.2.2. The World Bank's Operation Policy on Involuntary Resettlement (OP 4.12)

The World Bank recognizes that involuntary resettlement may cause severe long-term hardship, impoverishment, and environmental damage unless appropriate measures are carefully planned

and carried out. The Bank's Resettlement Policy OP 4.12, includes safeguards to address and mitigate the economic, social, and environmental risks arising from involuntary resettlement. The WB's involuntary resettlement policy objectives are the following:

(i) Involuntary resettlement should be avoided where feasible, or minimized after exploring all viable alternatives in project design;
(ii) Where resettlement cannot be avoided, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the people affected by the Project to share in benefits. Affected Persons should be meaningful consulted and should have opportunities to participate in planning and implementing resettlement programs.

Affected Persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-project levels or to levels prevailing prior to the beginning of project implementation, whichever is higher

3.2.3. Principles and policies for resettlement, compensation and rehabilitation

To adequately address compensation, resettlement and rehabilitation of the people to be affected resulting from acquisition of land, houses and other assets under "Dam Rehabilitation and Safety Improvement Project" which is financed by the World Bank, The Resettlement Policy Framework (RPF) is prepared based on the harmonization of the World Bank's policy OP/BP 4.12 and the Vietnam's Laws and Decrees on compensation, assistance and resettlement, with reference to the of the proposal of project, environmental and social impact assessment and the consultation with stakeholders of the project and the Government of Vietnam (GOV) has to approve before implementation. The RPF will be applied to all the sub-projects under the "Dam Rehabilitation and Safety Improvement Project" that required land acquisition, compensation, and resettlement as defined.

All projects affected people (PAP) who have assets within or reside within the area of project land-take before the cut-off date are entitled to compensation for their losses. Those who have lost their income and/or subsistence will be eligible for livelihood rehabilitation assistance based on the criteria of eligibility defined by the project in consultation with the PAPs. If, by the end of the project, livelihoods have been shown not to be restored to pre-project levels, additional measures will be provided.

- The compensation rates will be determined based on the results of independent appraisal of the land/crops/assets (associated with the land) in a timely and consultative manner. All fees and taxes on land and/or house transfers will be waived or otherwise included in a compensation package for land and structures/or houses or businesses. The local authorities will ensure that PAP choosing relocation on their own, obtain, without additional costs, the necessary property titles and official certificates commensurate with similar packages provided to those who choose to move to the project resettlement sites.

- Land will be compensated "land for land", or in cash, according to PAP's choice whenever possible. The choice of land for land must be offered to those loosing 20% or more of their productive land. If land is not available, Project Management Unit (PMU) must assure itself, that this is indeed the case. Those loosing 20% or more of their land will have to be assisted to restore their livelihood. The same principles apply for the poor and vulnerable people losing 10% or more of their productive landholding.

- PAPs who prefer "land for land" will be provided with land plots with the equivalent productive capacity for lost lands or a combination of land (a standard land plot) in a new residential area nearby for residential land, and cash adjustment for difference between their lost land and the land plots provided. The resettlement area will be planned properly and implemented in consultation with the PAPs. All basic infrastructures, such as paved roads, sidewalks, drainage, water supply, and electricity and telephone lines, will be provided.

- PAPs who prefer "cash for land" will be compensated in cash at the full replacement cost. These PAPs will be assisted in rehabilitating their livelihoods and making their own arrangements for relocation.

- Compensation for all residential, commercial, or other structures will be offered at the replacement cost, without any depreciation of the structure and without deduction for salvageable materials. Structures shall be evaluated individually. Any rates set by category of structure must use the highest value structure in that group (not the lowest).

- Households whose income generation activities, or livelihoods are affected as a result of water cut during dam/reservoir rehabilitation (temporary impact) will be compensated for at replacement costs principle.

- As for the displaced households affected with shelter (displaced from existing residential land because the remaining land area is not feasible for building house or entire land acquisition), the local resettlement board needs to conduct consultations and makes agreed solutions to assist for new shelter for affected households.

- The displaced households affected with shelter that capable of building house on the remaining land (not subject to displacement) will be applied general policies of the project in accordance with the agreed entitlement matrix.

- The PAPs will be provided with full assistance (including a transportation allowance) for transportation of personal belongings and assets, in addition to the compensation at replacement cost of their houses, lands and other properties.

- Compensation and rehabilitation assistance must be provided to each PAP at least 30 days prior to the taking of the assets for those who are not to be relocated and 60 days for those who will have to be relocated. Exceptions should be made in the case of vulnerable groups who may need more time.

- If, by the end of the project, livelihoods have been shown not to be restored to pre-project levels, additional measures will be provided.

- Additional efforts, such as economic rehabilitation assistance, training and other forms of assistance, should be provided to PAPs losing income sources, especially to vulnerable groups, in order to enhance their future prospects toward livelihood restoration and improvement.

3.2.4 Preparation and Approval procedures for a Resettlement Action Plan (RAP)

General principles

The RAPs for the subprojects will be prepared based on the guidance given in RPF under project and the Investment report of each local/sub-project. In the period of project implementation, the updated RAP of each sub-project will be prepared when the detailed engineering design has been finished to allow Detail Measurement Survey of losses and damages and precise identification of affected persons to be conducted. This updated RAP requires clearance from PPC review before payment release.

Where impacts on the entire affected population are minor[2], or fewer than 200 people are affected, an abbreviated resettlement plan will be applied. Where impacts on the entire affected population are significant[3], or equal to or higher than 200 people are affected, a full resettlement plan will be applied.

Abbreviated RAPs will include at least the following elements: (i) A description of the project and the socio-economic conditions of the community and households affected in the sub-project area; (ii) legal framework, resettlement policy and the rights of the affected people; (iii) the results of the census and inventory of affected people (BLS); (iv) impacts caused by land acquisition (especially on livelihoods and income); (v) results of consultations, (vi) entitlements and assistance to be provided for AHs/APs; (vii) arrangements for organization and implementation; (viii) arrangements for management of grievances; (ix) budgets and cost estimates; and (x) an implementation timetable.

Full RAP will include: (i) Introduction; (ii) Results of socio-economic survey of people affected; (iii) The scope and the impacts of land acquisition; (iv) Legal framework; (v) RAP Implementation and timetable; (vi) Entitlements and measures to restore their livelihoods and income; (vii) Information dissemination and community consultation; (viii) Mechanism for complaints and resolving complaints; (ix) Organization and implementation; (x) Cost estimates and budgets; and (xi) Monitoring and evaluation.

[2] Minor impact: as defined under the OP 4.12, where the affected people are not physically affected and less than 10% (for this project: 20% applied for non-vulnerable groups, and 10% for vulnerable groups and poor affected households) of their productive assets are lost or fewer than 200 people are affected,

[3] Significant impact: as defined under the OP 4.12, where the investment may result in displacement of equal to or higher than 200 people are affected or more than 10% (for this project: ≥20% applied for non-vulnerable groups, and ≥10% for vulnerable groups and poor affected households) of their productive assets are lost.

Eligibility Criteria and Entitlements

(i). Project affected people

People directly affected by a project through the loss of land, residences, other structures, business, assets, or access to resources, specifically are:

- Persons whose agricultural land will be affected (permanently or temporarily) by the Project;
- Persons whose residential land/houses will be affected (permanently or temporarily) by the Project;
- Persons whose leased-houses will be affected (permanently or temporarily) by the Project;
- Persons whose businesses, farming activities, occupations. or places of work will be affected (permanently or temporarily) by the Project;
- Persons whose crops (annual and perennial)/ trees will be affected in part or in total by the Project;
- Persons whose other assets or access to those assets, will be affected in part or in total by the Project; and
- Persons whose livelihoods will be impacted (permanently or temporarily) due to restriction of access to protected areas by the Project.
- Persons whose will be impacted due to stopping irrigation water supply when construction

(ii). Identification of vulnerable groups or Households (HHs)

The initial rapid socioeconomic surveys, the vulnerable groups will generally include the following:

- Poor and near poor households as identified by MOLISA and according to local regulations
- Poor landholders that have limited productive land (this will be determined by the minimum amount of farm land needed to be a viable farmer in the project area)
- Ethnic minority Households
- Mentally and physically handicapped people or people in poor physical health; infants, children and women without assistance;

- Poorest women-headed households or women-headed households with no other support

- Other PAP identified by the project management unit and who may not be protected through national land compensation or land titling; or

- Any additional groups identified by the socio economic surveys and by meaningful public consultation.

(iii). Eligibility

The eligibility for entitlement to compensation is determined by asset ownership criteria:

- Those who have formal legal rights to land (including customary and traditional rights recognized under the laws of the country. In the consideration, it is also useful to document how long they have been using the land or the assets associated with it)

- Those who do not have formal legal rights to land at the time the census begins but have a claim to such land or assets provided that such claims are recognized under the laws of the country or become recognized through a process identified in the resettlement action plan

- Those who have no recognizable legal right or claim to the land they are occupying.

Persons covered under (i) and (ii) are provided compensation for the land they lose, and other assistance. Persons covered under (iii) are provided resettlement assistance in lieu of compensation for the land they occupy, and other assistance, as necessary, to achieve the objectives set out in this policy, if they occupy the project area prior to a cut-off date established by the GoV and acceptable to the Bank. Persons who encroach on the area after the cut-off date are not entitled to compensation or any other form of resettlement assistance. All persons included in (i), (ii), or (iii) are provided compensation for loss of owned or used assets other than land.

(iv). Entitlements

With respect to a particular eligibility category, entitlements are the sum of compensations and other forms of assistance provided to project affected persons. Please refer the Entitlement Matrix of project.

(v) Preparation of RAP

Where a RAP is required during project implementation, it will be prepared by PMU in compliance with the requirements of this RPF, and in consultation with PPC and relevant departments, District PC(s). The following section presents typical elements that would be required for a RAP, and steps in RAP preparation.

(vi)Elements of RAP

Depending on the scope of land acquisition impact, a full RAP or an abbreviated RAP could be prepared.

A full RAP is required when the project social assessment identifies significant resettlement effects. It must be prepared before the appraisal of the subproject. A full RAP should contain the following elements:

- Description of the Project
- Project potential resettlement impacts
- Objectives
- Socio-economic studies
- Legal framework
- Eligibility for compensation and rehabilitation
- Valuation of assets and compensation for losses
- Resettlement measure site selection, site preparation and relocation
- Housing, infrastructure and social services
- Organizational responsibilities
- Public participation, consultation and grievance resolution mechanisms
- Implementation schedule for resettlement activities
- Cost estimates and budget, and
- Monitoring and Evaluation.

Where impacts on the entire affected population are minor (if the affected people are not physically displaced and less than 10 percent of their productive assets are lost), or fewer than 200 people are affected, an abbreviated RAP may be prepared.

As a minimum, an abbreviated RAP should cover the following:

- A census survey of APs and affected assets;
- A description of compensation and other resettlement assistance to be provided;
- Consultations with affected people about alternatives;
- Institutional responsibility for implementation, and
- A timetable and budget.

Please contact the Social Consultant of the project for further guidance on preparation of site-specific RAP when required.

RAP Preparation

The preparation of RAP involves community participation, and a multi-dimensional analysis, including a social assessment. In the planning stage of the project, the following steps may be followed:

Step 1. Based on the preliminary project design for the subproject, preliminary assessment will be made on the magnitude of social impact to determine the scope of social assessment of the project (magnitude of land acquisition, or resettlement).

Step 2. On the basis of the known social impact, make recommendations to project design, if needed, to avoid, minimize, or mitigate the subproject impact.

Step 3. If Step 2 is not necessary, conduct a census survey to understand clearly the magnitude of impact at household level. This may involve collection of socioeconomic data on the affected households against the magnitude of land acquisition impact. The following types of data should be collected as part of the socioeconomic survey:

(i) Data about APs, total number of APs:

- Demographic, education, income, and occupational profiles;
- Inventory of all property and assets affected;
- Socioeconomic production systems and use of natural resources;
- Inventory of common property resources if any;
- Economic activities of all affected people, including vulnerable groups;
- Social networks and social organization;
- Cultural systems and sites;
- Public utilities such as clinics, post offices, water supply, power supply, markets, etc.

(ii) Data on land and the area:

- Map of the area and villages affected by land acquisition;
- Total land area acquired for the Project;
- Land type and land use;
- Ownership, tenure, and land use patterns;
- Land acquisition procedures and compensation;
- Existing civic facilities and infrastructures.

Step 4. In parallel with the AP census survey, consultation with APs will continue to identify their preferences and the special needs that should be addressed in the RAP. In addition, study on replacement costs for land, crops, and other assets needs to be conducted so that the cost estimates for the RAP can be provided.

Step 5. Prepare a RAP. The Entitlement Matrix in this framework (Table 5) should be used for the project.

Step 6. Once the draft RAP is acceptable to the Bank, disclose the RAP at public meetings for the project to consult with potentially affected households, and the general public.

RAP Approval Procedure

A RAP prepared for the project must be in accordance with this RPF. Once the RAP document is finalized, it should be sent to the World Bank for review and No Objection. After that, PPC will be responsible for approval of the RAP and all resettlement-related issues, to enable RAP implementation. The WB shall not approve any civil works contracts for any project's sections to be financed from the loan unless the compensation payment and provision of rehabilitation measures in the respective sections have been satisfactorily completed, in accordance with the project's RPF.

Implementation of RAP

The detail resettlement implementation plan of each sub-project will be shown in the RAP reports. This plan will provide a timetable based on the construction schedule.

Procedures of compensation and resettlement implementation must comply with regulations and procedures stipulated in Decree 47/2014/ND-CP of the Government and regulations in the RPF. Specific steps and procedures are as follows:

a) Basing on detailed technical design of works, the design consultants and PMUs hand over benchmarks of site clearance to DRCs to determine AHs and carry out DMS of affected assets.
b) Holding meetings with AHs to disseminate information and compensation policies, including the project objectives and benefits, positive and negative impacts of the project, mitigation measures, methods used to evaluate prices of affected assets, amounts for compensation, allowances and restoration, and grievance redress mechanism.
c) The BLS undertakes surveys of affected HHs and inventories their affected assets to collect information on APs, identifying quantities of affected assets, entitlements to compensation and resettlement, restoration allowances for APs. Consulting APs about mitigation measures for the project impacts and assistance measures for livelihood restoration.
d) Conduct a social economic survey for full RAPs and limited surveys to assess impacts for Abbreviated RAPs.
e) Carrying out replacement cost survey;
f) Preparing compensation plans, announcing compensation plans in public to obtain APs' comments, finalizing compensation plans and submitting to DPCs for approval.
g) Paying compensation and restoration allowances
h) Implementing resettlement (if any), with delivery of compensation before handing over sites for construction
i) Internal and external monitoring activities will be implemented during the whole process of compensation and resettlement implementation to ensure that the implementation of compensation and resettlement complies with the RPF.

Co-operation between resettlement implementation and civil works. To sub-projects where land acquisition is applied, implementation of compensation and resettlement needs to be in line with construction schedules of each sub-project component. Therefore, an implementation time frame for compensation and resettlement integrated with construction schedules should be established and monitored closely to ensure that all APs are provided with compensation satisfactorily

before any construction activities commences. Compensation payment and resettlement for APs must be completed as one condition for land acquisition and prior to construction commencement. The WB will not approve any civil works contracts when compensation payment for APs has not been made satisfactorily.

If land acquisition for sub-projects causes relocation of AHs, consultation needs to be made with affected people about various relocation options, such as receiving cash and self-relocation or relocation at resettlement sites. In the former case, Resettlement Committees and local authorities need to assist the affected people in finding new living places. In the later case, DPCs need to develop resettlement sites with full development conditions for APs. Relocation of APs to resettlement sites is only carried out after infrastructure of resettlement sites is completely constructed and ensures proper living conditions.

To implement resettlement activities in line with construction schedules and ensure that no APs have to relocate before compensation payment and commencement of construction activities, the CPO and the PMUs need to develop a project implementation plan, including specific milestones:

a) Dates of civil works commencement and completion,
b) Tables of time indicating hand-over of completed resettlement sites to APs (handing over dates must be at least one month before construction commencement),
c) Dates of handing over land to the project by the APs (so that the APs can prepare plans on dismantling their houses and handing over land at the required time to receive bonus for timely relocation).

The payment of compensation, assistance and resettlement to the affected HHs (in cash or land for land) must be completed before awarding contract of construction.

Information Disclosure

As per Bank's requirement, the RAP will be disclosed in Vietnamese at local level, particularly at the office of PMU, District PCs, Ward/Commune PCs and the World Bank's Vietnam Development Information Center (VDIC) in Hanoi before and after it is approved. The English version of RAP will be also disclosed at the World Bank Info Shop in Washington D.C. prior to implementation.

Replacement Costs Survey

As required by the World Bank's OP 4.12 on Involuntary Resettlement, Replacement Costs Survey (RCS) will need to be done to establish basis for calculation of replacements costs for all the lands/crops/structures/assets that will be affected by the Project. An independent price appraisal consultant is specialized in assessing costs of land/crops/assets/structures to be affected under the Project, will be engaged by PMU to conduct replacement costs survey.

District People's Committee and DRC will ensure compensation payment proposed to affected households is at the replacement costs (for land and structures), and at market prices (for

crops/trees). Replacement costs survey will be conducted in the participatory manner with relevant stakeholders.

3.3. Indigenous/Ethnic minority people

(This part has a separated document. Referencing to document of Ethnic Minority Development Framework for further information)

3.3.1. Objective of EMPF

Bank's OP 4.10 requires that when the project involves the preparation and implementation of annual investment programs or multiple subprojects, but the presence of EM in the subproject area could not be determined until the programs/subprojects are identified during project implementation; the project owner has to prepare an EMPF. This EMPF provides guidance on how an EMDP for a program/subproject should be prepared. It helps, on the basis of consultation with affected EM in the subproject areas, ensure:

(a) affected EM peoples receive culturally appropriate social and economic benefits;
(b) when there are potential adverse effects on EM, the impact are identified, avoided, minimized, mitigated, or compensated for.

This EMPF is prepared and approve by MARD in accordance with Bank's OP 4.10. It was developed on the basis of a) social assessment report (conducted during project preparation), b) consultation exercises conducted by MARD with the various project stakeholders, and ethnic minorities residing in the project area.

This EMPF will be applied to all subprojects/investments identified during project implementation of DRaSIP/WB8 project.

3.3.2. Legal and policy framework

This section provides a framework for ensuring that the affected ethnic minorities (equivalent to the indigenous peoples as defined in OP 4.10) has equal opportunity to share the project benefits, that free, prior and informed consultation will be conducted to ensure their broad-based community access and support to the project are obtained, and that any potential negative impacts are properly mitigated and the framework will be applied to all the subprojects. It provide guidance on how to conduct preliminary screening of ethnic minorities, social assessments, and identification of mitigation measures given due consideration to consultation, grievance redress, gender-sensitivities, and monitoring

In terms of consultation and participation of ethnic minorities, when the subprojects affects EM, the affected EM peoples have to be consulted in a free, prior, and informed manner, to assure:

(a) EM and the community they belong to are consulted at each stage of subproject preparation and implementation;

(b) Socially and culturally appropriate consultation methods will be used when consulting EM communities. During the consultation, special attention will be given to the concerns of EM women, youth, and children and their access to development opportunities and benefits; and

(c) Affected EM and their communities are provided, in a culturally appropriate manner at each stage of subproject preparation and implementation, with all relevant project information (including information on potential adverse effects that the project may have on them.

In necessary, a local person (of the same EM group) will invited to join the consultation just in case local EM language is required to promote the free exchange of information between the EM peoples, and the consultant team.

Legal documents relating to ethnic minority

- Joint Circular No. 05/2013-TTLT-CEM-ARD-MPI-TC-XD dated on November 18, 2013 guideline of program 135 on support infrastructure investment, production development for extremely difficult communes, border communes, particularly difficult villages
- Decision No. 54/2012-QD-TTg of the Prime Minister dated on December 04, 2012 on promulgation of lending policy for development for particularly difficult ethnic minorities in period 2012-2015
- Decree No. 84/2012 / ND-CP of the Government dated on December 10, 2012 on functions, tasks, powers and organizational structure of the Committee for Ethnic Minorities.
- Joint Circular No. 01/2012 / TTLT-BTP-CEM date on January 17, 1012 of the Ministry of Justice and the Committee for Ethnic Minorities on guideline and legal assistance for ethnic minorities.
- Decree No.82/2010/ND-CP of government, dated 20 July 2010 on teaching and learning of ethnic minority languages in schools.
- Decision No 102/2009 / QD-TTg dated on August 07, 2009 of the Prime Minister on directly policy assistance for the poor in difficult area.
- Resolution No.30a/2008/NQ-CP of government, dated 27 Dec. 2008 on support program for rapid and sustainable poverty reduction for 61 poorest districts.
- Circular No.06 dated 20-September-2007 of the Committee for Ethnic Minorities Affair guidance on the assistance for services, improved livelihood of people, technical assistance for improving the knowledge on the laws according the decision 112/2007/QD-TTg
- Decision No. 05/2007/QD-UBDT dated 06-September-2007 of the Committee for Ethnic Minorities Affair on its acceptance for three regions of ethnic minorities and mountainous areas based on development status
- Decision No.01/2007/QD-UBDT dated 31-May-2007 of the Committee for Ethnic Minorities Affair on the recognition of communes, districts in the mountainous areas.
- Decision No.06/2007/QD-UBDT dated 12-January-2007 of the Committee for Ethnic Minorities Affair on the strategy of media for the program 135-phase 2

3.3.3. World Bank's Operational Policy on Indigenous Peoples (OP 4.10)

The OP 4.10 aims at avoid potentially adverse effects on indigenous people and increase activities to bring about projects benefits taking into account their cultural demands and needs. The Bank requires indigenous peoples, (here refer as Ethnic Minorities), to be fully informed and able to freely participate in projects. The project has to be widely supported by the affected EMs. Besides, the project is designed to ensure that the EMs are not affected by adverse impacts of the development process, mitigation measure to be defined if required and that the EM peoples to receive socio-economic benefits that should be culturally appropriate to them.

The Policy defines that EM can be identified in particular geographical areas by the presence in varying degrees of the following characteristics:

a) Self-identification as members of a distinct indigenous cultural group and recognition of this identity by others;
b) Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories;
c) Customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture; and
d) Speak an indigenous language, often different from the official language of the country or region.

As a prerequisite for an investment project approval, OP 4.10 requires the borrower to conduct free, prior and informed consultations with potentially affected EM peoples and to establish a pattern of broad community support for the project and its objectives. It is important to note that the OP 4.10 refers to social groups and communities, and not to individuals. The primary objectives of OP 4.10 are:

- ❖ to ensure that such groups are afforded meaningful opportunities to participate in planning project activities that affects them;
- ❖ to ensure that opportunities to provide such groups with culturally appropriate benefits are considered; and
- ❖ to ensure that any project impacts that adversely affect them are avoided or otherwise minimized and mitigated.

In the context of the sub -project, the EM groups (equivalent to indigenous peoples) in the sub-project area are likely to receive long term benefits through the dam rehabilitation and safety improvement, but they may be negatively affected by land acquisition and/or relocation. Specific policy and action plan to mitigate the potential impacts due to land acquisition and relocation will be addressed through the preparation of the Resettlement Action Plan (RAP) of the sub -project.

3.3.4. Preparation of EMDP

The EMDP should be developed on the basis of consultation with ethnic minorities in the project area. Consultation is important to EMDP preparation since it provides ethnic minority groups (both potentially affected and not affected by subprojects) with opportunities to participate in planning and implementation of subprojects. More importantly, it helps identify potential

adverse impact, if any, as a result of subproject, on EM's income generation activities and their livelihoods, thereby enabling devising of appropriate measures as to how adverse impacts could be avoided, minimized, and mitigated. Consultation also aims to ensure EM people have opportunities to articulate, on the basis of their understanding of subprojects/project goal, their needs for support from the project in relation to the project goal/project activities.

Elements for an EMDP

Executive Summary

> This section describes briefly the *critical facts, significant findings* from the social assessment, and *recommended actions to manage adverse impact (if any)* and *proposed development intervention activities* on the basis on the social assessment results.

I. Description of the Project

This section provides a general description of the *project goal*, *project component*s, *potential adverse impact (if any) at the project and subproject levels.* Make clear the identified adverse impact at two levels – project and subproject.

II. Legal and institutional framework applicable to EM peoples

III. Description of the sub-project population

- Baseline information on the demographic, social, cultural, and political characteristics of the potentially affected EM population, or EM's communities.
- Production, livelihood systems, tenure systems that EM may rely on, including natural resources on which they depend (including common property resources, if any).
- Types of income generation activities, including income sources, disaggregated by their household member, work season;
- Annual natural hazards that may affect their livelihood and income earning capacity;
- Community relationship (social capital, kinship, social network…)

IV. Social Impact Assessment

This section describes:

- ***Methods of consultation*** already used to ensure free, prior and informed consultation with affected EM population in the sub-project area.
- ***Summary of results of free, prior and informed consultation*** with affected EM population. Results includes two areas:
  - *Potential impact of subprojects* (positive and adverse) on their livelihoods of EM in the project area (both directly and indirectly);
  - *Action plan of measures* to avoid, minimize, mitigate, or compensate for these adverse effects.

- *Preferences of EM for support* (from the project) in development activities intended for them (explored through needs assessment exercise conducted during the social assessment)
- *An action plan of measures* to ensure EM in the subproject area receive social and economic benefits culturally appropriate to them, including, where necessary, measures to enhance the capacity of the local project implementing agencies.

V. Information Disclosure, Consultation and Participation:

This section will:

a) describe information disclosure, consultation and participation process with the affected EM peoples that was carried out during project preparation in free, prior, and informed consultation with them;
b) summarizes their comments on the results of the social impact assessment and identifies concerns raised during consultation and how these have been addressed in project design;
c) in the case of project activities requiring broad-based community access and support, document the process and outcome of consultations with affected EM communities and any agreement resulting from such consultations for the project activities and safeguard measures addressing the impacts of such activities;
d) describe consultation and participation mechanisms to be used during implementation to ensure Ethnic minority peoples participation during implementation; and
e) confirm disclosure of the draft and final EMDP to the affected EM communities.

VI. Capacity Building: This section provides measures to strengthen the social, legal, and technical capabilities of (a) local government in addressing EM peoples issues in the project area; and (b) ethnic minority organizations in the project area to enable them to represent affected Ethnic minority peoples more effectively.

VII. Grievance Redress Mechanism: This section describes the procedures to redress grievances by affected Ethnic minority peoples. It also explains how the procedures are accessible on a participatory manner to Ethnic minority peoples and culturally appropriate and gender sensitive.

VIII. Institutional Arrangement: This section describes institutional arrangement responsibilities and mechanisms for carrying out the various measures of the EMDP. It also describes the process of including relevant local organizations and NGOs in carrying out the measures of the EMDP.

IX. Monitoring & Evaluation: This section describes the mechanisms and benchmarks appropriate to the project for monitoring, and evaluating the implementation of the EMDP. It also specifies arrangements for free, prior and informed consultation and participation of affected Ethnic minority peoples in the preparation and validation of monitoring, and evaluation reports.

X. Budget and Financing: This section provides an itemized budget for all activities described in the EMDP.

3.3.5. Implementation Arrangements

The Ministry of Agriculture and Rural Development (MARD), on behalf of the Government, is the project owner, has overall responsibility for the whole project. The provincial governmental authorities of the project provinces are the Employers of the sub-projects, has responsibility for investment decisions under sub-projects managed by the Ministry and the provinces. A Project Steering Committee (PSC) will be established, including representatives of the MARD, relevant Ministries and sectors, the provincial governmental authorities of the project provinces, to be responsible for frequent monitoring and managing the Project during its implementation process.

At the Central level: CPMU under CPO will be established to coordinate policy and strategy issues, making the entire guide and assist in the coordination. CPMU responsible for overall implementation of the EMDPs was prepared under the DRaSIP /WB8. CPMU will ensure that all PPMUs understand the purpose of EMPF and how to submit EMDPs for each subprojects. The CPMU is responsible for providing technical support to PPMU in preparing EMDPs for relevant subprojects. CPMU is responsible for ensuring effective implementation of the EMDP, including monitoring and evaluation of the results of the EMDP implementation. At the outset of the project implementation, CPMU will provide training to its social staff – at central and provincial levels, to enable them to undertake screening (of EM present in the influence area of the subprojects) to determine when an EMDP is needed, and on the basis of the screening result, conduct social impact assessment, and prepare EMDP. Where local capacity is insufficient to prepare an EMDP, qualified consultants may be mobilized to assist PPMU in development the EMDP for a subproject in accordance with the EMPF.

At provincial level: The PPMU and local governments are responsible for preparing, implementing the EMDPs. Appropriate staff and budget – sufficient to achieve the objective of an EMDP, need to be included in the EMDP for Bank's prior review and approval. In case where EM peoples are affected as a result of land acquisition, to allow construction of subprojects, compensation, assistance to EM affected will be addressed through relevant RAP which is prepared of subproject in accordance with the project's RPF.

3.4 World Bank Safeguard Policies

The objective of these policies is to prevent and mitigate undue harm to people and their environment in the development process. Safeguard policies provide a platform for the participation of stakeholders in project design, and act as an important instrument for building ownership among local populations.

The effectiveness and development impact of projects and programs supported by the Bank has substantially increased as a result of attention to these policies. The World Bank Safeguard policies are available in its website: http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTSAFEPOL/0,,menuPK:584441~pagePK:64168427~piPK:64168435~theSitePK:584435,00.html. The World Bank has ten environmental, social, and legal safeguard policies which are listed in the following:

Environmental policies:

OP/BP 4.01 Environmental Assessment
OP/BP 4.04 Natural Habitats
OP/BP 4.09 Pest Management
OP/BP 4.11 Physical Cultural Resources
OP/BP 4.36 Forests
OP/BP 4.37 Safety of Dams

Social Policies

OP/BP 4.10 Indigenous Peoples
OP/BP 4.12 Involuntary Resettlement

Legal Policies

OP/BP 7.50 International Waterways
OP/BP 7.60 Disputed Areas

Apart from these, the World Bank Group (WBG) guidelines for Environmental Health and safety are also relevant for environmental protection and monitoring. In addition to that the Policy on Access to Information of World Bank also relates to environmental safeguard. The environmental safeguard and access to information policy as well as the WBG guidelines are discussed below:

3.4.1 OP/BP 4.01 Environmental Assessment

This policy is considered to be the umbrella safeguard policy to identify, avoid, and mitigate the potential negative environmental and social impacts associated with Bank lending operations. In World Bank operations, the purpose of Environmental Assessment is to improve decision making, to ensure that project options under consideration are sound and sustainable, and that potentially affected people have been properly consulted. The borrower is responsible for carrying out the EA and the Bank advises the borrower on the Bank's EA requirements. The Bank classifies the proposed project into four categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts:

Category A: The proposed project is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works.

Category B: The proposed project's potential adverse environmental impacts on human population or environmentally important areas-including wetlands, forests, grasslands, or other natural habitats- are less adverse than those of Category A projects. These impacts are site specific; few if any of them are irreversible; and in most cases mitigation measures can be designed more readily than Category A projects.

Category C: The proposed project is likely to have minimal or no adverse environmental impacts.

Category FI: The proposed project involves investment of World Bank funds through a financial intermediary and subprojects may result in adverse environmental impacts.

3.4.2 OP/BP 4.04 Natural Habitats

The conservation of natural habitats is essential for long-term sustainable development. The Bank therefore supports the protection, maintenance, and rehabilitation of natural habitats and their functions in its economic and sector work, project financing, and policy dialogue. The Bank supports, and expects borrowers to apply, a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development. The Bank does not support projects that involve the significant conversion or degradation of critical natural habitats.

3.4.3 OP/BP 4.09 Pest Management

The aim of the pest management policy is to minimize and manage the environmental and health risks associated with pesticide use and promote and support safe, effective and environmentally sound pest management. The procurement of any pesticide in a Bank-financed project is contingent on an assessment of the nature and degree of associated risks, taking into account the proposed use and the intended user. To manage pests that affect either agriculture or public health, the Bank supports a strategy that promotes the use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides. In Bank- financed projects, the borrower addresses pest management issues in the context of the project's environmental assessment. In appraising a project that will involve pest management, the Bank assesses the capacity of the country's regulatory framework and institutions to promote and support safe, effective, and environmentally sound pest management.

3.4.4 OP/BP 4.11 Physical Cultural Resources

Physical cultural resources are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Their cultural interest may be at the local, provincial or national level, or within the international community. Physical cultural resources are important as sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices. The Bank assists countries to avoid or mitigate adverse impacts on physical cultural resources from development projects that it finances. The impacts on physical cultural resources resulting from project activities, including mitigating measures, may not contravene either the borrower's national legislation, or its obligations under relevant international environmental treaties and agreements. The borrower addresses impacts on physical cultural resources in projects proposed for Bank financing, as an integral part of the environmental assessment (EA) process.

3.4.5 OP/BP 4.36 Forests

Forest is defined as an area of land of not less than 1.0 hectare with tree crown cover (or equivalent stocking level) of more than 10 percent that have trees with the potential to reach a minimum height of 2 meters at maturity in situ. A forest may consist of either closed forest formations, where trees of various stories and undergrowth cover a high proportion of the ground, or open forest. The definition includes forests dedicated to forest production, protection, multiple uses, or conservation, whether formally recognized or not.

The definition excludes areas where other land uses not dependent on tree cover predominate, such as agriculture, grazing or settlements. In countries with low forest cover, the definition may be expanded to include areas covered by trees that fall below the 10 percent threshold for canopy density, but are considered forest under local conditions. The Bank's forests policy recognizes the importance of forests to reduce poverty in a sustainable manner integrates forests effectively in economic development, aims to reduce deforestation, promote afforestation and enhance the environmental contribution of forested areas. The Bank assists borrowers with the establishment and sustainable management of environmentally appropriate, socially beneficial, and economically viable forest plantations to help meet growing demands for forest goods and services.

3.4.6 OP/BP 4.37 Safety of Dams

The safe operation of dams has significant social, economic, and environmental relevance. When the World Bank finances new dams, the Policy Safety on Dams requires that experienced and competent professionals design and supervise construction, and that the borrower adopts and implements dam safety measures through the project cycle. The policy also applies to existing dams where they influence the performance of a project. In this case, a dam safety assessment should be carried out and necessary additional dam safety measures implemented. OP 4.37 recommends, where appropriate, that Bank staff discuss with the borrowers any measures necessary to strengthen the institutional, legislative, and regulatory frameworks for dam safety programs in those countries.

The Bank distinguishes between small and large dams:

(a) Small dams are normally less than 15 meters in height. This category includes, for example, farm ponds, local silt retention dams, and low embankment tanks; and

(b) Large dams are 15 meters or more in height. Dams that are between 10 and 15 meters in height are treated as large dams if they present special design complexities--for example, an unusually large flood-handling requirement, location in a zone of high seismicity, foundations that are complex and difficult to prepare, or retention of toxic materials. Dams under 10 meters in height are treated as large dams if they are expected to become large dams during the operation of the facility.

For small dams, generic dam safety measures designed by qualified engineers are usually adequate. For large dams, the Bank requires:

(a) Reviews by an independent panel of experts (the Panel) of the investigation, design, and construction of the dam and the start of operations

(b) Preparation and implementation of detailed plans: a plan for construction supervision and quality assurance, an instrumentation plan, an operation and maintenance plan, and an emergency preparedness plan

(c) Prequalification of bidders during procurement and bid tendering; and

(d) Periodic safety inspections of the dam after completion.

The Panel consists of three or more experts, appointed by the borrower and acceptable to the Bank, with expertise in the various technical fields relevant to the safety aspects of the particular dam. The primary purpose of the Panel is to review and advise the borrower on matters relative to dam safety and other critical aspects of the dam, its appurtenant structures, the catchments area, the area surrounding the reservoir, and downstream areas. However, the borrower normally extends the Panel's composition and terms of reference beyond dam safety to cover such areas as project formulation; technical design; construction procedures; and, for water storage dams, associated works such as power facilities, river diversion during construction, ship lifts, and fish ladders. The borrower contracts the services of the Panel and provides administrative support for the Panel's activities. Beginning as early in project preparation as possible, the borrower arranges for periodic Panel meetings and reviews, which continue through the investigation, design, construction, and initial filling and start-up phases of the dam.

The borrower informs the Bank in advance of the Panel meetings, and the Bank normally sends an observer to these meetings. After each meeting, the Panel provides the borrower a written report of its conclusions and recommendations, signed by each participating member; the borrower provides a copy of that report to the Bank. Following the filling of the reservoir and start-up of the dam, the Bank reviews the Panel's findings and recommendations. If no significant difficulties are encountered in the filling and start-up of the dam, the borrower may disband the Panel.

The Bank may finance the following types of projects that do not include a new dam but will rely on the performance of an existing dam or a dam under construction (DUC): power stations or water supply systems that draw directly from a reservoir controlled by an existing dam or a DUC; diversion dams or hydraulic structures downstream from an existing dam or a DUC, where failure of the upstream dam could cause extensive damage to or failure of the new Bank-funded structure; and irrigation or water supply projects that will depend on the storage and operation of an existing dam or a DUC for their supply of water and could not function if the dam failed. Projects in this category also include operations that require increases in the capacity of an existing dam, or changes in the characteristics of the impounded materials, where failure of the existing dam could cause extensive damage to or failure of the Bank-funded facilities.

If such a project, as described in the above paragraphs, involves an existing dam or DUC in the borrower's territory, the Bank requires that the borrower arrange for one or more independent dam specialists to (a) inspect and evaluate the safety status of the existing dam or DUC, its

appurtenances, and its performance history; (b) review and evaluate the owner's operation and maintenance procedures; and (c) provide a written report of findings and recommendations for any remedial work or safety-related measures necessary to upgrade the existing dam or DUC to an acceptable standard of safety. The Bank may accept previous assessments of dam safety or recommendations of improvements needed in the existing dam or DUC if the borrower provides evidence that (a) an effective dam safety program is already in operation, and (b) full-level inspections and dam safety assessments of the existing dam or DUC, which are satisfactory to the Bank, have already been conducted and documented.

Necessary additional dam safety measures or remedial work may be financed under the proposed project. When substantial remedial work is needed, the Bank requires that (a) the work be designed and supervised by competent professionals, and (b) the same reports and plans as for a new Bank-financed dam be prepared and implemented. For high-hazard cases involving significant and complex remedial work, the Bank also requires that a panel of independent experts be employed on the same basis as for a new Bank-financed dam.

3.4.7 OP/BP 4.12 Involuntary Resettlement

This policy is triggered in situations involving involuntary taking of land and involuntary restrictions of access to legally designated parks and protected areas. The policy aims to avoid involuntary resettlement to the extent feasible, or to minimize and mitigate its adverse social and economic impacts. It promotes participation of displaced people in resettlement planning and implementation, and its key economic objective is to assist displaced persons in their efforts to improve or at least restore their incomes and standards of living after displacement. The policy prescribes compensation and other resettlement measures to achieve its objectives and requires that borrowers prepare adequate resettlement planning instruments prior to Bank appraisal of proposed projects.

3.4.8 OP 4.10 Indigenous People

The term “Indigenous Peoples” is used in a generic sense to refer to a distinct, vulnerable, social and cultural group possessing the following characteristics in varying degrees:

- Self-identification as members of a distinct indigenous cultural group and recognition of this identity by others
- Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories
- Customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture; and
- An indigenous language, often different from official language of the country/ region.

The Bank provides project financing only where free, prior, and informed consultation results in broad community support to the project by the affected Indigenous Peoples. Such Bank-financed projects include measures to (a) avoid potentially adverse effects on the Indigenous Peoples’

communities; or (b) when avoidance is not feasible, minimize, mitigate, or compensate for such effects. Bank-financed projects are also designed to ensure that the Indigenous Peoples receive social and economic benefits that are culturally appropriate and gender and inter-generationally inclusive.

3.4.9 OP/BP 7.50 Projects on International Waterways

The World Bank recognizes the issues involving projects in international waterways and attaches importance to the riparian making appropriate agreements or arrangements for the entire waterway, or parts thereof. In the absence of such agreements or arrangements, the Bank requires, as a general rule, that the prospective borrower notifies the other riparian of the project. The Policy lays down detailed procedures for the notification requirement, including the role of the Bank in affecting the notification, period of reply and the procedures in case there is an objection by one of the riparian to the project.

3.4.10 OP/BP 7.60 Projects in Disputed Areas

The World Bank finances projects in disputed areas when either there is no objection from the other claimant to the disputed area, or when special circumstances of case support Bank financing, notwithstanding the objection. The policy details those special circumstances.

3.411 IFC Environmental, Health and Safety Guidelines

The Environmental, Health and Safety (EHS) Guidelines of the World Bank Group (WBG)/International Finance Corporation (IFC), 2008 is the safeguard guidelines for environment, health and safety for the development of the industrial and other projects. They contain performance levels and measures that are considered to be achievable in new facilities at reasonable costs using existing technologies. These guidelines can be accessed in the following website: http://www.ifc.org/ifcext/sustainability.nsf/Content/EHSGuidelines.

When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects are expected to achieve whichever is more stringent. If less stringent levels or measures than those provided in these EHS Guidelines are appropriate, in view of specific project circumstances, a full and detailed justification for any proposed alternatives is needed as part of the site-specific environmental assessment. This justification should demonstrate that the choice for any alternate performance levels is protective of human health and the environment. The section 4 of EHS Guidelines for "Construction and Decommissioning" provides additional, specific guidance on prevention and control of community health and safety impacts that may occur during new project development, at the end of the project life-cycle, or due to expansion or modification of existing project facilities.

3.4.12 World Bank Policy on Access to Information

In addition to the safeguard policies, the Access to Information Policy also relates to safeguards. To promote transparency and facilitate accountability, Bank Access to Information Policy supports decision making by the Borrower and Bank by allowing the public access to

information on environmental and social aspects of projects in an accessible place and understandable form and language to key stakeholders. The Bank ensures that relevant project-related environmental and social safeguard documents, including the procedures prepared for projects involving subprojects, are disclosed in a timely manner before project appraisal formally begins. The policy requires disclosure in both English and Local language and must meet the World Bank standards.

3.5 Relationship between the World Bank and Government Requirements[4]

3.5.1 Deciding on Project Category and Type of ESIA Instrument

Experience has shown that for an investment to be successful, the project must be owned by the Borrower and prepared in partnership with the World Bank. The full integration of environmental concerns in the regular operation of a proponent agency requires an understanding of both likely substantive technical issues and project processing procedures for integrating these issues. It also requires recognition that the earlier an EA is undertaken for a proposed project and findings are integrated into project design, the better the overall project result, including the environmental result. Therefore, EA is to be synchronized with the project cycle, from identification through to implementation and evaluation. During project identification stage, the World Bank undertakes environmental and social screening of each project to determine project category and the appropriate extent and type of EA. As mentioned earlier, the World Bank classifies the proposed project into one of four categories (Category A, Category B, Category C and Category FI), depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts.

The GoV EIA regulation provides a prescriptive classification of projects (Appendices I, II, and III of Decree 18/2015/NĐ-CP dated 14 February 2015 regarding regulations on strategic environmental assessment, environmental impact assessment and environmental protection commitments) to categorize projects into groups that need to prepare an SEA (Appendix I), EIA (Appendices II and III), and EPC (e.g. investment projects that fall outside the scope of Appendices I, II, and III). However, the World Bank categorizes projects into categories A, B, C, and FI projects, depending on the significance of impacts of projects. Table 3-1 compares project categorization and safeguard instrument requirements of the World Bank-financed projects and GoV projects.

It is very important at this stage that the Borrower provides the World Bank Team with sufficient available information and data on the project initial design including project locations, typologies, and major environmental and social issues. These are critical for the World Bank Team to discuss and decide on the project category, identify related safeguards policies and EA instruments, and assess safeguards capacity of the client. During this stage, internal World Bank documents have to be prepared by the World Bank Team, including the Project Concept Note (PCN), Project Information Document (PID), and Integrated Safeguards Data Sheet (ISDS), which cover not only the technical, financial and economic, but also the environmental and

[4] Vietnam In-country Guidance Note: Summary of Process for Environmental Safeguards Implementation in World Bank-Financed Project in Vietnam. February, 2015.

social issues of the project. The principal GoV project document at this stage is the Detailed Project Outline.

Table 3. 2. World Bank and Government Project categorization and safeguards instruments

Government Project Categorization and EA instruments	Bank's Project Categorization	Bank EA instruments
Appendix I: Projects for development of strategies and plans subject to SEA.	A or B	SEA, REA,
Appendix II: Projects Subject to EIA to be approved by Department of Natural Resources and Environment (DONRE) or line ministries	A or B	EIA, EMP
Appendix III: Projects subject to EIA to be approved by MONRE[5]	A or B	EIA, EMP
Small scale investment projects not included in Appendix I, II, III and subject to EPC	B or C	EMP or ECOP

The related World Bank and GoV documents to be prepared during identification are illustrated in the flow diagram (Figure 3.2) below.

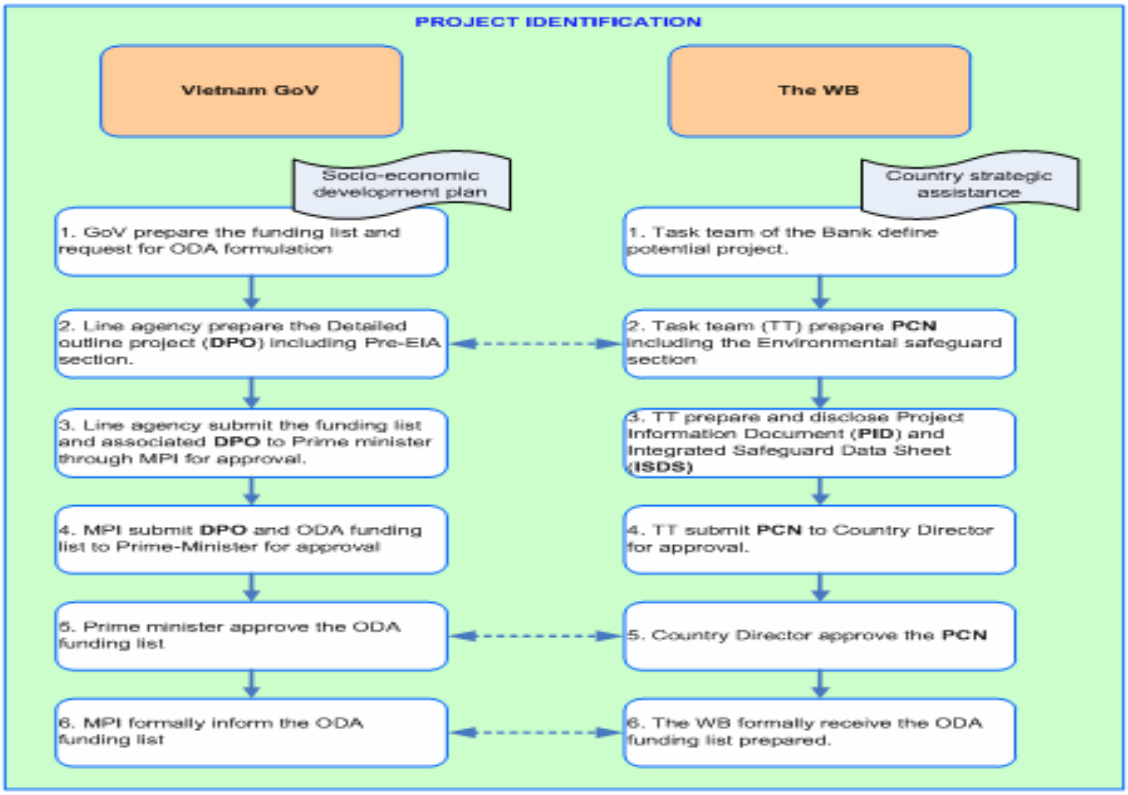


Figure 3. 2. Required documents developed during project identification stage

[5] MONRE approves EIAs of projects of national importance or projects that cover more than one province.

3.5.2 Comparison of WB and Government EA Preparation and Approval

During preparation and approval stages, two principal aspects are related to EA documentation. The GoV system normally requires Feasibility Study (FS) reports (including basic design) and separate EIA or Environmental Projection Commitment (EPC) documents (with structure and content as defined in Decree 18/2015). In addition, a required summary of the EIA report is presented in the FS report. The separate (and stand-alone) EIA or EPC is reviewed and approved by the competent agency, i.e., Ministry of Natural Resources and Environment (MoNRE), provincial Department of Natural Resources and Environment (DoNRE), or district level-agency. The environmental safeguards documents required by the GoV and the World Bank during project preparation, appraisal and approval are indicated in Figure 3.3.

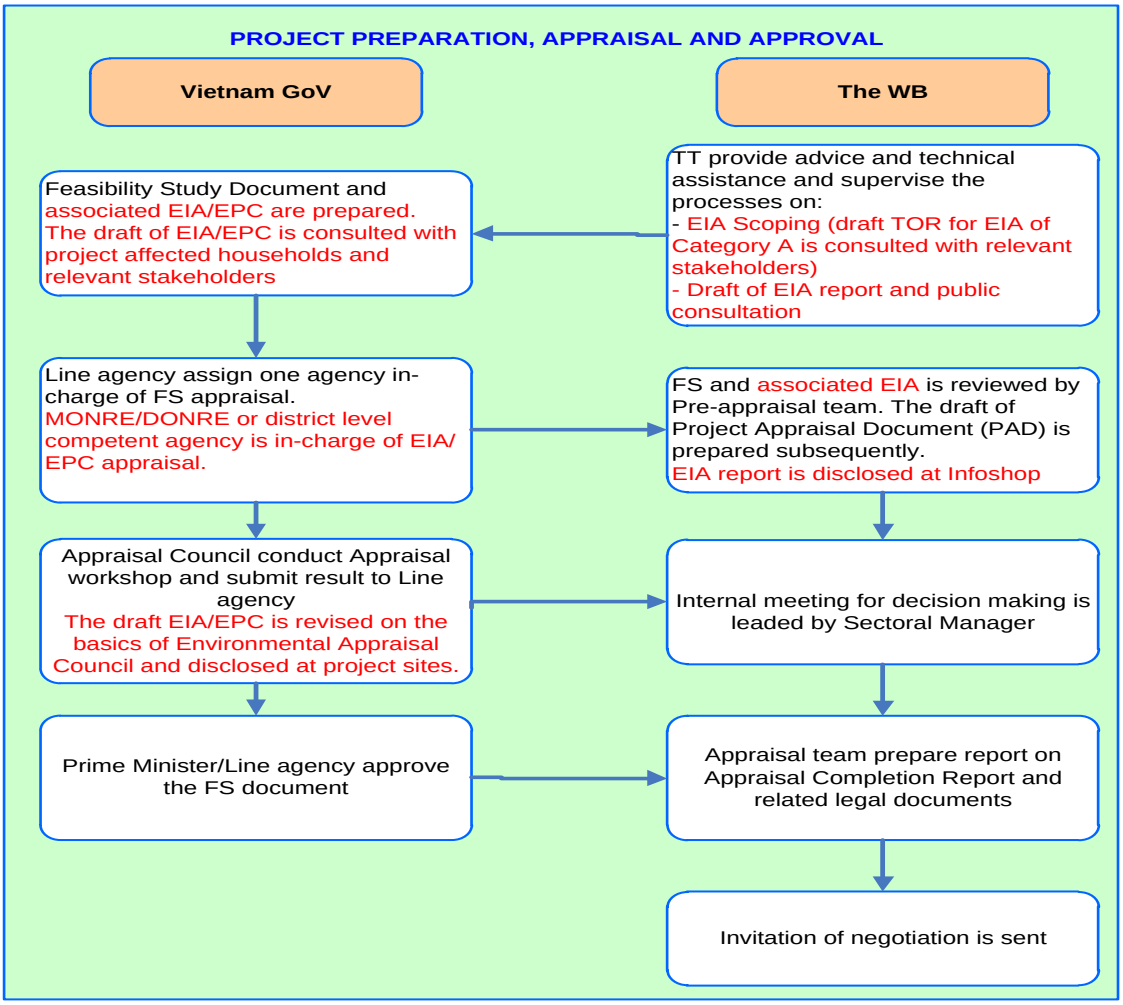


Figure 3. 3. Required documents during project preparation, appraisal and approval

3.5.3 Implementation and Completion

The Borrower is responsible for implementing the project, monitoring its progress, evaluating results on completion, and meeting the relevant contractual obligations, including environment-

related covenants, set out or referred to in the legal agreements with the World Bank. The Borrower will materialize the plan for environmental safeguards implementation in the project ESMF, EIA, and EMP, including reporting on the project environmental performance. For Category A and B projects, the Borrower will consult with project-affected groups and local NGOs during the project implementation as necessary to address EA-related issues.

The World Bank implementation support and monitoring phase starts after approval of the project and includes signing of the project's legal agreements, effectiveness, Borrower implementation and completion, and closing of the financing account. During implementation, the World Bank supervises the project's environmental aspects on the basis of the environmental provisions and the Borrower's reporting arrangements agreed in the legal documents and described in other project documentation. It monitors whether the environmental safeguards reporting instruments (ESMF, EIA, EMP, etc.) are also implemented. In addition, compliance with policies is examined, and effectiveness assessed. It also ensures that reports provided by the Borrower on project progress adequately discuss the Borrower's compliance with agreed environmental actions, particularly the implementation of environmental mitigation, monitoring, and management measures. If compliance is not satisfactory, the World Bank Task Team discusses with the Borrower actions necessary to correct the non-compliance, and follows up on the implementation of such actions.

At completion (and throughout implementation) the Borrower and the World Bank assess project outcomes and lessons learned during implementation. The effects of the environmental, social, and safeguard policy requirements are identified, any unanticipated impacts are analyzed, and lessons learned are documented.

3.5.4 Comparison of the WB and Government EA Processes6

The application of environmental assessment policies in Vietnam, as well as various efforts directed to policy harmonization between GoV and donors, has gradually narrowed the gap between the two systems. However, significant differences remain between GoV environmental safeguard policies and those of the World Bank. These differences are listed in Table 3.3 in annex:

3.6 Implications of National Policies and Regulations on the Proposed Project

The Ministry of Natural Resources and Environment (MoNRE) is responsible for developing inter-reservoir water regulation plans and operating rules in 11 river basins where there is a cascade of dams and reservoirs (Decree 21/2013/ND-CP dated March 4, 2013). The roles and responsibilities of MoNRE, MARD, and MoIT relating to the integrated management of hydropower and irrigation reservoirs are detailed in Decree No. 112. This includes provisions for inter-reservoir water regulation plans covering serious drought, water contamination, environmental incidents, or disasters. The decrees and circulars also define the roles and responsibilities of their provincial and district level organizations and other relevant entities.

[6] Vietnam In-country Guidance Note: Summary of Process for Environmental Safeguards Implementation in World Bank-Financed Project in Vietnam. February, 2015.

The operation and management of the dams, along with emergency preparedness procedures and overall dam safety measures are prescribed in Flood Prevention and Protection Plans. These are the responsibility of the Provincial People's Committees (PPC). The PPCs are responsible for guiding and monitoring operation of reservoirs and execution of safety plans of the dams during the disaster events and in the upstream catchments on behalf of the communities in accordance with the provisions of Decree No. 72. These plans are compiled and carried out in coordination with MARD, MoNRE, and MoIT, along with the Steering Committees for Natural Disaster Prevention and Control, which is led by the Minister MARD.

The operation and maintenance of medium and large-size irrigation dams is the responsibility of the provincial irrigation management companies (IMCs) with branch offices at district level. The operation and management of small dams is typically the responsibility of the local authorities acting through its Agricultural Cooperatives. Large and medium-size dams are managed by state-own corporations and have sufficient technical expertise to perform their tasks. However, management of smaller dams is the responsibility of the investors, who are often from private sector and lack the technical expertise to manage these dams. This poses a number of safety risks, especially during the flood season.

The project is directly aligned with and contributing to the twin goals of shared prosperity and alleviation of extreme poverty. The project would increase protection to communities living downstream of dams and would support the management and operation of essential hydraulic infrastructure. The project would focus on rehabilitation and safety of large dams, the failure of which have a devastating impact and are critical to supporting national food and power production.

It will also support the rehabilitation of small dams, which support local livelihoods and community resilience and are a fundamental part of hunger eradication and poverty reduction in poor rural provinces. Dams are predominantly located in rural areas, where the highest levels of poverty are typically found in Vietnam.

The project also builds on the lessons learned from a number of related World Bank projects. This includes the need for an integrated, holistic approach to dam safety and operations within the context of the river basin and to ensure the adequacy of the supporting institutional environment. These lessons are derived from the Small Hydropower Cumulative Impact Assessment that provides an analysis of environmental flows in the context of hydropower operations and a better understanding of the potential impacts associated with small hydropower plants. The Vietnam Managing Natural Hazards Project (P118783, approved in July 2012), develops hazard protection plans and early warning systems that provide a number of lessons and the foundations for the dam safety measures.

3.7 Implications of World Bank Safeguard Policies on the Proposed Project

Eight World Bank policies have been triggered for the project. These are: Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Pest Management (OP/BP 4.09), Physical Cultural Resources (OP/BP 4.11), Indigenous Peoples (OP/BP 4.10), Involuntary

Resettlement (OP/BP 4.12), Safety of Dams (OP/BP 4.37) and Projects on International Waterways (OP/BP 7.50).

According to WB Operational Policy (OP 4.01), the nature of environmental assessment to be carried out for a particular sub-project would largely depend on the category of the sub-project. As mentioned earlier, The World Bank Operational Policy (OP) 4.01 classifies projects into three major categories (category A, B and C), depending on the type, location, sensitivity and scale of the project, and nature and magnitude of potential impacts. Considering the environmental risk and complexity related to a large number of subprojects to be implemented in a widespread area, the project has been classified as category 'A'. However, the subprojects to be funded under the projects can be categorized as 'A' or 'B' depending on the extent, scope and impact of the specific subproject.

The project physical activities would only work on existing dams and are not expected to lead to conversion or degradation of critical or semi-critical natural habitats. However, it is required to scope, screen and assess potential impacts to natural habitants as part of the subproject ESIA. The project will not finance any procurement of fertilizers and pesticides. However, since the dam rehabilitation work will increase the agriculture command areas, there are chances of more uses of fertilizers and pesticides in the project influence areas. The project will promote the application of Integrated Pest Management (IPM) and guidance will be included in ESMF.

Since the exact subproject locations are unknown at this stage, there is possibility that some rehabilitation work and access road may pass through areas with physical cultural resources. The impacts will be examined as part of the environmental screening/assessment of different subprojects. In addition, 'Chance find' procedures conforming to local legislation on heritage would be evaluated so that any physical or cultural resources are not impacted.

The project may intervene in areas where indigenous people live (specific subproject locations will be determined during implementation). In addition, the project may require land acquisition and resettlement. As such, an Ethnic Minority Policy Framework (EMPF) and Resettlement Policy Framework (RPF) are required for the project and will be prepared separately.

The project will not finance construction of any new dams or significant change in dam structure. This policy is triggered as the project will finance rehabilitation and improvement of existing dams including large dams (15 meters or more in height). Thus, it requires to arrange for one or more independent dam specialists to (a) inspect and evaluate the safety status of the existing dam, its appurtenances, and its performance history; (b) review and evaluate the owner's procedures for operations and maintenance; and (c) provide written report of findings and recommendations for any remedial work or safety-related measures necessary to upgrade the existing dam to an acceptable standard of safety. Policy and practice relating to dam safety needs to meet international benchmarks, such as those are laid out by ICOLD and the World Bank regulatory frameworks for dam safety. These measures are designed into the project, which includes the establishment of a national dam safety review panel (DSRP). Also the project will establish an independent Panel of dam safety Experts (PoE) who will carry out independent review of dam safety reports and proposed mitigation measures. This PoE will be working

closely with the to-be-established DSRP to ensure the technical integrity of investment interventions. Each subproject will have separate Dam Safety Plan (DSP) in addition to the EMP.

There are six transboundary river basins in the country; however Vietnam is an upstream riparian only in the Sesan-Srepok basin – a tributary of the Mekong, upstream of Cambodia, and the Bang Giang-Ky Cung basin, upstream of China. So, it is expected that some of the dams will be located on international river basins, and therefore the policy is triggered.

The WBG guidelines provide guidance on certain EHS issues, which include standards for environmental parameters (ambient air quality, water and wastewater quality, noise level, waste management), hazard and accident prevention, occupational and community health and safety (during commissioning and decommissioning works) etc. These guidelines will be directly applicable to the proposed project. As a general rule, the WBG guidelines should complement the existing Vietnam guidelines or standards. In case the Vietnam guidelines or standards differ from the WBG guidelines, project is expected to follow the more stringent ones.

The World Bank access to information policy would be directly followed. The project will make the environmental/social assessment and ESMF documents available to the public by publishing it in their websites. In addition, Hard copies of these documents in English (including Vietnamese language) will be made available in the MARD and all DARDs.

CHAPTER IV. SUBPROJECT DESCRIPTION AND BASELINES

4.1 Subproject Description

(The standard guideline how to produce ESIA of each sub-project provides in Annex C.1 – Guidance on ESIA Preparation).

This section will guide the future subproject ESIA on how to describe the subproject and what are the keys information to be provided

Category A-equivalent subprojects requires an ESIA be prepared. This section will indicate important points of the preparation of an ESIA, it should apply participatory approach with the engagement of the project owners, feasibility study engineers, affected communities and any interested parties. Each ESIA have to well preparation methods to collect important information what should be carried out, the key contents of an ESIA will be based on three periods of:

4.1.1 Indoor activities

Primary data collection (so called input data, all data and information need to collect to describe the sub-project conditions or its background:

- Physical information: location, natural climate condition, hydrological regime, temperature, the data's trend could be collected at least 5 years recently, include:
    - Location map of all areas of the sub-project
    - Location of the specific areas of the project (indicate the influenced areas of the sub-project)
    - Hydrological regimes data
    - Temperature, rainy contribution data
    - Existing land use map, land use right
    - Biological resources and ecological system: include number of aquatic species and terrain species, list of fauna and flora species that recorded in the areas, natural habitats, threatened species or dangerous species following Vietnam Red book and IUCN, CITES, natural forest and afforestation areas, etc.
    - Feasibility study of the sub-project
    - Proposal of RAP, EMDP, DSR and DSRF, etc
    - Demographic: number of household, growth rate,

- Education condition (number of school, number of student by age, illiteracy, etc)
- Health care (numbers of medicine station or centre, medic staffs, disease in the areas, vaccination rate, social evils, etc)
- Socio-economic income and poverty household, characteristics economic conditions income of the population in the sub-project's area of influence sources and level, livelihood
- Preliminary engineering proposals on subproject intervention.
- Historical of the sub-project condition
- Gender equity and decision making, the role of women in household economic development and social activity. It should be noted the "chance finds" procedure have to apply if any archaeological significance.
- Ethnic minorities (location, number of person, community component, etc)

Desk reviews for all data and information collection as input data.

4.1.2 Field trip

Prepare a plan for field trip: site observations, additional information and data collection, environmental baseline monitoring. In preparing this plan, the information required in each section of the ESIA as described below should be noted carefully so as adequate information can be collected during field visit.

a) Investigation of main construction

This subsection should cover the major items that will be developed for use during construction but the sites used by the subproject once construction phase is completed. These may include the workers camp, material storage areas, batching plant, vehicle parking area, borrow pits, quarries spill way, disposal sites etc.

- Worker's camps: location, land area, the number of workers to be accommodated, ancillary items proposed such as kitchen, washing area, toilets etc.
- Borrow pits and quarries, and transportation route: location, distance to construction site, land area, capacity, etc.
- Disposal site and transportation route: location, distance to construction site, land area, the volume of materials to be disposed of, etc.
- Source of power supply for construction

- Water and energy supply for the workers camp

- etc.

b) Quantity of materials and resources used or generated under the subproject

This subsection should cover the items that will be remained permanently after the construction phase is completed. These should include the dam, spill way, outlet and access/management road

- The dam and reservoir:

    - The year the dam as was built, type of structure (e.g. earth), height, crest length and width; storage capacity, water surface area, depth of the reservoir etc.

    - Existing issues and problems related to the dam.

    - Proposed interventions with quantity or parameters where possible, such as lining the slopes (how many square meters, with which materials), termite treatment (the type of chemicals used, if any), build drainage system on dam slopes and toes (type, size and quantity), grass planting (area) for slope protection/stabilization etc.

    - Auxiliary dam.

- The spillway:

    - Location in relation to the main dam (s) site, structure height and width, connecting structures etc.

    - Existing operational issues.

    - Proposed intervention, such as strengthening or hardening the dam structure. Any changes in the spillway structure should be specified in this section

- The outlet works

    - Location in relation to the main dam (s) site, structure, dimensions

    - Existing operational issues

    - Proposed interventions, such as repairing, replacement of the pipes, construction and installation of new valve system etc.

- The access and management road:

- Location with starting and ending points; type, length, width and existing operational issues.

- Proposed interventions, such as repairing, upgrading, widening etc. Specify the dimensions and quantity where possible.

- The management house and other existing facilities, if any, such as administration building available at the site.

c) Ancillary Items

This subsection should cover the major items that will be developed for use during construction but the sites used by the subproject once construction phase is completed. These may include the workers camp, material storage areas, batching plant, vehicle parking area, borrow pits, quarries spill way, disposal sites etc.

- Worker's camps: location, land area, the number of workers to be accommodated, ancillary items proposed such as kitchen, washing area, toilets etc.

- Borrow pits and quarries, and transportation route: location, distance to construction site, land area, capacity, etc.

- Disposal site and transportation route: location, distance to construction site, land area, the volume of materials to be disposed of, etc.

- Source of power supply for construction

- Water and energy supply for the workers camp

- etc.

d) Public consultant

- Meetings with project owners, the feasibility study consultant, representative of benefited/affected communities and relevant stake holder, visit the site for observation

- Scoping for preliminary identification of subproject potential impacts

- Public Consultation Meeting (PCM) for sharing initial findings of potential impacts and receiving feedbacks on the proposed investments

- Detailed field survey on the preliminary identified impacts at scoping

- Assessment of potential impacts and examination of mitigation measures of the potential impacts

Descriptions on the existing conditions at subproject area are required. Below are some guidance:

Table 4. 1: Specific Existing conditions in subproject area

	Specific Item	Requirements
1	Downstream area of the spillway	- Drainage pattern - Flooding, erosion and sedimentation issues in the surrounding area in history
2	Borrow pits an quarries, if any disposal site(s)	- Land area - Drainage pattern - Flooding issues in the surrounding area in history - Existing land use at the site: agriculture, residential, public land, etc. - Existing infrastructure on the site, such as power lines, water pipes, drainage ditches, irrigation canals etc. - Trees, vegetation cover at the sites, aquatic species, specify if any of these are rare/endangered or threatened according to the Red Book - Storage /exploitable capacity - Distance to the nearest residential area - Distance to the nearest public building or public area such as classrooms, clinic, People's committee office, etc.
3	Access roads, including access roads (i) from the main road the dam site, (ii) from construction sites to borrow pits and quarries if different from access road, (iii) from construction site to disposal site, if no on the same route as the access road	- Length and width - Existing land use along the access roads: agriculture, residential, public land, etc. - Existing infrastructure along the access roads, such as power lines, water pipes, drainage ditches, irrigation canals etc. - Trees, vegetation cover along the access roads - Specify if any tree or structures that are very important to the local community that should be protected during construction phase - Sensitive locations along the access road, such as residential houses, public building, schools, clinics, office, etc.

For the borrow pits and quarries, sketches showing the boundary and existing features surrounding the sites should be presented. Photos showing the borrow pits and quarries, and existing sensitive features surround these sites should be presented.

For the access roads, map or sketch showing the road alignment and existing land use/sensitive features along the access roads, and pictures showing the sensitive features along the access roads should be presented.

Quantity of materials and resources used or generated under the subproject. Under this sub-section, the information should be presented in a tabular form recommended below

Table 4. 2: Estimated Resources Used in subproject

	Item	Unit	Type/capacity	Quantity
1	Excavation			
2	Filling			
3	Construction materials (sand, steel, crushed stone, concrete, gasoline, etc.)			
4	Construction plants (trucks, excavators, bulldozers, etc.)			
5	Etc.			

4.2 Subproject Baselines

4.2.1 Data analysis and information output

Provide information of physical environment and social - cultural, socio-economic:

- Location of the sub-project.

- All the maps type to describe the sub-project condition such as location of affected areas, resettlement zone, irrigation cover of the reservoir, land use maps, etc

- Diagrams or mappings of temperature, rainfall per year, hydrological regime, demographic, poverty rate, resident areas contribution, the trend income of households

- Map of biological resources and ecological system, natural habitats, contribution and point out the vulnerable areas.

- Result of carry out consultations on impacts assessment and the proposed mitigation measures

- Ethnic minorities (location, number of person, community component, etc)

All the information should refer to the indoor activities steps

4.2.2 The Project Construction Implementation

- Land-use Plan

The land-use plan of the project shall be described in detail, including areas for development of the wastewater treatment, office buildings, infrastructure systems (road, water and power supply, telecommunication, solid waste storage yard) greenery and water surface area, etc. The area of

each facility and ratio in total project area shall be presented. The land-use arrangement plant and map shall be included.

- Land Acquisition, Compensation, and Resettlement

Detail description of the existing land-use condition of the project area, including data of crops, facilities, number of affected households and people, relocated gravel number, etc.; estimate the compensation cost, and resettlement plan (number of resettled households, the resettlement area).

- Land Consolidation

Detail description of the excavated soil volume and dumping alternative; consolidation elevation, estimated required filling materials, material sources, transport mode (road or waterway).

- Basic Construction Activities

Detail description of the basic construction activities, including development of wastewater treatment system, material storage yards, fuel and chemical warehouses, office building; infrastructure systems (road, lighting system, water supply, drainage, wastewater treatment system and solid waste storage yard); estimation of total required construction materials volume (stone, cement, sand, brick, steel, etc.); the material supplying sources and transport mode; prepare the map of road transport system, water supply and drainage systems.

4.2.3 Request on the data of existing natural environment and socio-economic conditions

The data of the existing environment condition in the project area shall meet the following requirements:

- Reliability, accuracy and clear original source: the data could be collected from different sources, e.g. from the national/provincial observation station, scientific research works, official survey data or self-measurement and survey during the preparation of the environment impact assessment report.

- The data shall be collected, surveyed and measured in the project areas and the surrounding areas that are affected directly by the project activities.

- The data shall be preliminarily processed, encoded to analyze and evaluate easily. They should be separated to the groups, reflecting the area characteristics.

- The survey, measurement, sampling and analysis methods shall be in comply with the existing standards and regulations. In case of lacking the standards and regulations, the foreign standards will be applied provided that they are approved by the relevant environment management agencies.

- The measurement equipment and tools on the survey site and in the laboratory shall be standardized.

4.2.4 The Natural Environment and Socio-economic Indicators

The data collection, survey and observation shall be carried out properly to provide the foundation for assessment of the existing environment conditions before the project is commenced and for forecasting the environment changes when the project is implemented. The data collection shall be carried out in the project area and the project affected areas. The existing natural environment and socio-economic conditions of the project area and the surrounding areas could be identified based on the indicators described in table below.

Table 4. 3: Necessary Environment and Natural Resources Indicators in the Report on Environment Impact Assessment of the Project

No.	Environment and Natural Resources	Parameter	Survey and Observation Method
1. Natural Conditions			
1.1	Geography	Describe the name of locality, coordinates and geographical condition of the project area. The project location in the relation with the surrounding areas.	The project document or national atlas.
1.2	Topography and Terrain	Describe the topography of the project area in details (hill, mountain, plain, etc.)	The project document geography/geology condition of the project area
1.3	Hydrometeorology Condition	- Temperature - Rainfall and humidity - Wind regime - Changeable climate phenomenon - Flow volume/velocity, water level of the wastewater receiving source	Documents of the hydrometeorology stations and the site observation data
2. Socio-economic Characteristics			
2.1	Population and Employment	The people living in the project area and the people affected by the project implementation.	The statistical data of the locality and the survey and interview data
2.2	Economy	The project development in the relation with the local/provincial/ regional socio-economic development plan	The planning data of the locality.
2.3	Social Condition	- Healthcare and community health. - Water-related diseases and respiratory disease. - Education network and conditions, public awareness	The statistical data and the survey data

		raising - Employment and unemployment	
2.4	History and Culture	- Valuable historical and cultural facilities in the project area or the surrounding area which may be affected by the project implementation. - Traditional customs of the local residents which could affect to the project implementation process.	The statistical data and the survey data
3. Natural Resources			
3.1	Soil	- Total natural area and soil quality - Existing land-use condition (agriculture, forestry, specific, residential, unused and other land categories)	The statistical data and the survey data
3.2	Surface water	- Hydrological condition of the project area (river, lake and canal) - Existing water resources utilization in the project area	Collected data and supplement survey data
3.3	Ground water (and mineral water)	- Hydrological condition of the project area (aquifer, ground water reserve volume and quality). - Existing ground water extraction and use.	Collected data and supplement survey data
3.4	Biological resources	Data of plant cover and flora, fauna system on the project area, especially special species and Red-Book species	Collected data and supplement survey data
4. Infrastructure and Service			
4.1	Transport	- Characteristics of the transport routes (road and waterway) related to the project transport activities. - Traffic accidents and incidents.	Documents of the relevant agencies and the local government
4.2	Service and Trade	Existing service and trade condition and potentialities Documents of the relevant agencies and the local government	- Existing service and trade condition and potentialities - Documents of the relevant agencies and the local government
5.Existing Physical Environment Quality			

5.1	Soil quality	- Heavy metals - Pesticide	Recently QCVN and TCVN
5.2	Surface water quality	- Temperature - pH - Suspended solid - Turbidity - Dissolved oxygen (DO) - Biological oxygen demand (BOD_5) - Chemical oxygen demand (COD) - Total iron (Fe_3) - E.Coli	
5.3	Ground Water Quality	- pH - Total iron (Fe_3) - E.Coli	
5.4	Air quality	- SO_2 - NH_3 - H_2S - Total suspended particles (TSP) - Total hydrocarbon (THC)	
5.5	Noise	- L50, PM2.5, PM10 - Leq - Lmax	Noise measurement machine
5.6	Vibration	- Acceleration - Velocity - Frequency	Vibration measurement machine

4.2.3 Processing of the Data of the Natural Environment and Socio-economic Indicators

Tables below show how to collect and fill information to describe the existing local conditions on environmental and social.

- Land resource

Table 4. 4: Existing Land-use Condition of the Project Area

No.	*Land-use Purpose*	*Area (ha)*				*Remark*
		2010	2012	2014	2015	
01	Agricultural land					
02	Forestry land					
03	Residential land					
04	Others					
	Total Natural Area					

- Water quality

Table 4. 5: The Surface Water and groundwater analysis result

Sampling time: .....

No.	Indicator	Unit	Sampling location		Sampling method/equipment
			W1	W2	
1	Temperature	^0C			
2	pH	-			
3	Turbidity	NTU			
4	Suspended solid (SS)	mg/l			
5	Dissolved oxygen (DO)	mg/l			
6	BOD_5	mg/l			
7	COD	mg/l			
8	Total nitrogen	mg/l			
9	Total P	mg/l			
10	Heavy metals	mg/l			
14	E. Coli	MPN/100 m			
15	Coliform	MPN/100 m			

- Air quality

Table 4. 6: Air Quality of the Project Area

Sampling time: .....

Location	Gaseous Pollutant Concentration (mg/m^3)					
	Dust	SO_2	H_2S	NH_3	THC	Aldehyde
KK1						
KK1						
KK1						
TCVN (for comparison)						

Table 4. 7: Average Monthly Meteorological Data of Several Years in the Project Area

Observation time:.....

Station: …….

Parameter	Jan.	Feb.	…	…	Dec	Average Yearly
Wind direction						
Wind velocity (m/s)						
Temperature (^oC)						
Humidity (%)						
Pressure (PSI)						

4.2.4 Existing Socio-Economic Conditions

The socio-economic condition of the project area and neighboring areas will be affected directly by the project area. It, thus, is necessary to survey and evaluate the existing socio-economic

development condition of these areas. Appendix 1 provides the formula to conduct socio-economic survey.

4.2.5 Assessment of the Existing Natural Environment and Socio-economic Conditions of the project Area

Based on the survey and collected data of the above environment and socio-economic indicators the existing natural environment and socio-economic conditions shall be assessed based on the comparison to Vietnam and local environment standards and regulations. The details are as follows:

- *Physical environment:* soil quality, surface water quality, air quality, climate condition, noise and vibration.

- *Biological resources:* fauna, flora and regional eco-system, including aquatic and terrestrial creatures, especially wild and rare and precious species.

- *Soil resources*: existing land-use condition, land acquisition issue of the project area.

- *Cultural and historical facilities:* including religious facilities, tombs, archaeological area, cultural/historical facility, landscape and tourist area.
-
- *Socio-economic:* population, occupation, living condition, sanitation condition, community health, compensation and resettlement, etc.

4.3 Subproject Influence Area

For properly carrying out environmental assessment, it is important to have a clear understanding about the "subproject influence area". The areas of influence to be considered in impacts assessment a proposed sub-project will cover, Therefore, in the sub-projects under DRSIP project, the sub-project influence areas can be defined by: (i) the areas have several activities of repair, upgrade or construction of appurtenant structures of dam such as outlet works, spillway, embankment, auxiliary dam, auxiliary spillway, management house, access and management road, camping site, material storage areas, power hours of outlet works, machine and transport vehicle parking place, borrow pits, quarry areas, landfill areas and their surrounded areas, material transportation road and its surrounded areas, resident areas around the construction site; (ii) The area has been affected or benefited by the project, including the reservoir area (due to water drainage for construction) and the downstream areas without the limitation of administrative boundaries.

CHAPTER V. SUBPROJECT ALTERNATIVE ANALYSIS

5.1 Scope of Subproject Alternative Analysis

The primary objective of the "analysis of alternatives" is to identify the location/design/technology for a particular sub-project that would generate the least adverse impact, and maximize the positive impacts. The nature of the analysis of alternatives would be different for different sub-projects including the access road.

For the rehabilitation of dam, compare the environmental and social benefits along with the cost involvement for the following options.

(a) No sub-project scenario

(b) Physical rehabilitation of dam without any change in reservoir height and dam size; and

(c) Physical rehabilitation of dam including change in reservoir height and dam size from safety point of view.

The main purpose of the project is to help satisfy Vietnam's dam safety demands, control flood and protect resident living in downstream areas and their properties. The demand of water to irrigation and supply to domestic users will continue to increase as a result of its continued economic growth and development. Transmission and distribution losses in Vietnam are already relatively low when compared to many of their South Asian neighbors and increased spending on efficiency is expected to reduce these losses further, from a current level of 11.5% to 8.5% by 2020.

In order to help meet this demand, Vietnam is planning to increase its dam safety and rehabilitation. DRSIP is the part of a national development strategy. In Vietnam, the most probable agricultural and livestock's are depend on water supply from reservoir and water surface from natural rivers, lakes, ponds and/or ground water. This project has been shown to be less cost-effective and sustainable development and would result in significant water-safe strategies.

Among the projects evaluated the results of an analysis by consultant show that DRSIP is one of the best projects in terms of its cost of dam safety and capital cost, as well as, its potential environmental impact which includes the loss of forest and persons displaced.

In addition to these benefits, the project will also provide a significant means of flood control. The area currently has no means of flood control. Without this project the area will not have a reservoir to secure water for irrigation in dry periods or to mitigate floods, such as in the Ma River basin.

According to the statistic of Ministry of Construction (MoC), about 1,150 reservoirs have been damaged, most of them are locate in the North, Central and Highland areas of Vietnam, where

the extreme weather conditions and steep slope topography. Many of these dams have deteriorated and the safety is below accepted international safety standards, presenting a substantial risk to human safety and economic security. The deterioration of these dams, coupled with the increased risk and uncertainty resulting from hydrological variability due to rapid upstream development, has placed many reservoirs at risk. The risks are wide spreading, resulting from inadequate cross section e.g. too thin to be stable, through subsidence of the main structure, seepage through main and/or auxiliary dam and around the intake structure, deformation of up/downstream slope, spillway malfunction, and inadequate and ineffective use of safety monitoring devices.

The most of the dams primarily identified under the Government Dam Safety Program have neither operated regulation nor applicable operation regulation. Many of medium and small-size reservoirs were built in the 1960s-1980s with limited technical investigations, inadequate design, and poor quality construction. Only 179 reservoirs have got approved operating regulation. Lacking investigation data and modern techniques to monitor and control are the most problem to manage, maintain dam in good condition, safe and follows designed function operation. Some large dam have equip with simple techniques, lacking the important equipment: meteor-equipment, early warning system.

Many of reservoirs were built in the 1960s-1970s with limited budget, inappropriate design, and heterogeneous filled soil. Many incidents have occurred after their completion. The incidents, their triggering factors and the negative impacts on environments, social in the past are summarized in Table 5.1. Relevant information from the table can be used to describe the 'no subproject impact'.

Failure to secure the operational safety of the existing network and strengthen the capacity for further development has the potential to undermine Vietnam's economic gains. In the past five years there have been an estimated 30 dam failures. These have resulted in devastating regional flooding, significant loss of human life, and substantial economic losses. The damage costs associated with water-related disasters have been estimated at VDN 18,700 billion or US$ 1.25 between 1995 and 2002. The impacts associated with natural flooding have been further exacerbated by the uncoordinated operation along cascades of dams within individual river basins and the limited capacity for timely monitoring and forecasting of high flows, particularly in the narrow and steep topography of the Central Highlands. The public outcry resulting from recurrent flooding and dam failure has been reflected in the media and has led to civil society campaigns which have raised the awareness of this problem in all spheres of Government.

Recognizing the importance of securing the foundations for sustained and secure economic growth, the Government first launched a sectoral program focused on dam safety in 2003. This has been revisited in an effort to revitalize the program and is expected to be formally approved by end. Based on information available from MARD there are about 1,150 dams in need of urgent rehabilitation or upgrading. Of these, an initial assessment highlights 311 reservoirs urgently requiring investments to improve their safety.

Table 5. 1: Incidents due to Dam Structural Condition

Sl. #	***Incident***	***Triggering Factor***	***Impact on environment, society***
1	Water over dam	- Unusual flood an storm occurs; water level in reservoir is higher than dam capacity designed - Spillway damaged or inappropriate design	- Flooding occurred to downstream area - Damaged house and local infrastructures - Land slide and land lost - Reduced the yield of crops and fisheries - Impacted on people's income and residents' life - Polluted physical environment - Increased diseases
2	Emergency water released	- Unusual floods occurred, or dam failure	- High flood occurred to downstream area - Damaged local house and infrastructures - Increased land sliding and losing land - Reduced the yield of crops and fisheries - Impacted to resident's income and life - Polluted physical environment - Increased diseases
3	Outlet work failure	- Inappropriate design or repair - Irregular maintenance or limitation of budget	- Reduced the yield of products, dramatically - Water lost due to uncontrollable the outflow or seepage - Impacted to domestic water supply - Operation difficulty
4	Dam failure imminent	- Extreme seepage at dam foundation and embankment dam occurred - Termite caved - Wrong operation	- People have to evacuate - Have to spend more budget, more people have to response the issue

For the access road or other sub-components like drainage, construction of house or offices etc., compare the environmental and social benefits along with the cost involvement for the following options.

(a) No sub-project scenario

(b) Alternative route or locations; and

(c) Alternative construction methods.

5.2 Guidelines for Subproject Alternative Analysis

Since the major activities of the project are rehabilitation work of dam, the project will use a simple format (Table 5.2) for analysis of alternatives.

Table 5. 2: Format for Dam Rehabilitation Alternative Analysis

Alternatives	*Environmental and Social Positive Impacts*	*Environmental and Social Negative Impacts*	*Approximate Cost of investment*	*Approximate Cost of Environment, Social & financial loss*
Alternative 1: No subproject				
Alternative 2: Only Rehabilitation without dam height and reservoir capacity increase				
Alternative 2: Only Rehabilitation with increase of dam height and reservoir capacity from safety point of view				

Using similar format, alternative analysis can be done for access road for (i) no subproject and with access road; (ii) routes and locations (if applicable); and (iii) technology and construction method.

Depending on nature and extent of problem, a particular subproject may require further assessment of alternative during full scale environmental assessment of the subproject. This will include quantitative estimates for some important parameters.

CHAPTER VI. POTENTIAL IMPACTS AND GENERAL MITIGATION MEASURES

6.1 Environmental incidents due to dam failure in the past

At present Vietnam, nearly 100% of small dams are soil/earth dams which have been built since the 1970s and during the Vietnamese War. A majority of dams were built with inferior design and poor construction standards because of lack of adequate design knowledge, construction equipment, materials such as cement and concrete, and construction technology. For many years, maintenance of and investment in safety has been insufficient.

According to the stakeholders interviewed most dam failures in the past coincided with the occurrence of weather extremes, especially floods and heavy rains. The majority of participants believe that floods and heavy rains make a considerable contribution to dam failures in many rural provinces in Vietnam. In addition, landslide is seen as another cause of dam failure particularly in the northern mountainous provinces such as Tay Bac, Hoa Binh and Ha Giang provinces. The age of dams is also another concern as dams built over 30 years ago during the Vietnam War appear to have enormous safety problems.

The safety of these dams is inherently compromised because of inadequate design and construction. Stakeholders expressed the view that subjective (human) factors are undoubtedly the dominant cause of the current poor dam safety status and dam failures. In general, human factors are seen by the key stakeholders as important or as more important for dam safety than the impacts of natural extremes and the age of dams. There are a number of human factors involved.

The first two factors indicate the lack of responsibility and accountability that has a direct and strong influence on the safety of dams. The stakeholders reported that no specific individuals and organizations have taken responsibility for dam failures in the past. In addition, no individuals or organizations take responsibility for dam repair, review, surveillance and maintenance as well as the setting of safety standards. Poorly defined and implemented accountability at both the central and local levels leads to the dam safety problems arising in various ways. Furthermore, most participants did not correctly identify or understand the basic concepts of dam safety risks and hazards associated with dam failure.

On the one hand, the explanation of the participants indicated that a large number of dams are currently at high risk of failure and many dams are potentially hazardous. Such unawareness and the absence of risk based assessment guidelines undoubtedly play a significant contribution to physical dam safety problems.

Many dam safety problems and notable dam failures have occurred in various provinces in Vietnam but have often been unreported. These failures have taken hundreds of lives and have caused devastating impacts on property and environment. For example, the 2MCM reservoir of nha Tro Dam failed in Nghe An province in 1978 causing the death of 27 people and damaging thousands of hectares of rice fields. In 1986, the overtopping failure of Dau Tieng dam damaged: 3452ha of mature rice (ready for harvesting); 1144ha of early rice; 1197ha of farming

products; 871ha of fruit; flooded 3114 houses; and disrupted 47 houses. The failure of the 0.5MCM Buon Bong dam storage killed more than 30 people and caused thousands of dollars of damage. In 2002, Am Chua dam in Khanh Hoa failed but no records of damages and losses were available and recently in 2009, the 0.25MCM reservoir of Z20 dam failed and about 200m of railway embankment was destroyed. Common problems of small dams in Vietnam problems of small/medium dams in Vietnam consisted of several factors, which can be listed:

- Erosion damage on both slopes
- Seepage
- Cracking embankment
- Inability to store design water capacity because of silting and/or leakage
- Blocked spillway, stilling basin sediment or inappropriately designed spillway
- Vandalism damage
- Damaged by traffic
- Outlet works leakage or broken
- Settlement
- Damage from animal burrowing
- Excessive vegetation and/or trees
- Sinkholes
- Slides and/or slumps
- Low area on the crest of dams

Table 6. 1: Current physical safety problems associated with dams components (On the basis of 12 first year sub-projects)

	Actual problems	Details of problems
Reservoir	Inability to store design water capacity	Sediment accumulation, irrigation gate leakage. Spillway leakage.
Crest	Overtopping	Inaccurate estimation of hydrographical parameters; Spillway is blocked; Flooding is over the design flood capacity; The top is constructed lower than designed.
	Settlement on the crest	Traffic damage; Animal burrowing activities; Instability of the embankment
	Transverse cracking	The dam foundation is depressed; Instability of the embankment; Shrinkage of surface materials; Materials are low quality.
	Longitudinal cracking	Water in the reservoir increases or decreases suddenly. This sudden change of water level creates depression on the top; The dam foundation is depressed; Slide occurs on the embankment.
	Ruts along the crest	Traffic damage; The movement of foundation.
Upstream slope	Seepage under the foundation	The quality of material is low. Hence, water is eroding the material; Rodent activity; Geological assessment is inaccurate.
	Slide and slump	The lack or loss of embankment material; Rodent activity; Erosion; Traffic damage; Downstream slope is too steep.
	Sinkholes	The movements of foundation create holes; Material is seeped; Animal burrows.
Downstream slope	Seepage through the embankment	Rodent activity creates open pathway through embankment; The abutment is not properly designed and constructed.
	Seepage at the abutment	The abutment is not properly designed and constructed; Plants/trees are not removed completely in construction.
	Slide and slump	The lack of or loss of embankment material; Rodent activity; The downstream slope is too steep.
Spillway	Eroded spillway	Erosion; The gradient of the channel is too steep.
	Blocked spillway	Soil and stone erosion; Trees and plants; Inaccurate design.
Outlet works	Eroded outlet	Outlet is too small; Conduit is eroded; Foundation movement.
	Leaking and breaking	Valve is broken; Vandalism; Outlet is too old.

6.2 Expected Types of Civil Works

Twelve (12) priority dams have been identified as sub-projects for rehabilitation under the first year of the project. This priority dams have been selected through prioritization criteria. The activities to be financed in the twelve priority dams are provided in Annex-A.

Based on the 12 sub-projects identified for first year implementation, the anticipated types of rehabilitation and safety improvement works would be limited and related to: (i) dam repair (embankment dam, auxiliary dam), seepage treatment, excavation, expansion the crest of dam, embankment height elevation, extending the length of dam; surface dams hardness, the upstream and downstream slopes reinforcement, erosion control; intimacy treatment; (ii) spillway reparation and upgrade, new bridge over the spillway construction, stilling basin, spillway crest reparations; (iii) new drainage layouts at the toe downstream slopes construction or reparation; (iv) seepage treatment and groin reparation, outlet works reparation or new construction (v) rehabilitation or new construction of a manager house; (vi) public service roads upgrade by concrete material or new construction. The environmental and social assessment will be carried out separately for all major component of the subproject.

All rehabilitation/upgrade works will be intended to improve dam safety by repairing damage and correcting design defects and deficiencies (Table - 6.1), strengthening and reinforcing existing structures. The repairs/upgrade may fully restore dam functions, but would not support increase the reservoir's original design capacities unless required safety point of view.

Table 6. 2: Structural, design issues and proposed repair/upgrading works

Structural/ Design issues	Proposed works
1. Inappropriate design or spillway damaged	- Repair or extension of spillways - Construction of a new bridge over the structure - Repair or construction of a new stilling basin - Repair or construction of a new spillway crest or training slope
2. Damage to or Absence of Outlet Works	- Repair of existing or construction of a new outlet work - Repair of existing or replacement of outlet works/intake valves - Repair of existing or construct of a new power house (outlet works) and its facilities
3. Broken Dam due to Overtopping	- Repair or construct a new auxiliary dam - Seepage treatment by using jet grouting technique - Hardnosed, extension, leveling the crest of dam, or embankment extension - Hardnosed the top of dam and its slopes - Treatment of termite caves - Repair and/or construction of a new toe drainage layout at the downstream slope

On the basis of 12 sub-projects in the first year of DRSIP project, only two sub-projects (Sub-project Dong Be-Thanh Hoa province and Song Quao sub-project of Binh Thuan province)

require to repair the auxiliary dam with total length of 825m. Because the preparation bases on the existing construction and works inline with the main dam repairing, therefore the impact of auxiliary dam on environmental and social is insignificant and can be negligible.

These activities may include: acquisition of new lands and right of way, clearance for construction site (tree cutting and gabbing, leveling ground), material and waste transportations; (iv) auxiliary work constructions: stockpile, disposal site, campsite for workers, material storage areas; (v) gathering machines and material (vi) construction of domestic waste collecting, wastewater treatment and constructing a drainage water systems, power station at construction site; (viii) mud dredging, sludge transportation; ix) mines clearance and quarry material blasting.

The civil works will entail: (i) generating solid waste, demolition old constructions, remove original land surface, ground leveling, solid waste generating from construction materials use and exploitation, from workers at construction site and camps site; (ii) generating domestic wastewater from workers, from cleaning machines (iii) generating dust and exhaust gas due to site clearance, machines operation and transportation; (iv) increasing noise and vibration. However, these impacts are most likely to be localized and temporary and close monitoring and immediate suspension of the construction works in case of the abnormality would be adequate.

6.3 Major Environmental and Social Impacts of 1st Year Subprojects/ Expected Impacts and Issues

The repairs of these facilities are expected to improve functionality of the dams and improve the safety of local residents. Positive economic impacts are anticipated due to short term employment during construction but also due to increased productivity of dam-dependent livelihoods such as agriculture, fishery and tourism. Increased stability and improve investment climate is expected due to stable supply of electricity, water and reduced risk to life and property

However, the rehabilitation works will also entail quarrying or the use of borrow pits. The civil works may require acquisition of land or temporary rights of way, necessitating temporary or permanent relocation of homes and farms. Quarrying and new construction activities may thus encroach into previously undisturbed areas which may have unexploded ordinance from the recent war or archaeological artifacts. The following are the anticipated social and environmental issues:

6.3.1 Social Issues

Involuntary loss of lands, crops, structures and homes - Land and right of way acquisition requirements. Land acquisitions will be required mostly for upgrading of camping site, operating stockpile, disposal site, material and wastes transporting road or service road constructions permanently or temporally. However, the main goals of project are repair and upgrade the exiting construction, so the impacts of land acquisition and resettlement are insignificant contribution to the local communities. Another, the household's activities can be changed by the project implementation, the reason here is local household is not ready (have no plan) to adapt to new condition when a household received amount of compensation or support. Related to moving the graves or tombs - There is probably grave relocation plan. All costs of

excavation, relocation and reburial will be reimbursed in cash to the affected family. Graves to be exhumed and relocated in culturally sensitive and appropriate ways.

Displacement of community facilities - Community facilities could be sacrificed in favor of the repair works. Loss of community facilities such as schools, sport facilities, religious buildings, if not replaced, could be disrupt community functions.

Ethnic minorities could be marginalized – Ethnic minorities may have certain customs, traditions and development needs that could be ignored during the planning and implementation of the rehabilitation and safety improvement works. Involuntary loss of land, homes or livelihood ma affect these groups differently that the mainstream population.

Women's concerns and needs – Women in the rural areas often do daily household chores such as washing, taking care of children, gathering and cooking of food. Hence they may have safety concerns and needs that could be ignored in the identification and prioritization of repair and safety improvement works. In the family structure, the woman has the main role of rearing children. Due to ethnic customs, men rarely perform household chores (preparing food, cleaning, washing, etc.).Very few men share household chores with women, especially within ethnic communes, and women, will often carry their children on their backs while performing household chores. The burden of household work has strongly influenced a woman's ability to go to school or participate in social events. A lack of education and training has limited females' knowledge base, directly affecting the quality of care devoted to children. *Impact to genders equity on local job creation and transition* - The impact may be localized, but specially effects to women and children in the local, leading to the possible exploitation of locals as a cheap source of labor. Construction employment could detract from traditional agricultural practices. Since the project will take approximately for a years, people may not be able to maintain their traditional agricultural or forestry activities, which would impact these communities income and subsistence levels post-construction. Although jobs will benefit local villagers and people inhabiting adjacent communes during the interim, people will require new employment or return to traditional activities once construction has completed. People will have to maintain their agricultural/forestry activities throughout construction to maintain their levels of productivity.

Interruption in irrigation and/or domestic water supply – Water supply interruption is highly likely during construction. This effect occurs due to spillway and outlet works constructions or reparations. In the period, water in reservoirs should drainage until below the range of reservoir function, hence, interrupting water supply and irrigating to cultivation areas. Most of the resident in the local living in rural areas and base on agricultural practices and aquatic cultivation (more than 90%) and most of household in the place are poverty and low incomes (VND 2.5 Mill./year/household). In addition, 16/20 provinces (90% of the number) is the ethnic minority and getting the support from the poverty reducing program of Vietnam government. Therefore, the interruption of water irrigation is the main issue to the local person and leads to reduce their incomes. The impact is assessed at high level but only occurs during construction and can be overcome or mitigated.

Impact to tourism - Most affected areas are Quao (Binh Thuan), Khe Che (Quang Ninh), Da Teh (Lam Dong). Because, the listed reservoirs are operating in multi-function, includes eco-tourist. The impact happen during construction phase (drainage water), but only in the construction

phase and can recover after completing construction. Surveys illustrate that average income within project area communes is very low and often below poverty standards. Most of household economic sources based on tourist, services, agricultural and aquatic cultivations standards (90% of total population). The drainage water in reservoir or interruption of water supply will contribute an significant effect to the local communities.

Impact to local traffic condition - During sub-project implementation, rapid the numbers of transportation vehicles and workers in a small areas, the existing local roads and infrastructures are not applicable for this works. Hence, impacts to the local traffic conditions and road user have to consider. However, in pre-construction phase, it not contributes significantly impact. Increased dust and vehicles transportation on community roads will affect local villagers and households. Increased traffic on local roads could impede local villager's transportation capabilities and increase the potential of road-related accidents. Transport vehicles will also increase the levels of dust and particulate matter, decreasing the air quality for local residents. This impact assessed high level and requires an adequacy mitigation measure

6.3.2 Environmental Issues

Changes in the original landscape – There will likely be significant changes in the original landscape in the construction area and in the burrow pits or quarry. Especially it shall be occurred while operating soil stockpile and disposal site and site clearance. The constructions or repair the appurtenant structures requires a large of soil, stone materials and hence, it generates a huge amount of solid waste from digging, excavating and exploiting. Each subproject will require to use 2- 5 hectares of land for soil stockpile exploiting or waste disposal site. The exploitation of soil and dumping waste site are the main results of land landscape change cause. Moreover, it will contribute significant change to water resources, land and soils pollutions. The permanent landscape change is not only impact on landscape, but also on natural environmental and widelife, which increases erosion progress, landslide and others. Also, it harms to local community living around the pits or downstream. The assessment concluded that the potential negative impacts of these activities will be moderate, and the proposing mitigation measures can apply to reduce these impacts. Landscape change and modification - Clearing, stripping, grading, excavation, leveling, blasting, truck hauling, stockpiling, waste disposal, road development, and transport vehicles. Discharges from quarries, borrow pits, concrete plants and dust and debris created during construction phase are mainly reason to change landscape in the areas. This impact assessing at high level and requires mitigation measure application.

Increase sedimentation during construction - Most of reservoirs are located in steep areas, therefore the sedimentation process is easy occur. The main physical reasons of the issue are erosion progress in upper stream (in bared land areas or material pit exploitation areas) of the reservoir. Therefore, the project owner has to consider the problem and make a plan to remove sediment out of the reservoir. *Temporary increase in sedimentation* – Removal of vegetations and earthmoving activities will likely increase sedimentation of the receiving streams. This is expected to be temporary. *Sedimentation* - Clearing, grading, excavation, levelling, blasting, truck hauling, stockpiling, waste disposal, road development, and transport vehicle, and on site construction. Therefore, the project owner has to consider the problem and make a plan to reduce volume of sediment transport to reservoir

Loss of natural vegetation – Use of land for construction base camp and temporarily facilities, burrow pits and quarry activities will likely result in loss of vegetation. On the basis of the first year sub-project, this impact shall be negligible, because, most the land occupy to the auxiliary construction (borrow pit, camping site, access road, etc.) are located in unused land and there are no dangerous or threatened species shall be protected. There are only common plants in areas, such as eucalyptus, acassia, productive secondary forests, fruit tree and paddy rice fields.

Change in stream flow patterns – Repair works may entail temporary diversion works or release of reservoir water, resulting in changes of stream flow pattern upstream and downstream of the dam. This may cause scouring of river banks affecting properties and infrastructure. During construction phase, water in a reservoir should release (drainage) until below the range of reservoir function, leading to environmental flow and hydraulic pattern change in the local, increasing water turbidity, micro-organisms community, and organic matter in water due to lacking water dilution. Generating solid waste, debris from constructing areas and camping site will block water flow and add more contamination into water body. The affected objectives are: eco-tourist agencies, people living around the constructing site or at the downstream areas of the reservoirs, water resources (surface and ground water resources). But these impacts are most likely to be localized and temporary and close monitoring and immediate suspension of the construction works in case of the abnormality would be adequate

Noise and air quality issues - Earthmoving activities and operation of machineries in the construction sites will generate dusts and exhaust fumes. Construction activities, operation of heavy equipment and material blasting will produce noise and vibration and will be a nuisance to residents near the site. *Increased levels of noise, dust and contaminations to the air level* - During the phase, a volume of dust will increase by material transportation, Clearing, grading, excavation, levelling, blasting, truck hauling, stockpiling, waste disposal, road development, and transport vehicle gas burning (includes toxic gases of NO2, CO, CO2), dust from unclean machine and transportation vehicles, specially in a sunny days or drying season the dust clouds can upraise to 200m height in the air. Project owner and construction consultant should take into account the impact and have to follow QCVN05: 2013/BTNMT to monitor and apply a suitable mitigation measure to reduce the negative impacts. *Increasing noise and vibration* - This impacts generating from clearing, grading, excavation, leveling, blasting, truck hauling, stockpiling, waste disposal, road development, and transport vehicle, and on site construction. It contributes an inconvenience condition to the people living around the sites and to the workers. If high frequency and high level of noise in long time explosion, some negative impacts will occur to the people and worker, such as reduce the yield of words, causing fatigue, stress, insomnia, deaf phenomena, etc. The area affected by noise and vibration are roadwork. But these impacts are most likely to be reduced by applying an appropriate mitigation measures.

Impact to natural habitats and ecosystems - Clearing, grading, excavation, levelling, blasting, truck hauling, stockpiling, waste disposal, road development, and transport vehicles. Are expected to alter plant species composition, structure and abundance and modify their habitats. Clearing of vegetation will lead to loss of biodiversity and habitat. The impact to the threatened species is considered minimal due to their distribution pattern. Another issue from clearing will be the debris resulting from unsalvageable wood, vegetation and weeds. The waste produced

may lead to disruption of local ecosystems (water, soil, and vegetation). This may result in the loss of endemic species, contributing to biodiversity degradation. Another significant impact is the presence of worker camps. Construction workers may exploit forest products and wildlife for their food. Some sensitive species could be affected and lost due to construction activities in the areas. Construction activities shall be minimized during sensitive breeding and nesting periods. Apart from trees removed in reservoir clearance, trees in other areas shall be re-established after construction or compensated for at some other location.

Local Residents and Worker's Safety – Safety at the construction sites is always a concern as contractors may not comply with safety standards such as the provision of PPE to worker and posting of warning signs, proper handling of hazardous materials such as chemicals and explosives, due to remoteness of the area. Of particular concern is the hazard posed by unexploded ordinance left from war, if the construction work will require entering into previously undisturbed areas in the dam sites. The safe procedures would include: contact responsible agencies and complete the clearance before conducting construction activities. Some subprojects will be required to provide a UXOC clearance certificate before undertaking site clearance and/or construction will be responsible for contacting the concerned agencies and obtain clearance to secure safety of the project area.

Damage local roads and infrastructures – The transport of heavy equipment and the hauling of embankment and aggregate materials could damage existing roads and infrastructure. With rapid transporting vehicle and constructing machine in the locals, it causes damage the existing road and infrastructure. High frequency operation of transportation and high load vehicle are harm to earth fill road, that mainly contraction road materials in rural areas. Most of local infrastructures such as power grid, drainage water, disposal site, etc. are temporally and easy damage. With rapid transporting vehicle and constructing machine numbers in the locals, causing damage the existing road and infrastructures. High frequency operation of transportation and high load vehicle (10-12 tones load rate) are harm to earth fill roads, which mainly occurs in the construction phase of the sub-project. Most of local infrastructures such as power grid, drainage water, disposal site, etc. are temporally and easy damage.

Housekeeping and sanitation at the construction site - Domestic waste generates from the camping site and constructing site without proper management and treatment is the main issue to local health (mosquitoes, flies). The hazardous chemicals such as pesticides, used oil can contaminate surface and groundwater. In addition, infectious diseases could break out if the conditions in the area of environmental sanitation are not control properly.

Possible spread of communicable diseases – Many of the construction workers would likely come from other areas of the country and may bring in new diseases. They are also vulnerable to local diseases. *Spreading diseases from worker to local person* - The majority and the most immediate adverse health impacts are expected to occur where construction workers and camp followers concentrate. These impacts would consist of communicable diseases (food- and water-borne, sexually transmitted diseases and HIV/AIDS), road traffic and construction-related accidents. Social impacts have the potential to cause social, psychological, physiological stress among affected people, particularly those who need to be relocated. Local communities face the risk of losing their cultural and ethnic identities due to increased fluctuation of construction

workers and camp followers. Higher concentrations of people may result in prostitution, drugs, gambling, trespassing, theft and other social disturbances, altering community dynamics and straining relationships among ethnic minority groups. As the survey results to the first year sub-projects, an about 13% of the households around the construction site and pits have problems with their health. According to the result of social surface (medical sector) in the addressed areas, the local households 373.000 have problems of breathing, diarrhea, skin diseases, HIV, hepatitis higher than before the project implementation. Water, air, or contacts between worker and local person are most likely transmitters' agency. Domestic waste generates from the camping site and constructing site without proper management and treatment is the main issue to local health (mosquitoes, flies). The hazardous material such as termite chemicals, oil leaking can direct affect to and water resources. Residents living around transporting road and constructing site can be affected by dust and vibrant, also workers can be affected by this issue. In addition, infectious diseases could break out if the conditions in the area of environmental sanitation are not control properly. These impacts can be eliminated by applying appropriate mitigation measure.

Impact to public utilities - The construction dam could dramatically affect the existing infrastructure and community services. The dramatic increase in population levels, or "boom-town" effect, will increase the demand for additional services such as community services and staff (medical, emergency, safety, etc.), markets, education centre, wastewater production and sanitation services, power/fuel and potable water (drinking, food preparation etc.). These services may cause social conflicts with local villagers as the demand increases. However, the services will also benefit local villagers and people inhabiting adjacent communes.

Risks of dam/reservoir safety **-** During construction phase, if it did not apply an appropriates construction method or did not follow the regulation, it would easy damaged the dam safety condition and economic lost to downstream

Quarry mineral basting. Impact of the work can increased noise, dust, vibration, and debris flow, it leading to pollute air, water and soil environments, species habitant, also risk of worker and community around the site. In addition, Annex-A, A2 provides the number of beneficiary households, protection of local infrastructures, projected benefits and land acquisition and resettlement information of the twelve (12) subprojects. As the result in table shows, the subproject will facilitate to increase number of benefited persons or communities as well as reduce the vulnerable group and community, specially the ethnic minority group in the areas.

Increase in agriculture command area and possible use of fertilizers and pesticides. Because the primary goal of the sub-project is to repair and upgrade the main construction to stable the irrigation areas, not increase the agricultural command areas. Actually, more practice on arable land meaning that more chemical will be used. From point of view, the Pest Management (OP/BP 4.09) has been triggered, so that for controlling pest on field, the practice shall follow the requirement criteria of IPM (see Annex- H)

Table 6. 3. Beneficiary Household
(On the basis of the 12 first year sub-projects)

Subproject/ Province	*Household*	*Number of people*	*% Ethnic Minority*
1. Ngoi La 2, Tuyen Quang province	500	2,000	20
2. Ban , Phu Tho province	1,161	5,225	0
3. Dai Thang, Hoa Binh province	372	1,402	64
4. Khe Che, Quang Ninh province	15,305	52,149	7.5
5. Dong Be, Thanh Hoa province	2,495	24,716	24.2
6. Khe San, Nghe An province	400	1,800	0
7. Khe Giang, Nghe An province	800	2,500	0
8. Phu Vinh, Quang Binh province	4,600	27,600	0
9. Dap Lang, Quang Ngai province	346	1,651	0
10. Thach Ban, Binh Đinh province	355	1,460	0
11. Quao River, Binh Thuan province	19,094	79,613	5
12. Da The, Lam Dong province	1,614	6,606	8.4
Total	**47,042**	**206,722**	**9.92**

In additional, the sub-project will create the opportunity to the local labour forces, serving and trade also for the safety and improve the local infrastructure (also see in Annex A, A3).

6.4 General Mitigation Measures

(The detail of mitigation measures of the impacts are show in annexes of C, D, and E. this part just provide general mitigation measures in pre-construction, contraction and operation phases only).

The purpose of any impact assessment, whether it is environmental or socio-economic, is to anticipate and prevent the consequences of a potential action. For the DRSIP, it is critical to identify potential construction and operation impacts to minimize or eliminate their effects within the project area and region. Therefore, five key functions:

- Identify potential construction and operation impact agents and their associated impacts within the project area

- Highlight mitigation measure standards or ideal criteria for each project-related impact

- Describe mitigation measures which would minimize and/or eliminate potential construction or operation impacts (see details presented in the EMP)
- Rank the residual impact or the significance of the potential impact after mitigation measures have been applied; and

- Identify areas where additional information is required to properly assess project related issues.

6.4.1 Pre-construction phase

On the basis of the first year sub-project, the negative impact on environment and social in this phase is assessed low level. The most impact can be focused land acquisition for construction of site clearance, camping site, material storage areas, machine parking areas access road construction and operation of borrow pit and quarry blasting.

- Siting and route selection

At this stage, the exact siting or extent of some project components is yet to be determined. This includes transmission lines, borrow pits, construction camp and lay-down areas, each of which will result in land take, and limited ecological impacts.

The exact size and location of these components will be determined in order to minimize environmental and social impacts. Details will be available in the updated engineering feasibility report. In theory, designing the dam reparation to minimize adverse impacts from drawdown on neighboring land use is a design mitigation option.

Impact on land acquisition and site clearance: total land requirement for the works in the first year sub-project is 164 thousand square meters for temporally and 321,000m^2 for permanently. Total affected households are 138 household with more than 11 households/41 persons, and 8 ethnic minority households have to reallocation.

- Operational regime. The operational regime of the dam will have significant effects for downstream agricultural practices and domestic water users, and, owing to the effects of annual drawdown of the reservoir, reservoir ecology. In addition, the regime applied during filling of the reservoir will have profound implications for downstream ecology and water users. The following measures will be integrated into the design of the operational regime of the dam:

6.4.2 Construction phase

i) Air Quality

Impact agent: Air quality can be affected through clearing, grading, excavation, leveling, blasting, truck hauling, stockpiling, waste disposal, road development, and transport vehicles.

Potential impact. Reservoir and dam site preparation, road development and transport vehicles may affect the air quality in the project area. Dust is a potential impact during construction and operation activities. The dust generated during construction activities may decrease air quality for construction workers, local villagers and the surrounding environment. Additionally, quarry site activities including operation of crushers, concrete batch mixing, blasting and road traffic on unpaved roads, combined with idling of vehicles, can generate air born dust (suspended particulate matter) and gaseous emissions such as NOx, SOx and carbon monoxide. The dust

generated during road construction activities may also affect the health of the construction workers, and the communities living in the vicinity of the project area.

Mitigation measures. To mitigate impacts in the construction area, dust control measures shall be implemented on all unpaved roads and construction surfaces, particularly during dry and windy conditions. Dust watering operations shall occur only during designated hours (to be confirmed by contractor in consultation with villagers). Air quality standards shall be maintained throughout the construction process. Villages close to construction sites shall be notified in advance to help them prepare and/or adapt to the new environment. All unpaved roads and construction sites shall be sprayed with water as needed in order to adequately control dust. The dust generated from stockpiles shall be controlled by compaction and the stockpiles shall not be allowed to expose for extended periods.

The main access road to dam site and to the borrow pit, quarry the disposal areas shall be paved. All trucks carrying construction materials shall be covered. Regular maintenance of vehicles (daily/weekly) shall be performed at designated areas. The traffic on access and service roads shall be regulated in order to minimize air pollution. In addition, all processes shall follow the code of practice during construction and operation phase that meets the requirements of Vietnamese standard (TCVN 5939-2005). All water abstraction locations for watering shall be identified and volumes of water withdrawn shall be recorded so as not to create conflicts with local communities.

The duration and magnitude of the impact is anticipated to be low if appropriate mitigation measures are applied during the construction phase. The geographic extent of impact should be moderate as road construction activity is expected to affect construction workers, households and communities living in the vicinity of the area. The likelihood of occurrence should be moderate due to vehicular traffic and construction activities which generate airborne dust and gaseous emissions. The residual impact is anticipated to be low if appropriate mitigation measures are applied during construction.

ii) Noise and vibration

Impact agent: Clearing, grading, excavation, leveling, blasting, truck hauling, stockpiling, waste disposal, road development, and transport vehicles.

Potential impact. Reservoir and dam site preparation, road development and transport vehicles may cause disturbance to local households, livestock and wildlife species. During the construction phase, equipment and vehicle operation used for excavation, drilling, leveling and concrete batch mixing are the key sources of noise. These activities may interfere with daily activities of local communities and lead to displacement of wildlife species.

The other source of noise and vibration may be caused from the use of explosives for blasting and quarrying and crushing activities. Noise levels from equipment and vehicles in the construction area are estimated to be approximately 80-95dBA, wildlife species might be affected from the blasting noise. The noise created during the construction of sub-project access road may impact worker camps and communes living near the construction site.

Mitigation measures. Construction and blasting activities and road traffic shall occur only during daylight hours. If the construction and road traffic is required outside of working hours, communities and households shall be notified and consulted. Blasting activities shall take place within the designated hours and local people shall be informed prior to blasting.

Construction machinery and vehicles shall be maintained in good condition and mufflers shall be installed on all the machines to reduce noise levels. Equipment such as the concrete batch mixing plant shall be located as far as possible from nearby communities. The contractor shall maintain a complaint register to any address noise issues as they arise.

The duration of impact is anticipated to be low as appropriate mitigation measures shall be applied during the construction phase. The magnitude of the impact should be moderate as some of the activities like blasting, drilling, excavation, road development, and transport vehicles, are going to affect local households, livestock and wildlife species. The geographic extent of the impact should be moderate as the noise and vibration could be heard several kilometers from the dam site.

The likelihood of occurrence might be high due to the noise from construction activities and road traffic affecting communities and wildlife species. Reversibility should be low as appropriate mitigation measures shall be applied during the construction phase. The residual impact has been assessed to be moderate as additional mitigation or compensatory measures will be required, to reduce the level of residual impact to a low, or acceptable level.

iii) Land borrow pit and quarry creation

Impact agent: Clearing, grading, excavation, leveling, blasting, truck hauling, stockpiling, waste disposal, road development, and transport vehicles.

Potential impact. Discharges from quarries, borrow pits, concrete plants and dust and debris created during transportation of materials can significantly impact surface and subsurface waters because of the sediment in water and runoff from material storage and handling areas. Also, abandoned borrow pits and quarries might spread vector-born diseases, especially when stagnant water accumulates.

Mitigation measures. To mitigate impacts in the construction area, land gradients and drainages shall be maintained for proper discharge of wastes. Measures shall be taken to confine activities to designated locations and to minimize the creation of dust and debris during transportation. Protective measures shall be implemented during transportation (i.e. covering loads, reduced travel speeds etc.). All disturbed areas shall be properly reclaimed after construction and, slopes shall be recontoured and proper drainage facilities will be maintained.

The duration, magnitude, geographic extent and reversibility of the impact has been assessed as low if appropriate mitigation measures shall be applied during construction activities. The residual impact has also been assessed to be low as impacts are considered negligible subject to application of appropriate mitigation measures during construction activities.

iv) In-stream Construction Activities

Impact agent: Clearing, grading, excavation, leveling, blasting, truck hauling, stockpiling, waste disposal, road development and transport vehicles.

Potential impact. In stream construction activities like installation of coffer dams, river diversion, machinery and/ or equipment, roads and bridges will disturb water quality and aquatic ecosystems and increases sediment load affecting freshwater fishes.

Mitigation measures. To mitigate impacts during in-stream impacts, construction shall occur during low water levels and river diversion structures shall be maintained throughout the construction process. Culverts shall be constructed to maintain water flow and in-stream activities will be minimized. Measures shall be taken to maintain vehicles and equipment and roads and bridges shall be stabilized to avoid washing of construction materials in the stream. Clean-up activities and restoration of side channels shall be implemented during construction process. The duration, magnitude and reversibility of the impact have been assessed to be low if appropriate mitigation measures shall be applied during construction activities. The geographic extent and likelihood of occurrence of the impact will be moderate as in-stream activities will lead to some limited changes in the aquatic environment. The residual impact has been assessed to be low if impacts are considered negligible subject to application of appropriate mitigation measures during construction activities.

v) Displacement/Resettlement of households

Resettlement of communes and villagers as a result of land acquisition temporally and permanently and open access road as well as borrow pit and quarry exploitations. Approximately 11 households in the first year sub-projects will require relocation to either a designated resettlement site or an area of their choosing. Affected households will lose their homes, the lands that they cultivate for subsistence and their ancestor's grave sites, which are often located underneath their individual homes. Due to their location within the reservoir, some resident areas are the most heavily impacted communes. The resettled sites may also pollute (domestic waste and natural debris) the environment due to a lack of adequate waste disposal facilities.

Mitigation measures. Displaced households shall be provided new homes in designated resettlement areas. The households shall receive assistance during relocation. This may include physical support during relocation, provision of trucks and other vehicles to transport personal belongings and transport their livestock. Financial compensation and food caches shall also be provided to adequately support families during the transition period. The duration, magnitude, geographic extent, likelihood of occurrence and reversibility of the impact will be low if appropriate mitigation measures shall be applied during construction activities. The residual impact has been assessed to be low if impacts are considered negligible subject to application of appropriate mitigation measures during construction activities.

Impact analysis and mitigation further addressed in the Resettlement action plan (RAP) and Resettlement Policy Framework (RPF)

vi) Change in family networks, community structures and income

Disturbance to family networks, community structure and cultural and ethnic identities. Sub-project area communes are dominated by ethnic minority groups. Numerous family members tend to occupy the same village and in rare cases, the same household. There are also several households which are occupied by either the elderly, the disabled or are female. These households will be more severely impacted than others due to their physical limitations and dependency on others. Relocation of households will disrupt families and community networks as households appear to be interrelated in their daily activities and traditional practices.

Mitigation measures. Training and support programs shall be implemented to aid diversification of income and educate locals on methods to improve agricultural techniques. Restoration and development programs, provision of communication networks and social programs will also be implemented to aid both resettled households and those that are currently in the resettlement areas. These programs shall focus on enhancing traditional agricultural practices, integration of minority groups and education.

The duration of impact will be high if the communes have to be relocated, and may never return once the construction process is completed. Affected households will be deprived of their existing social environment and may not experience the same family network and community structures. The magnitude of the impact will be high as it will be difficult for households to resettle and occupy the same village or the same household. The geographic extent of the impact will be moderate if the communes have to be resettled in close proximity to the project area. The likelihood of occurrence and reversibility will be moderate as relocation will affect families and community networks disrupting their daily activities and traditional practices. The residual impact has been assessed to be moderate as minority groups may lose their cultural and ethnic identities due to relocation. Additional mitigation measures will be required to reduce the impact to a low category.

Impact analysis and mitigation is addressed in the Resettlement policy framework (RPF) Ethnic minority development plan (EMDP) and framework (EMPF).

vii) Loss/Alteration of culturally significant areas (if any)

Damage or destruction of site contents and newly discovered sites could result. In order to prepare for the DRSP project, reservoir road construction, the archaeological and cultural sites will find in the project area. During clearing activities, there is also the potential of discovering unknown archaeological, historical or cultural site as well, it should follow the Chance Find Procedures providing in annex E9.

Mitigation measures. To mitigate impacts during construction activities, steps shall be taken to minimize damage during excavation activities, and no site shall be disturbed until properly investigated. Excavation of known archaeological, historical and cultural sites shall require proper ceremonies before their decommissioning. Offerings, such as rice and livestock, shall be provided. Additional research studies may also be required prior to excavation and possible excavation will be required. If additional sites are discovered during clearing activities, the Contractor shall consult the “Chance Find Procedures” identified in the ESMP in order to preserve artifacts.

The duration, magnitude, geographic extent and likelihood of occurrence will be low if appropriate mitigation measures shall be applied during construction. The reversibility will be high if the resettled people can never reestablish the original social and cultural environment. The residual impact is anticipated to be low if appropriate mitigation measures are applied during construction.

It will be necessary to coordinate the planning and removal of burial sites in conjunction with local authorities, in accordance with local culture and the land use plan.

viii) Increased levels of noise, dust and traffic

Clearing and material transportation activities will increase the amount of traffic on local roads. This will impede local villager's transportation methods and increase the potential of road-related accidents. Clearing and material transportation will also increase the level of dust and particulate matter, decreasing the air quality for local residents and construction workers. The noise created during construction may disrupt local villagers daily activities, impede cultural customs and disturb agricultural practices and livestock.

Mitigation measures. To mitigate increased road traffic and subsequent dust and noise levels, additional traffic shall be confined to designated areas. Roads shall be routinely water and equipped with appropriate signage and road traffic shall be confined to daylight hours. Construction activities shall be confined to daylight hours and villagers shall be informed prior to blasting activities. Also, efforts shall be taken to minimize traffic in villages and other populated areas and roads shall be kept free from mud, debris and other obstacles.

The duration and magnitude of the impact will be low if appropriate mitigation measures shall be applied during construction activities. The geographic extent of the impact will be moderate if resettled communes are located close to resident living nearby access road, and road traffic will impede local villager's transportation methods. The likelihood of occurrence will be high as noise, dust and traffic is expected to impact certain sections of the local households and villagers. The reversibility will be low if appropriate mitigation measures shall be applied during construction activities. The residual impact has been assessed to be low, subject to application of appropriate mitigation measures during construction activities.

Therefore, a traffic management plan will be prepared to create awareness among local people and construction workers.

ix) Creation of resettlement communities

Approximately 4900 households will be impacted from the acquisition of land for creation of resettlement areas and an increasing number of people within communes. This may lead to: increased competition over natural resources, increased demand for adequate health and community services, increased transmission of diseases, disturbance to family networks and community structure, and alteration to existing ethnic minority groups and traditional practices.

Mitigation measures. Prior to resettlement, designated resettlement communes shall be assessed for their ability to support additional households and accommodate the influx of people. This would include ensuring that sufficient natural resources (i.e. water, firewood, fuel, etc.), food

sources (i.e. livestock, rice, etc.), and community services (medical services, education centers, etc.) will be able to sustain the total population. Additional efforts shall be taken to limit the overexploitation of natural resources in the project area. Information dissemination, communication networks and social programs shall be deployed to assist for both resettled households and those that are currently in the resettlement areas. Coordination of local authorities with protected area management board shall be implemented to educate and create awareness on management of natural resources; income diversification sanitation practices and disease vectors will be managed through the Community livelihood development plan and the regional healthcare plan.

The duration of impact will be high if resettled communities are impacted throughout the construction process. The magnitude of the impact will be moderate if the creation of resettlement areas will exert pressure on the existing/designated resettlement communes. The geographic impact will be low if appropriate mitigation measures shall be applied during construction. The likelihood of occurrence and reversibility will be moderate if the resettled communes are going to experience additional pressure from the influx of people, which will create increased demand for natural resources, food sources and community services. The residual impact has been assessed to be moderate as additional compensatory measures will be required to reduce the level of residual impact to a low, or acceptable level.

x) Ethnic minorities

Approximately, 9.64% percent of households (245 thousand households) of the ethnic minority in all sub-project areas, the affected household is 297 household. This is considerably lower than the ethnic minority national percentage. The population within the project area is comprised of three main ethnic groups: Tay, Cao Lan, Thai, Hmong, Dao, San Chay, San Diu, Thoi, Son Chay, Son Dou, Muong, Hoa, Nung, Giay, Lao, Kho Me, Thai, Tho, Chau Ma. These ethnic groups are scattered among three districts following the distinguished areas, such as in the North, the Central region and in the Highland region.

xi) Economic Impacts

Impact agent: Clearing, stripping, grading, excavation, leveling, blasting, truck hauling, stockpiling, waste disposal, road development, river diversion, transport vehicles, camp site construction, labor force and camp followers.

Potential impacts

- Loss of productive land, employment and income
- Increased demand for natural resources
- Loss of Forest and Productive Land, Employment and Income

Approximately 0.11% of total ethnic households in the project areas will be affected by the loss/alteration of their land. Several affected households will lose their livelihood. These

households and communes rely on natural resources for their subsistence. Families with no additional sources of income will be the most severely impacted resulting in poverty. This may result in households having to self relocate to more productive areas or alter their traditional practices to financially support themselves.

Mitigation measures. Construction activities shall be confined to designated areas to prevent additional land clearing or disruption to adjacent households. During initial clearing, the implementation of the RAP and RPF shall allow project-affected household to practice on agriculture resources that have economic value prior to disposal to financially assist household during the relocation process. The RAP and RPF shall organize training and support programs to diversify incomes, and create awareness programs on natural resource management and agricultural cultivation to the displaced people.

Resettlement areas shall have suitable productive land to support communes as rely on agricultural practices for food and income. The duration of the impact has been assessed to be moderate if construction activities are going to affect communes throughout the construction process. The magnitude of the impact will be moderate if clearing of forest cover leads to loss of productive land and income for households. The geographic extent of the impact will be moderate if the area to be cleared includes communes and other households. The likelihood of occurrence and reversibility has been assessed to be low if appropriate mitigation measures shall be applied during construction. The residual impact has been assessed to be moderate as approximately 297 households will be affected by construction activities resulting in loss of productive land, income and employment. Additional mitigation measures will be required to reduce the impact to a low category.

xii) Loss of cultivation land and forest land for livelihood

Cultivation land is also the one of the main sources of income for the project-affected communes. However, it also takes between the cultivation periods in years. Designated resettlement areas must be able to support existing residents and resettled households that depend on cultivation production. Resettled households will also have to sustain themselves until next harvest or receive additional financial compensation during the cultivation period.

For households that are relocating within their existing village and those relocating into a designated resettlement area, there will be increased demand for finite resources. In both cases, land will be divided amongst numerous households. This will decrease the amount of productive land for each individual home to use. Decreased levels of available resources will escalate competition amongst users resulting in decrease household income.

Mitigation measures. Relocated households shall be provided with harvestable lands to support the continuation of agriculture production. Measures shall be taken to provide livelihood development and support for a sufficient time to allow communes to return to agricultural product harvesting as well as ways to change their livelihoods.

Training programs to create awareness on cultivation land resource management and facilitation of co-management of existing cultivation land resources between communes. In resettlement

areas, seed high production yield shall be provided to encourage harvesting. Project-affected households have also requested low interest loans to help them purchase additional livestock and other resources.

The duration, magnitude, and geographic extent of the impact have been assessed to be moderate if residents and resettled households will be affected throughout the construction process. Designated resettlement areas may not be able to support the influx of the people. The outcome may be decreased levels of available resources resulting in increased completion among users and decreased income.

The likelihood of occurrence and reversibility of the impact will be low if appropriate mitigation measures shall be applied during construction. The residual impact has been assessed to be moderate if existing residents and resettled households are likely to be affected due to increase in demand for finite resources. Additional mitigation measures will be required to reduce the impact to a low category.

xiii) Worker camp

Impact agent: Construction camp creation (site clearing, camp site construction, labor force and camp followers).

Potential impacts

- Introduction of approximately construction workers in all the sub-project area
- Division of household labor
- Transition away from agricultural cultivation and forestry production
- Increased demand for infrastructure and services from the“ boom-town” effect
- Impacts on health and quality of life through increased levels of disease transmission, prostitution, gambling, drugs, theft and trespass

The majority of agricultural and household labor (including, household chores and child rearing) are the responsibility of the females of the house. Males are responsible for assisting with the agricultural activities, but generally do not perform household chores. With the prospect of new jobs and income, there may be an increase in female household/agriculture workload (if the male of the household becomes a construction worker) or there may be the transition of household/agricultural chores to the elderly or young (if both the male and female of the household become construction workers). The subsequent division or transition of household labor could lead to: reduced food production; poor education levels in both children and females as they would devote more time working the land; and heightened levels of poverty due to low production levels. Regional inflation will be high due to over dependence on local food, water supplies and materials required for daily activities. However, employment of local workers could

assist household income and create access to health care facilities, increase the rate of children going to school and help decrease poverty levels within communes.

Mitigation measures. The RAP and RPF shall implement support programs to assist females, elderly and/or young in household activities and encourage unemployed males to share household responsibilities. Efforts shall be taken to encourage outside sourcing of materials, food and water supplies. Price monitoring of essential goods shall be maintained since inflation is certain to occur with demand exceeding supply during construction.

The duration of impact will be moderate if local villagers will be impacted throughout the construction process. The magnitude of the impact will be high if females, elderly and/or young have to bear the burden of manual labor, household chores and child rearing resulting in division of labor. Also, increased demand for local resources will result in high inflation during construction. The geographic extent of the impact will be moderate if resettled communes, households, and camps will be located close to the construction site. The likelihood of occurrence and reversibility will be low if appropriate mitigation measures shall be applied during construction. The residual impact has been assessed to be moderate as additional mitigation measures will be required, to reduce the level of impact to a low, or acceptable level.

Impact analysis and mitigation addressed in construction camp management in annex E-Bid specification: general construction management and contractors' responsibilities (Environmental code of practice-ECOPs).

The construction camp could dramatically affect the existing infrastructure and community services. The dramatic increase in population levels, or "boom-town" effect, will increase the demand for additional services such as community services and staff (medical, emergency, safety, etc.), markets, education centre, waste water production and sanitation services, power/fuel and potable water (drinking, food preparation etc.). These services may cause environmental and social impact assessment social conflicts with local villagers as the demand increases. However, the services will also benefit local villagers and people inhabiting adjacent communes.

Mitigation measures. Camp managers shall ensure that camp resources do not conflict with local commune supplies. Security measures shall be strengthened to maintain the integrity of protected areas. Contractors shall be responsible for educating and training staff and providing financial assistance to maintain the quality of community services and operations. Efforts shall be taken to ensure the availability of potable water, especially during dry season and regulations shall be enforced to prevent exploitation of natural resources (firewood). Camp managers shall ensure that camps are properly equipped with sanitation services that comply with Vietnamese standards.

The duration and magnitude of the impact has been assessed to be moderate if construction camp will affect the existing infrastructure and community services due to continuous fluctuations of camp workers and camp followers. The geographic extent of the impact will be moderate if resettled communes, households, and camps will depend on limited resources available in the project area. The likelihood of occurrence and reversibility will be low if appropriate mitigation

measures shall be applied during construction. The residual impact has been assessed to be moderate and application of additional mitigation measures shall reduce the level of impact to a low, or acceptable level, as necessary. Impact analysis and mitigation addressed in regional work health program and construction worker health program plan.

xiv) Impacts on health and quality of life

The majority and the most immediate adverse health impacts are expected to occur where construction workers and camp followers concentrate. These impacts would consist of communicable diseases (food and water-borne, sexually transmitted diseases and HIV/AIDS), road traffic and construction-related accidents. Social impacts have the potential to cause social, psychological, physiological stress among affected people, particularly those who need to be relocated. Local communities face the risk of losing their cultural and ethnic identities due to increased fluctuation of construction workers and camp followers. Higher concentrations of people may result in prostitution, drugs, gambling, trespassing, theft and other social disturbances, altering community dynamics and straining relationships among Ethnic minority groups.

Mitigation measures. Construction workers (include local villagers who are employed) shall receive proper health care services. Camp clinics shall have trained medical staff and medical supplies. Health services shall promote awareness and educate communes and camp workers on personal hygiene, sexually transmitted diseases and drugs related activities. Contractors shall ensure that publicly shared areas shall be clean and sanitized. Security levels shall be increased.

Construction workers and those local villagers who are employed shall be routinely tested for drugs and diseases. Village security shall be increased to prevent trespassing and theft. Cultural and ethnic heritage shall be maintained through support programs and activities through implementation of the RAP and RPF.

Camp workers and camp followers are required throughout the construction process. The magnitude of the impact will be moderate since a large number of households and construction workers will be affected and communes may never be able to retain their identities. The geographic extent and likelihood of occurrence of the impact will be moderate if communicable diseases are transmitted to the nearby communes and households.

Reversibility of the impact will be low if appropriate compensatory mitigation measures shall be applied during construction. The residual impact has been assessed to be moderate as application of additional mitigation measures shall reduce the level of impact to a low, or acceptable level, as necessary.

xv) Local job creation and transition away from local livelihood

The DRSIP may also hire local villagers, leading to the possible exploitation of locals as a cheap source of labor. Construction employment could detract from traditional agricultural practices. Since the project will take approximately four years, people may not be able to maintain their traditional agricultural or forestry activities, which would impact these communities income and

subsistence levels post-construction. Although jobs will benefit local villagers and people inhabiting adjacent communes during the interim, people will require new employment or return to traditional activities once construction has completed. People will have to maintain their agricultural/forestry activities throughout construction to maintain their levels of productivity.

Mitigation measures. Standard pay regulations and hiring practices shall be in agreement with contractors and local workers to create equal employment opportunities. Traditional activities, such as crop cultivation and bamboo harvesting shall be maintained to avert people from switching to nonagricultural jobs. Through the RAP and RPF, assistance shall be provided to affected communities to improve their livelihoods.

Construction contractors hire more villagers, leading to possible exploitation of locals as a cheap labor. Construction employment paves way for migrants and illegal immigrants from bordering countries, which will create competition among the local population. Also, males in the communes and households may never be able to practice traditional activities once construction is completed. The magnitude, likelihood of occurrence, and reversibility of the impact will be low if appropriate mitigation measures shall be applied during construction. The residual impact has been assessed to be low as impacts are considered negligible subject to the application of appropriate mitigation measures during construction activities.

xvi) Loss of Biodiversity and Increased Pressure on Protected Areas

The construction camp sites will require significant resources to sustain workers for approximately four years. Increased demand in food sources, water, fuel, firewood, building materials will directly compete with those currently used by the local villagers. Increase demand may result in exploitation of natural resources in protected areas leading to loss of forest cover, impacts on species and reduction in protected area integrity. Also, camp workers may pollute the environment due to lack of proper waste disposal facilities, resulting in degradation of local ecosystems (water, soils, vegetation, etc.).

Mitigation measures. Training and education programs shall be implemented to increase awareness about the importance of protected areas in coordination with contractors, local authorities and the protected area management boards. Contractors shall strengthen protection and management measures for protected areas. Security shall be increased to avoid illegal logging, hunting and poaching activities. A workers code of conduct banning consumption of bush meat in construction camps shall be enforced by the Contractor. Wastes produced by construction camps and local villagers shall be properly collected and disposed of at approved locations to maintain the integrity of environment.

The duration of the impact is considered low as it will occur largely during construction. The magnitude of the impact is moderate as human activities may affect the integrity of protected areas, which could lead to changes to wildlife and vegetation distribution. The geographic extent and likelihood of occurrence of the impact will be low but could affect the entire protected area. The reversibility of the impact will be high if resources lost due to human activities can never be replaced. The residual impact has been assessed to be low, if application of mitigation measures is ensured.

xvii) Access and management road construction

Impact agent: Construction of access and management road.

Potential impact. Loss of forest cover and productive land as the construction of access road is expected to alter species composition and modify habitats. The construction activities might interfere with the daily activities of local villagers and disturb livestock breeding. The noise created during construction may impact worker camps near the construction site.

Mitigation measures. To mitigate impacts during construction of access roads, efforts shall be taken to strengthen protection and management measures in order to maintain the integrity of the protected area. The traffic on access road shall be regulated in order to minimize air pollution and construction activities shall be restricted to day light hours to minimize disturbance to local villagers, worker camp and wildlife species.

The duration of the impact will be low if appropriate mitigation measures shall be applied during construction phase. The magnitude of the impact will be moderate if construction activities will affect local villagers and wildlife species. The geographic extent of the impact will be moderate considering the length of the access road. The likelihood of occurrence and reversibility will be low if appropriate mitigation measure shall be taken prior to construction. The residual impact has been assessed to be low as impacts are considered negligible subject to the application of appropriate mitigation measures during construction activities. Separate Environmental Impact Assessment and Environmental Management Plan reports were prepared for theirs access road.

xviii) Domestic and construction wastewater

Impacts. Wastewater amount from one camp is expected as …m3/day. The wastewater containing organic substance and bacterial, which cause stink, polluting water source and soil, at a result, worker's health will be affected.

Wastewater from construction activities is estimated at with highly alkaline, containing oil and grease, suspended solids and may contain heavy metals

Mitigation measure. Use local labor force in manual labor force to reduce household wastes Install collection and treatment system domestic wastewater that meet discharge criteria. Supply enough clean water for workers. Provide adequate lavatory facilities.

xix) Interrupt water supply for Irrigation

Impacts: Interrupt water supply for Irrigation will decrease crop yield.

Mitigation measure. Development detailed water supply plan (time table) with the participation of constructor, PPMU and local community. Announce water supply schedule on the public media.

xx) Hazardous substance

Amount of wasted oil, termite chemical and grease from machines is estimated, hazardous solid waste as battery container, tank, grease and oil container, paint boxes, bottles, nylon cover, damaged tools etc. During construction phase, the amount if not collected and treated, will affect water and soil environment

Mitigation measure. Hazardous waste must be labeled and stored in separate containers with appropriate labeling. Containers are located away from riverbank and domestic water source in order to avoid making bad affects on water quality. The vehicles need being to maintain or change oil must be taken into the designated area. Change the oil at the construction site is not allowed. Prepare a companion Emergency Response Plan outlining all procedures to be undertaken in the event of a spilled or unplanned release. Contract with the local Environment Company for collection and disposal of solid waste

6.4.3 Operation phase

i) Road traffic

Impact agent: Stockpiles, powerhouse, truck hauling, transport vehicles, etc.

Potential impacts. Increased dust and vehicles on community roads will affect local villagers and households. Increased traffic on local roads could impede local villager's transportation capabilities and increase the potential of road-related accidents. Transport vehicles will also increase the levels of dust and particulate matter, decreasing the air quality for local residents.

Mitigation measures. To mitigate increased road traffic and subsequent dust levels, additional traffic shall be confined to populated areas. Roads and transport vehicles shall be properly maintained and repaired, as required. Installation of speed limits and road signage will minimize traffic and reduce road-related accidents. The duration, magnitude, geographic extent, likelihood of occurrence, and reversibility will be low. The residual impact has been assessed to be low subject to the application of mitigation measures.

ii) Reservoir Impoundment

- Increased levels of floating debris
- Decomposition of vegetation biomass
- Sedimentation in the reservoir
- Alteration of existing fish species
- Increased levels of floating debris

Impact agent: Flooding

Potential impacts. Flooding of land and vegetation would release nutrients and vegetation debris into the water. The floating debris will obstruct water intake devices, reducing the water flow to the turbine, resulting in reduced and less efficient power generation.

Mitigation measures Follow prescribed measures in the reservoir and operation plan.

iii) Decomposition of vegetation biomass and cement packages

Impact agent: Flooding

Potential impacts. Decomposition of biomass leads to reduced oxygen levels, increased odors, and eutrophication in the reservoir. Increased nutrient levels will affect water quality resulting in low oxygen levels and noxious odors. These activities could affect aquatic life resulting in net loss of fish species.

Mitigation measures. Oxygen levels shall be maintained to sustain aquatic life in the reservoir area. The contractor shall ensure periodic clearing of biomass to avoid generation of noxious odours. Nutrient levels and water quality in the reservoir shall be maintained to sustain aquatic life. Follow prescribed measures in the Reservoir Clearing and Salvage Plan.

iv) Sedimentation in the reservoir

Impact Agent: Flooding of the reservoir and build up of sediment.

Potential Impacts. Increased sedimentation behind impoundment will lead to downstream impacts. As the sediment load increases, fish habitats will be modified (e.g., rocky river bed to mud cover), destroy spawning areas, and reduce primary production and fish food.

Mitigation measures. Measures will be implemented to protect forests of the all sub-project areas watershed to reduce erosion leading to sedimentation of the reservoir. Continuous monitoring and modeling of sedimentation shall also be carried out. Increase throughout the operation phase resulting in poor water quality. The geographic extent of the impact will be moderate as there will be direct impacts on downstream users and aquatic life. The likelihood of occurrence of the impact will be high if sediments will decrease the quality of water and destroy breeding and spawning areas.

The reversibility is considered low. The residual impact has been assessed to be high as impacts will occur throughout operations. It will bring significant changes to aquatic and human environments.

v) Change in environmental flows and downstream impacts

Impact Agent: Volume outflow, etc.

Potential Impact. Alteration of river flows will increase impacts on downstream river ecosystems and affect the livelihoods of people living alongside them. Fluctuations in flow will

alter river form and function, leading to a loss or increase in the abundance of riverine animals and plants. The fisheries sector could be impacted, resulting in a reduction of indigenous species.

Mitigation measures. Downstream environmental flows shall be maintained to reduce downstream impacts to the people and environment. Policies and procedures shall be implemented and operation procedures shall be developed to maintain environmental flows. The duration, magnitude, geographic extent, likelihood of occurrence, and reversibility will be low if appropriate mitigation measures shall be applied during operation. The residual impact has been assessed to be low if impacts are considered negligible subject to the application of mitigation measures during operation activities.

vi) Flood control benefits

Impact Agent: Volume outflow to downstream area.

Potential Impact. Creation of a physical barrier will control flood levels and reduce the potential of flood damages downstream. This is perceived as a positive impact as communities downstream will benefit from a reduction in damaged crops and river-side households.

Mitigation Measures. Downstream environmental flows shall be maintained to reduce downstream impacts. Policies and procedures shall be implemented and operation procedures shall be developed to maintain environmental flows. Intact river approach shall be considered to catchments area management.

The duration, magnitude, geographic extent, likelihood of occurrence, and reversibility will be low if appropriate mitigation measures shall be applied during operation. The residual impact has been assessed to be low if impacts are considered negligible subject to the application of mitigation measures during operation activities.

vii) Damage or loss of historical/culturally significant artifacts

Impact agent: Volume outflow to downstream area.

Potential impact. The fluctuating volume outflows to downstream areas in conjunction with the unstable river bank, and the lack of transported sediments may potentially lead to erosion and/or loss of historical/culturally significant artifacts.

Mitigation measures. Keeping historical/cultural relics in good condition is considered a priority and requires mitigation measures individually designed for each historical/cultural site discovered during the operation. Historical/culturally significant sites located outside of the project area (that are not removed or excavated) also have the potential to be influenced by the project's operation; and therefore, require monitoring throughout the lifespan of the project and, proper recognition under the Law on Cultural Heritage. Detailed mitigation measures are described in the project's Physical Cultural Resources Plan.

The magnitude, likelihood of occurrence and reversibility will be low if appropriate mitigation measures are applied during operation. The duration is expected to be moderate because the impacts are expected to occur within the lifespan of the project. The geographic extent of the impact is expected to be moderate because the impacts are expected to occur downstream, or outside of the immediate project area. The residual impact is considered to be low if mitigation measures are properly implemented.

CHAPTER VII. SCREENING, IMPACT ASSESSMENT AND MANAGEMENT PLAN

7.1 General

In order to ensure that the environmental and social issues are addressed properly in accordance and in compliance with the World Bank Safeguards Policies, all dam rehabilitation proposals shall undergo a process of screening, validation, assessment, review and compliance monitoring. This chapter describes the process for ensuring that environmental and social concerns are adequately addressed through the institutional arrangements and procedures used by the project for managing the identification, preparation, approval, and implementation of subprojects. This chapter has been divided into the following sections: (i) safeguard screening and impact assessment; (ii) development of mitigation measures and public consultation; (iii) review, approval, and disclosure of subproject safeguards instruments; and (iv) implementation, monitoring, supervision, and reporting.

To ensure that the environmental and social issues are addressed properly in accordance and in compliance with the World Bank Safeguards Policies, all dam rehabilitation proposals shall undergo an internal process of screening, validation, assessment, review and compliance monitoring. The processes and documentary requirements are summarized in Table 7.1 below.

Table 7. 1: Summary of the Sub-project Safeguards process

Stage in Sub-project Preparation Cycle	**Safeguards Requirements**	**Agency Responsible**
Sub-project identification	Initial Screening using the DRSIP Sub-project Screening Form	Local Dam Management/ PPMU
Field Validation	Final screening and determination of requirements (e.g. full EIA or ESMP, RAP, EMDP, etc.)	PPMU/CPO
Preparation of Feasibility Study/Detailed Engineering/ Program of Work	Consultation with local communities Preparation of ESIA or ESMP Preparation/Adoption of Environmental Code of Practice Preparation/Adoption of Chance Find Procedure Preparation of requirements from RPF (e.g., RAP, Land Acquisition and Compensation Plan, GRM, etc.) Preparation of requirements from EMPF (e.g. Evidence Free, Prior and Informed Consultation, Evidence of Broad Community Support, EMDP, etc.)	Local Dam Management/ PPMU

Stage in Sub-project Preparation Cycle	Safeguards Requirements	Agency Responsible
	Preparation of requirements from DSF (e.g. Dam Operations and Safety Plan)	
Review and Approval	All Sub-projects safeguard documents will be reviewed by the CPO, and submitted to WB for clearance. The sub-project safeguards documents includingESIA/ESMP/EIA, RAP, EMDP will be disclosed at MARD/CPO and provincial level. The communities/entities managing the dam should have one set of documents available.	CPO
Procurement (Preparation of Bidding documents; Bidding; Award of Contracts.)	Ensure that contracts include responsibilities of contractors on Safeguards as indicated in the Environmental and Social Management Plans, other plans. Setting up of Grievance Redress Mechanism Implementation of RAP, if there is any required.	PPMU, CPO
Construction	Monitoring for compliance with the measures in the ESIA/ESMP, RAP and EMDP.	PPMU, CPO
Turnover and Operation	Evaluation the actual impacts and the effectiveness of mitigation measures	PPMU, CPO

7.2 Safeguard Screening and Impact Assessment

Key steps in subproject preparation during project implementation are safeguard screening and impact assessment. The safeguard screening includes two steps, eligibility screening and technical screening for assessment of potential impacts, policies triggered and instruments to be prepared. The technical screening needs to be carried out all the major components of the subprojects. For example, if a dam rehabilitation subproject includes development of access road or construction of manager house etc., separate technical screening needs to be carried out.

Step 1: Sub-Project Identification and Initial Screening – The screening will use three sets of criteria: technical criteria in terms of the urgency of repair and eligibility in terms of

environmental and social safeguards. The screening will also determine the environmental category of the sub-project as well as other documentary and procedural requirements. The initial screening will conducted by the local dam management using the DRSIP Subproject Screening Form (Annex B).

Step 2: Validation and Final Screening - Before embarking on the preparation of the sub-projects, the local dam management will submit the dam rehabilitation for consideration to the PDARD-PPMU which will in turn endorse the same to the MARD-CPO. The proposed dam rehabilitation will then be validated by either the PPMU or the CPO. The validating agency will then finalize the Screening. It is at this stage that the Safeguards requirements are determined.

7.2.1 Eligibility Safeguard Screening

The primary objective of the project is to improve dam safety. The project thereby increases protection to people and socio-economic infrastructure downstream of dams facing high risk of failure and improves dam safety management at national and scheme level. The eligibility criteria for inclusion in the project require that any dam to be financed under the project is first included in the estimated 1,150 dams on the Government's dam safety program. The project is not intended to support any major structural changes of the dams. The subproject selected through prioritization criteria will be further examined using the eligibility safeguard screening. The purpose of eligibility screening is to avoid adverse social and environmental impacts that cannot be adequately mitigated by project or that are prohibited by the national legislation, or a World Bank policy, or by international conventions. The Table B.1 (Annex-B) will be used for this project eligibility screening.

A subproject that falls under one of the ineligibility criteria will not be eligible for project financing. The principle of avoidance usually applies for subprojects that can create significant loss or damage to nationally important physical cultural resources, critical natural habitats, and critical natural forests. Such subprojects would not likely be eligible for financing under the project

The project is not intended to support any major structural changes of dams. However, draft feasibility study indicates that some of the dams may require an increase in height and/or storage capacity to improve dam safety perspective. The project will support the increase of height and/or associated increase in storage capacity of a dam or a reservoir only after assessing the supporting evidence to demonstrate the improved safety benefits.

7.2.2 Determination of Environmental Category and Other Requirements

Step 2a: Validating Eligibility - The purpose of eligibility screening is to avoid adverse social and environmental impacts that cannot be adequately mitigated by project or that are prohibited by a World Bank policy, or by international conventions. Ineligibility criteria, which vary from project to project, could include: (i) prohibition under a World Bank policy, e.g., significant degradation or conversion of critical natural habitats, critical natural forests, etc. (ii) contravention of the country obligations under relevant international environmental treaties, e.g., Montreal Protocol or Stockholm Convention, etc; and (iii) environment and social impacts so

complex and adverse that are beyond the capacity of the PMU to manage. A subproject that falls under one of the ineligibility criteria will not be eligible for project financing. The principle of avoidance usually applies for subprojects that can create significant loss or damage to nationally important physical cultural resources, critical natural habitats, and critical natural forests. Such subprojects would not likely be eligible for financing under the project

After subprojects are determined to be eligible for financing, a technical screening will be carried out. The purpose of the technical screening is to: (i) classify subprojects into A, B, or C categories; (ii) identify the World Bank safeguard policies triggered; and (iii) to determine the type of safeguard instrument that needs to be prepared for the subproject (e.g., full scale ESIA, partial ESIA, or EMP). The subprojects to be funded under the Dam Rehabilitation and Safety Improvement Project will have mainly Category A and Category B subproject. No Category C subproject has been envisaged under the project. The subproject (and also major components) will be screened using the format presented in Table-B.2 (Annex-B). The subproject will therefore be screened for the extent of the potential impacts on air/noise/vibration; land/soil/water; solid wastes; natural habitats/fisheries/aquatic life; livelihoods and local resident disturbance; and other aspects such as local floods, public safety/risks, off-site impacts etc.

Subproject will be screened for the nature and extent of potential negative impacts on local people related to land acquisition, resettlement, land donation, relocation of graves, and/or involvement with ethnic minority. If the impacts exist, RAPs and/or EMDPs will be prepared in line with the Resettlement Policy Framework (RPF) and/or the Ethnic Minority Policy Framework (EMPF) which has been developed for the Project. Due attention should also be given to address the issues related to gender, ethnic minority, and other disadvantage groups, especially when they are likely to be affected by the natural disaster. Relation of graves will be in line with the WB policy on PCR. Relocation of graves will be carried out based on the principle of replacement cost and in accordance with local cultural practices, taking into account cultural preferences which are typical for each ethnic group as set out in the RAPs and EMDPs. WB approval of the RAPs and EMDPs will be mandatory.

The Table B.3 (Annex-B) outlines additional requirements and applicable safeguard instruments. This format is similar to Table E.2, but directly helps to find the appropriate instruments. The screening will lead determine the category, applicable polices triggered and type of safeguard instrument. However, the Table 7.1 provides the general category and applicable instruments requirements.

Table 7. 2: General Category and Safeguard Instrument Requirements

Type of Subproject	***Screening Result***	***Requirements***
Large scale dam with/without dam height/reservoir capacity increase from safety point of view	Proposed dam rehabilitation falls under Environment Category A	Conduct of full Environmental and Social Impact Assessment. Mandatory requirement of Dam Safety Plan. Screening of new subproject will be done, including screening of social issues - as per guidance from Annex B (Environmental and Social Screening) of this ESMF.

Type of Subproject	*Screening Result*	*Requirements*
		Depending on the results of the screening exercise, and that of the ESIA, the following documents will be required at subproject level: (1) RAP (Please see project's RPF for guidance) (2) EMDP (Please see project's EMPF for guidance) (3) Gender Action Plan, including Gender Monitoring Plan. (4) Due Diligence report for Social Legacy Issues (Please see guidance from Annex B (Environmental and Social Screening) (5) Public Health Intervention Plan (6) Public Consultation, Participation and Communication Plan (7) A Community Development Plan which is demand driven but relevant to the Project Development Objective, particularly where resettlement activities are implemented – as per OP 4.12, as needed on the basis of consultation.
Medium and Small scale dam with major structural modifications <u>with/without</u> dam height/reservoir capacity increase from safety point of view	Proposed dam rehabilitation falls under Environment Category A	Conduct of full Environmental and Social Impact Assessment. Dam Safety Plan is preferred. Screening of new subproject will be done, including screening of social issues - as per guidance from Annex B (Environmental and Social Screening) of this ESMF. Depending on the results of the screening exercise, and that of the ESIA, the following documents will be required at subproject level: (1) RAP (2) EMDP (3) Gender Action Plan, including Gender Monitoring Plan. (4) Due Diligence report for Social Legacy Issues (See Annex B -Environmental and Social Screening) of this ESMF. (5) Public Health Intervention Plan (6) Public Consultation, Participation and Communication Plan (7) A Community Development Plan which is

Type of Subproject	*Screening Result*	*Requirements*
		demand driven but relevant to the Project Development Objective, particularly where resettlement activities are implemented – as per OP 4.12, as needed on the basis of consultation.
Medium and Small scale dam with minor structural modifications <u>without</u> dam height/reservoir capacity increase from safety point of view	Proposed dam rehabilitation falls under Environment Category B (High Risk)	Conduct partial Environmental and Social Impact Assessment. Dam Safety Plan is preferred. Screening of new subproject will be done, including screening of social issues - as per guidance from Annex B (Environmental and Social Screening) of this ESMF. Depending on the results of the screening exercise, and that of the ESIA, the following documents will be required at subproject level: (1) RAP (2) EMDP (3) Gender Action Plan, including Gender Monitoring Plan. (4) Due Diligence report for Social Legacy Issues (5) Public Health Intervention Plan (6) Public Consultation, Participation and Communication Plan (7) A Community Development Plan which is demand driven but relevant to the Project Development Objective, particularly where resettlement activities are implemented – as per OP 4.12, as needed on the basis of consultation.
Medium and Small scale dam with mainly maintenance work without structural modifications	Proposed dam rehabilitation falls under Environment Category B (Low Risk)	Preparation of ESMP. Screening of potential social impact and determine to prepare/or not, the appropriate social instruments, as above.
Any type of dam	Rehabilitation will entail land or right of Way acquisition	Screening of potential social impact and determine to prepare/or not, the appropriate social instruments, as above.

Type of Subproject	*Screening Result*	*Requirements*
Any type of dam	Presence of Ethnic Minorities in the subproject's area of influence.	Conduct screening of potential social impact and determine to prepare/or not, the appropriate social instruments, as above. Note: If ethnic minorities are present within the dam's influence area, evidence of Free, Prior and Informed Consultation (FPIC) as well as evidence of broad community support (for subproject implementation) from the affected EM peoples should be submitted as part of the sub-project proposal package. The development of EMDP should be on the basis of the ESIA exercise conducted for the subproject. Please consultant with the Bank in case of doubt.
Any type of dam	Other Requirements	In addition, all dam rehabilitation sub-projects shall adopt the Chance Find Procedure (Annex E9) and the Grievance Redress Procedure and attached the duly signed documents as part of the Sub-project proposal package. All contractors are required to adopt the project Bid Specification: General Construction Management and Contractors' Responsibilities (Annex-E)

7.2.3 Impact Assessment

The subproject will therefore be screened for the extent of the potential impacts on air/noise/vibration; land/soil/water; solid wastes; natural habitats/fisheries/aquatic life; livelihoods and local resident disturbance; and other aspects such as local floods, public safety/risks, off-site impacts, etc (See Annex B, table B.2 Social and Environmental Checklist).

The subproject will be further assessed using the checklist (presented in Table-B.4, Annex-B). The aim of the checklist is to identifying the level of potential impacts. The level of impacts to be assigned should be as follows: None (N) – no impact; Low (L) – Small works, minor impacts, localized, reversible, temporary; Medium (M) – Small works in sensitive areas, medium scale works with moderate impacts of which most are reversible, reducible and manageable, localized, temporary; High (H) –Medium scale works in sensitive area, large scale works with significant impacts (socially and/or environmentally) of which some are irreversible and require compensation. Both M and H impacts need development and implementation of mitigation measures, monitoring program, and adequate institutional capacity on safeguard and this will be used as the basis for development of an ESIA and ESMP for the subproject.

The scope of the ESIAs will depend on the screening results. Data collection, field survey, and consultation with local communities and affected population will be carried out. ESIA will examine the subproject level potential negative and positive environmental impacts. The scope of category 'B' subproject ESIA will be narrower than that of Category 'A' subproject. The Annex-C provides standard guidelines for carrying out Subproject ESIA.

7.3 Mitigation measures and public consultation

7.3.1 Development of mitigation measures

Ministry of Agricultural and Rural Development, CPO, World Bank will review, assess and accept the screened results of environment, society, mitigation measures, check list of environmental elements which have been done in preparation process of Environmental consultant and consultation reports.

Appropriate mitigation measures should be identified according to the nature and extent of the potential negative impacts. Given that guideline for preparation of RAP, EMDP, and DSR will be prepared separately; this section focuses on the preparation of an ESMP describing the basic principles and activities to be carried out to mitigate the potential negative impacts. The primary objective of the environmental and social management plan (EMP) is to record environmental and social impacts resulting from the sub-project activities and to ensure implementation of the identified "mitigation measures", in order to reduce adverse impacts and enhance positive impacts. Besides, it would also address any unexpected or unforeseen environmental and social impacts that may arise during construction and operational phases of the sub-projects. An ESMP will briefly describe the subproject description; environmental and social background of the subproject area, including a good map showing locations of the subproject and site specific activities and/or process as appropriate; the potential impacts and proposed mitigation measures; and the implementation and monitoring arrangement and budget. A standard guideline for preparation of ESMP has been provided in Annex-C, C2.

The ESMP will clearly define actions to assess and mitigate risks as well as to mitigate potential impacts during site clearance and construction and to reduce the risks during operation, the ESMP should clearly lay out: (a) the measures to be taken during pre-construction, construction and operation phases of a sub-project to eliminate or offset adverse environmental impacts, or reduce them to acceptable levels; (b) the actions needed to implement these measures; and (c) a monitoring plan to assess the effectiveness of the mitigation measures employed.

During feasibility study and conceptual design. To mitigate the potential risks during operation that are related to: (a) failure of dams, dykes, and/or rescue roads and potential land/water use conflicts during sluice operation and local floods and (b) possible impacts on coastal erosion in nearby area. The following principles will be considered and applied during the preparation of the ESMP:

- For the subproject involving dam rehabilitation and/or upgrading, the DSF will be strictly followed. For large and high hazard dams (see definition in DSF), submission of a Dam Safety Report (DSR) to the WB will be required. A capacity building program on large and

high hazard dam should be described in the DSR. Scope of the DSR is provided in DSF. The safeguard screening excludes the financing of a new dam or increases the store capacity of reservoirs.

- For the subproject involving outlet works have negative impacts on downstream area will be screened to assess the negative impacts on production and people's life in affected area

- For subproject involving extending activates such as embankment, spillway extensions could increase flooding or increased sediment transport. it affects to the soil environment and downstream producers, need to calculate in detail of the impacts.

During detailed design and preparation of bidding and contract documents. To mitigate the impacts during site clearance and construction, the following activities will be carried out by PPMU:

- Include specific mitigation measures described in the ESMP into the detailed design as appropriate.

- In preparing the bidding and contract documents, include the standard ECOPs (Annex -E) in the bidding and contract documents and make an effort to ensure that the contractors are aware of the safeguard obligation and commit to comply. The ECOP comprises five sections: (i) objective and application, (ii) brief description of policies and regulations, (iii) roles and responsibilities of key parties (project owner and contractor), (iv) general provisions, and (v) construction management. The general provisions section prescribes the need for preparation of a Contract Specific Environmental Management Plan (CSEP), the non-compliance reporting procedures, the liaising with authorities and the public, the community relations, the mitigation objectives and special considerations, the implementation of "Chance Find" procedures, and prohibitions while the construction management section prescribes the general management of construction sites, the management of environmental quality from sources (i.e. control of water pollution, air pollution, waste generation, traffic and transportation, etc.), and the management of work camps, quarries/borrow pits, dredging, and monitoring of environmental quality. The contractor will be required to prepare the CSEP which is to be approved by the Construction Supervising Consultant (CSC) before starting construction. The CSEP will also include a monitoring plan for air, noise/vibration, soil erosion/sedimentation, and water quality during construction. Cost for mitigating the impacts during construction must be included as part of the Project cost. The supervision and/or field engineers will be responsible for supervision and monitoring of safeguard performance of contractor and this responsibility will be included in the TOR for field engineers.

- Ensure that all safeguard documents have been completed and disclosed

Secure Government approval of the EIA/EPP for the subprojects as required by the Government regulations. The subproject EMPs should be submitted to the relevant authority for review and comment.

The environmental and social management program should be carried out as an integrated part of the project planning and execution. It must not be seen merely as an activity limited to monitoring and regulating activities against a pre-determined checklist of required actions. Rather it must interact dynamically as a sub-project implementation proceeds, dealing flexibly with environmental and social impacts, both expected and unexpected. For all sub-projects to be implemented under the project, the ESMP should be a part of the Contract Document. The ESMP is sub-project and location specific. In addition, the Annex-E provides the Bid Specification: General Construction Management and Contractors' Responsibilities or ECoP. The costing for implementation of the ESMP and ECoP needs to be carried out.

In addition to ESMP and ECoP, the Contractor for all category 'A' project will prepare (within one month awarding the contract) specific Environmental Action Plan (ACP) with details of the equipment, schedule, technologies and manpower.

7.3.2 Monitoring Plan

The primary objective of the environmental and social monitoring is to record environmental and social impacts resulting from the sub-project activities and to ensure implementation of the "mitigation measures" identified earlier in order to reduce adverse impacts and enhance positive impacts from project activities.

Monitoring Plan for Construction Phase and Operation Phase:

Apart from general monitoring of mitigation/enhancement measures, important environmental and social parameters will be monitored during the construction and operation phases of the sub-projects. The requirement and frequency of monitoring would depend on the extent and scope of sub-project and field situation. Table -7.2 provides the format to be used developing monitoring plan of specific environmental and parameters during construction and operation phases. There will be 2 separate monitoring plans for construction and operation phase.

Table 7. 3: Format for monitoring plan during construction and operation phase

(***Monitoring parameters are indicative and these will be selected based on the specific subproject impacts***)

No.	Description	Monitoring Parameters	Method	Monitoring Frequency	Resource required and responsibility
I	**Construction phases**				
1	***Domestic wastewater***				
	Checking the performance of measures to minimize the impact of waste liquids. Check the quality of waste water before	pH, TSS, BOD_5, NH_4^+, NO_3^-, Coliform	Field survey and measure Analysis in the laboratory	2 times/year	QCVN 14:2008/ /BTNMT follows Column B criteria **Responsibility:** PPMU, EMC

	pouring the water				
2	***Air***				
	Checking the trend and quantifying the impacts caused by activities in daily lives and construction	Dust, noise, SO_2, CO, NO_2 concentrations	Field survey and measure Analysis in the laboratory PM2.5, PM10	2 times/year	QCVN 05:2009/ BTNMT QCVN 06:2009/ BTNMT **Responsibility**: PMU, EMC
3	***Surface water***				
	Monitoring the water environment quality. Following changes in the water flow.	pH, DO, COD, BOD_5, NH_4^+, coliform, turbidity	Field survey and measure Analysis in the laboratory	2 times/year	QCVN 08:2008/ BTNMT – follows Column B1criteria **Responsibility**: PPMU, EMC
4	***Labor Safety and Sanitation***				
			Field survey and assessment	2 times/year	The standard of health and labor safety PPMU, EMC
II	**O&M phase**				
1	***Surface water***				
	Monitoring the water environment quality.	pH, DO, NH_4^+, NO_3^-, turbidity, coliform,	Field measure Analysis in the laboratory	Once every 06 months	QCVN 08:2008/ BTNMT follows Column B1criteria **Responsibility**: PPMU, EMC
2	***Soil***				
	Determination of residues of fertilizers, and pesticide that change soil's physical properties.	pH, TSMT, Fe_3^+, Al^{3+}, N_{ts}, P_{ts}, As, pesticide	Field measure Analyse in the laboratory	06 months	QCVN 03:2008/ BTNMT QCVN 15:2008/ BTNMT **Responsibility**: PPMU, EMC

PPMU will assign the Construction Supervising Consultant (CSC) and/or field engineer to be responsible for supervision of safeguard performance of contractor on a daily basis. CSC and/or field engineers will carry out, but not limited to, the following tasks:

- Before the launch of the construction, confirm that (a) all compensation for land and facilities are provided and relocation and/or land acquisition/donation has been completed; (b) the subproject EIA and/or mitigation measures for specific site are approved by Government; and (c) the above-mentioned environmental plan have been approved by concerned parties.

- During construction, closely supervise the implementation of safeguard measures throughout the construction period.

- At the completion of the construction, confirm the compliance with the agreed environmental plan and inspect any damages incurred by the contractor. If necessary, prepare an order to compensate/restore the construction sites as specified in the contracts. Contractor safeguard performance will be included in the subproject progress report.

The contractor will recruit a group of national consultants (the Environmental Contractor) to assist in the planning and implementation of safeguard measures to be carried out by the contractor, including preparation of the Contract Specific Environmental Plan (CSEP) and communication with local authorities and local communities. In particular, the Environmental Contractor will carry out but not limited to the following tasks:

- Prepare a CSEP in compliance with the ECOP before launch of the construction given due attention to reduce potential negative impacts on safety of resident and general public, dust/noise suppression, waste management, and traffic congestion. Efforts should be made to identify sensitive areas that may be affected by and/or issues that may arise from the construction activities due to large number of local population and/or important use of land and water.

- During construction stage, monitor the compliance with the agreed environmental plan, and maintain close consultation with the community residents, and information disclosure and timely responsive to any possible complaints from residents and general public throughout the construction duration.

- At the completion of the construction, confirm the compliance with the agreed environmental plan and inspect any damages incurred to be paid by the contractor, including preparation of an order to compensate/restore the construction sites as specified in the contracts.

- Prepare a periodical report to the contractor and the subproject owners as agreed in the CSEP.

- Assist the CPMO/ESU/CEMC in conducting periodic monitoring of safeguard performance of construction contractors.

7.3.3 Public Consultation

Preparation and implementation of the subproject safeguards documents during project preparation need to follow the Bank requirements for public consultation under OP 4.01. Public consultation is generally a continuous process aimed at engaging the stakeholder efforts throughout the planning, design, construction, and operation a project. The objectives of consultation are to generate public awareness by providing information about a sub-project to all stakeholders, particularly the sub-projects affected persons (PAPs) in a timely manner and to provide opportunity to the stakeholders to voice their opinions and concerns on different aspects of the project. Consultation is a continuous process by which opinion from public is sought on matters affecting them. The opinions and suggestions of the stakeholders would assist the DARD in taking appropriate decisions for effective environmental and social management of the sub-projects. It would help facilitate and streamline decision making whilst fostering an atmosphere of understanding among individuals, groups and organizations, who could affect or be affected by the sub-projects. The specific objectives of public consultation are:

- To keep stakeholders informed about the sub-projects at different stages of implementation

- To address the environmental and social concerns/impacts, and device mitigation measures taking into account the opinion/ suggestions of the stakeholders

- To generate and document broad community support for the sub-projects

- To improve communications among interested parties; and

- To establish formal complaint submittal / resolution mechanisms.

At least 2 stages consultation with the project affected people, project beneficiary and relevant stakeholders will need to be carried out. The first stage consultation for environmental and social impact assessment is required during the subproject technical screening level. And second level consultation should be carried out once the impacts are clearly identified and draft management plan are prepared. If required, more than 2 consultations should be carried out. The following are the guidelines for carrying out consultation:

- The mode of consultation will be either public consultation (PC) or focus group discussion (FGD). The consultative meeting or discussion will provide opportunity to the participants to raise their concerns freely about the sub-projects and their impacts on their life, livelihood and their community as a whole. Discussion will also be focused on sub-project(s) specific environment and social issue, so that stakeholders can contribute their knowledge on better environmental and social management.

- The composition of participants may differ depending on the nature and location of the sub-projects. A stakeholder analysis needs to be carried out to identify the key stakeholders and Project Affected Persons (PAPs). Depending on the social formation and interest of different groups, separate meetings should be organized.

- Information on the PC/ FGD needs to be announced locally using loud speakers and putting notices in public important places at least 7 to 10 days prior to the consultations. In general, it

must be ensured that the PAPs and other stakeholders are informed and consulted about the sub-project, its impact, their entitlements and options, and allowed to participate actively in the development of the sub-project. This should be done particularly in the case of vulnerable PAPs. This exercise should be conducted throughout the sub-project preparation, implementation, and monitoring stages. An open-door policy should be maintained for community people, so that stakeholders feel comfortable approaching DARD directly to ask questions and raise concerns on environmental and social issues. Create a responsive management system should be created for recording and responding to comments and concern on environmental and social issues. It should be ensured that the DARD and its consultant capable of responding to questions/comments, appropriately.

7.4 Review, Clearance and Disclosure

7.4.1 Review and Clearance at Project Level

After the provincial level, the provincial level hired Environment and Social (E&S) consultant submits the screening report to PPMU. The Safeguard Official of PPMU will review the document and make field verifications. At the central level at MARD, the Environmental and Social (E&S) Consultant will review the screening and agree on the instrument to be used for the subproject assessment.

After the assessment, the draft ESIA report (A Template for subproject ESIA provided in Annex-C1 including ESMP will be reviewed again at PPMU and then it will be sent to PMU. The central E&S consultant will review in detail the adequacy and efficacy of the assessment, consultation and management plan. The E&S consultant will carry out for field review of all subprojects and recommend for central project management level clearance. If additional documents and information required at each level of review, the document will be updated and submitted again for review and clearance.

7.4.2 Provincial and National Level Clearance/Certification

If the subproject requires Government approval according to the EIA and/or other regulations, the subproject owner will prepare and submit the report as required by the Government and secure their approvals and clearances (provincial People's Committee for Category B subproject or Ministry of Natural Resources and Environment for Category A subproject). An English summary of the EIA as well as the approval conditions will be provided to the Bank for information. The EIA report and approval condition will also be disclosed to the public.

- Glossary table
- Table of contents
- List of figures
- List of tables

- Executive summary of EIA
- Main text of EIA (chapters, sections)
- References
- Appendices

Dataset on weather, hydrologic conditions, environmental quality, bio-diversity: detailed data and charts about the project; methods of measurement, analysis, and calculation, results of predictions, etc. are summarized in the main text and incorporated in the appendices to ensure the streamlined format and clear contents of the report.

v) Executive Summary of EIA

The Executive Summary is expected to be a clear briefing of major contents of the EIA main text. The ES is the document for decision makers to read and understand environmental issues of the projects as well as mitigation measures to be applied for negative impacts. Therefore, the ES is expected to be as detailed as possible, preferably 10% of the volume of main text.

a) Appraisal and Approval of EIA reports

Appraisal and approval of EIA reports, verification of EIA report content implementation must follow strictly provisions of laws. Appraisal and approval of EIA report are regulated in detail in Decree no.18/2015/ND-CP and circular no.26/2011/TT-BTNMT and Decree no.29/2011/2011/TT-BTNMT (mentioned why this document use the circular in Chapter III). The document also stipulates specific actions for implementation, verification and certification of EIA content implementation. The Circular also stipulates specific actions on implementation of EMP and post-EIA Compliance and Monitoring.

c) RAP/RPF Monitoring and evaluation

Monitoring is a continuous evaluation process of the project implementation which is related to the unified implementation schedule on the use of the project inputs, infrastructures and services. Monitoring provides concerned agencies with continuous reflections on the implementation status. Monitoring determines the reality, successful possibility and arising difficulties as soon as possible to facilitate the due adjustment in the project implementation. Monitoring includes 2 following purposes:

(i) Monitor whether the project activities complete efficiently or not, including quantity, quality and time.

(ii) Assess whether these activities reach the objectives and purpose of the Project or not, and how much do they reach.

The executive agency (the PMU) as well as the independent monitoring Consultants which are contracted with the CPO shall monitor and supervise the RAP implementation regularly.

Internal Monitoring

Internal monitoring of the RAP implementation of the Sub-projects is the main responsibility of the implementation agency with the assistance of the project consultants. The implementation agency will monitor the progress of RAP preparation and implementation throughout the regular progress reports.

The criteria of internal monitoring includes but not limit to:

(i) Compensation payment for affected households for the different types of damage pursuant to the compensation policies described in the resettlement plans

(ii) Implementation of technical assistance, relocation, allowance payment and relocation assistance.

(iii) Implementation of income recovery and entitlement to recovery assistance.

(iv) Dissemination of information and consultation procedures.

(v) Monitoring of complaint procedures, existing problems that require the manageable attention.

(vi) Prioritizing affected persons on the proposed selections.

(vii) In coordination to complete RAP activities and award construction contract.

The executive agencies will collect information every month from the different resettlement committees. A database tracking the resettlement implementation of the Project will be maintained and updated monthly. The executive agencies will submit internal monitoring reports on the RAP implementation as a part of the quarterly report they are supposed to submit the WB. The reports should contain the following information:

(i) Number of affected persons according to types of effect and project component and the status of compensation, relocation and income recovery for each item.

(ii) The distributed costs for the activities or for compensation payment and disbursed cost for each activity.

(iii) List of outstanding Complaints

(iv) Final results on solving complaints and any outstanding issues that demand management agencies at all levels to solve.

(v) Arisen issues in the implementation process.

(vi) RP Schedule is actually updated.

Independent Monitoring

The general objectives of independent monitoring are to periodically supply independent monitoring and assessing results on the implementation of the resettlement objectives, on the changes of living standard and jobs, APs income and social foundation restoration, effectiveness, impacts and sustainability of APs' entitlements, and on the necessity of mitigation measures (if any) in an attempt to bring about strategic lessons for making policy and planning in the future.

In accordance with the WB requirements for consultant employment, the CPO will hire an organization for the independent monitoring and evaluation of RAPs implementation. This organization is called the Independent Monitoring Consultant (IMC) which expertise in social science and has experiences in independent monitoring of RP. The IMC should start their work as soon as the project implementation comments.

The following indicators will be monitored and evaluated by the IMC, including but not limited to:

(i) Payment of compensation will be as follows: a) full payment to be made to all affected persons sufficiently before land acquisition; (b) adequacy of payment to replace affected assets.

(ii) Provision of assistance for APs who have to rebuild their houses on their remaining land, or building their houses in new places as arranged by the project, or on newly assigned plots.

(iii) Assistance for recovering livelihood/income sources.

(iv) Community consultation and public dissemination of compensation policy: (a) APs should be fully informed and consulted about land acquisition, leasing and relocation activities; (b) the IMC should attend at least one community consultation meeting to monitor community consultation procedures, problems and issues that arise during the meetings, and propose solutions; (c) public awareness of the compensation policy and entitlements will be assessed among the APs; and (d) assessment of awareness of various options available to APs as provided for in the RAP.

(v) Affected persons should be monitored regarding restoration of productive activities.

(vi) APs' satisfaction on various aspects of the RAP will be monitoring and recorded. Operation of the complaint mechanism and speed of complaint settlement will be monitored.

(vii) Through the implementation, trends on living standard will be observed and surveyed. Any potential issues in the recovering living standard are reported and suitable measures will be proposed to ensure the project objectives.

Methodology for Independent Monitoring

- *Database Storage:* The IMC will maintain a database of resettlement monitoring information. It will contain files on results of independent monitoring, HHs monitored and will be updated based on information collected in successive rounds of data collection. All databases compiled by the PMU will be fully accessible by the IMC.

- *Reports.* The Independent Monitoring Consultant must submit periodical reports every 6 months which states the findings in the monitoring process. This monitoring report will be submitted to the CPO, and then the CPO will submit to the WB in the form of appendixes of the progress report.

- The report should contain (i) a report on the progress of RAP implementation; (ii) deviations, if any, from the provisions and principles of the RAP; (iii) identification of outstanding issues and recommended solutions so that the executive agencies are informed about the ongoing situation and can resolve problems in a timely manner; and (iv) a report on progress of the follow-up of problems and issues identified in the previous report.

- *Follow-Up Monitoring Report.* The monitoring reports will be discussed in a meeting between the IMC and PMU. PMUs will hold meetings immediately after receiving the report. Necessary follow-up activities will be carried out based on the problems and issues identified in the reports and follow-up discussions.

- *Ex-post Evaluation Report.* In fact, this is the evaluation at a given point of time of the impact of resettlement and the achieved objectives. The external monitor will conduct an evaluation of the resettlement process and impacts 6 to 12 months after the completion of all resettlement activities. The survey questionnaires for evaluation are used based on the database in the project database system and the questions used in the monitoring activities.

Ultimately, a summary of ex-post resettlement evaluation included in Project Completion Report (PCR) will be prepared before closure of the Project. The evaluation covers project impacts (number of affected households, scope of land acquired by subproject, compensation paid to APs, any pending issues resulting from land acquisition and provides information if the AP's livelihood is restored, or at least maintain to pre-project implementation. Resettlement Action Plan cannot be considered complete until an ex-post evaluation and a project completion audit confirm that all the affected HHs have received fully all compensation, assistance and life restoration processes as planned.

7.4.3 World Bank Review and Clearance (this section will be added by World Bank later on)

7.4.4 Disclosure

ESIAs, ESMPs, DSPs, RPs and EMDPs of all subprojects prepared during project implementation will be disclosed locally before approval of these subprojects. These documents will be posted in the official website MARD/CPO/DARD and hardcopies will be available at PPMU and project site in Vietnamese . A notification will be published about the disclosure and comments will be sought within one month of the disclosure date. The English and Vietnamese version of the ESIA will be disclosed in the VDIC of the World Bank office in Hanoi and English version will be disclosed in the Infoshop of the World Bank.

Subproject-specific Category A: documents ESIAs, RAPs, and EMDPs in English will be disclosed in the World Bank Infoshop and also in (VDIC) of the World Bank office in Hanoi. An Executive Summary of the ESIA for a Category A subproject (covering all safeguard documents of the subproject) should also be prepared and disclosed in both English and the national language. The Executive Summaries of EAs for Category A subprojects must also be distributed to the Board of Executive Directors before the departure of the appraisal mission.

7.5 Implementation, Supervision, Monitoring and Reporting

7.5.1 At Sub Project Level

The Provincial Project Management Unit (PPMU) is responsible for ensuring effective implementation of subproject level safeguard measures (ESMPs, ECOP, and Monitoring Plan etc.) in close consultation with local authorities and local communities. PPMU will assign/hire at least one full time staff with relevant academic and professional experience as the Safeguard Focal Point. The number of Safeguard Focal Points will depend on the number and extent of the subprojects. The PPMU will ensure incorporating ESMPs, ECOPs and other plans in bidding and contractual documents. During construction, the subproject owner will assign the Construction Supervising Consultant (CSC) and/or field engineer to be responsibility for monitoring and supervision of ESMP, ECOPs and monitoring plan implementation by contractor on a daily basis. In addition, PPMU will ensure adequate budget to execute the monitoring plan during the operation phase. PPMU will submit to management organization the quarterly consolidate safeguard progress and monitoring report on during construction phase and the half-yearly monitoring report during operation phase.

CSC and/or field engineers will carry out, but not limited to, the following tasks:

- Before the launch of the construction, confirm that (a) all compensation for land and facilities are provided and relocation and/or land acquisition/donation has been completed; (b) the subproject EIA and/or mitigation measures for specific site are approved by Government; and (c) the above-mentioned environmental plan have been approved by concerned parties.

- During construction, closely supervise the implementation of safeguard measures throughout the construction period.

- At the completion of the construction, confirm the compliance with the agreed environmental plan and inspect any damages incurred by the contractor. If necessary, prepare an order to compensate/restore the construction sites as specified in the contracts. Contractor safeguard performance will be included in the subproject progress report.

In addition, the contractor will recruit national safeguard consultants to assist in the planning and implementation of safeguard measures to be carried out by the contractor, including preparation of the Environmental Action Plan (EAP) and communication with local authorities and local communities. In particular, the safeguard consultants will carry out but not limited to the following tasks:

- Prepare a EAP in compliance with the ESMP and ECOPs within one month of contract awarding with due attention to reduce potential negative impacts on safety of resident and general public, dust/noise suppression, waste management, and traffic congestion. Efforts should be made to identify sensitive areas that may be affected by and/or issues that may arise from the construction activities due to large number of local population and/or important use of land and water.

- During construction stage, monitor the compliance with the agreed environmental plan, and maintain close consultation with the community residents, and information disclosure and timely responsive to any possible complaints from residents and general public throughout the construction duration.

- At the completion of the construction, confirm the compliance with the agreed environmental plan and inspect any damages incurred to be paid by the contractor, including preparation of an order to compensate/restore the construction sites as specified in the contracts.

- Prepare a periodical report to the contractor and PPMU as agreed in the EAP.

7.5.2 At Project Level

The Central project Management Unit (CPMU), MARD will lead in overseeing and monitoring of the implementation of subprojects and this unit will periodically supervise and monitor the safeguard implementation performance and include the progress/results in the Project Progress Report. The PMU will report on (a) compliance with measures agreed with the World Bank on the basis of the findings and results of the ESIA, including implementation of any ESMP, as set out in the project documents; (b) the status of mitigation measures; and (c) the findings of monitoring programs.

The CPMU will set up an Environmental and Social Unit (ESU) responsible for effective and timely implementation of safeguard activities and assign one senior staff and at least one full time safeguard staff to be responsible for managing and monitoring of the environmental and social impacts of subprojects throughout the project period. The main responsibilities of an ESU will include, but not be limited to (a) enforcing compliance, including supervision and monitoring, of all environment and social aspects; (b) representing the subproject owner for all

matters related to the project safeguards; and (c) responsibility for overall coordination of subproject EMP implementation. Information regarding the safeguard measures and performance should be periodically disclosed to the public.

Further to that, PMU will hire the services of the International Qualified Environment and Social (E&S) Consultant Firm for review and clearance of subproject ESIAs, supervision and monitoring of ESIAs and other plans, reporting and capacity building. The ToR of the E&S Consultant Firm is provided in Annex-G. E&S Consultant will develop a system for proper tracking of environmental and social safeguard issues in the project. The Consultant will prepare detailed Half-Yearly report on Safeguard implementation and monitoring. This will be an addition to safeguard reporting in Project Progress Report. The Project has also provision of Third Party Monitoring of Project activities and environmental and social safeguard monitoring will also be included in the independent monitoring of project activities. The scope of environmental and social monitoring is provided in Annex-G2.

CHAPTER VIII. IMPLEMENTATION ARRANGEMENT

8.1 Project Implementation Arrangement

8.1.1 Project Management

The implementation of the environmental and social safeguard will follow the Project Implementation arrangement. The Ministry of Agriculture and Rural Development (MARD) will be responsible for overall implementation and management of the project. The MARD has been mandated with responsibility for the state management of dam safety under Decree 72. A Dam Safety Unit (DSU) was established within MARD under the WB financed VWRAP and later merged within the Directorate of Water Resources. The Ministry has experience implementing various Bank financed projects and is familiar with Bank procedures and policies.

CPO under MARD has been designated as the Project Owner. A Central project Management Unit (CPMU) will established with responsibility for implementation of the project in accordance with the framework documents for determining the eligibility, prioritization and readiness of the sub-project investments, as well as compliance with the safeguards framework, and the sub-project assessments. In addition to ensuring the project is implemented in compliance with the technical and safeguard frameworks, the CPMU will also be responsible for the overall project level administration, including procurement, financial management, monitoring and evaluation, and communications.

The CPMU will be supported in implementation of the overall project by Engineering and an Environmental and Social Technical Assistance. These will be firms recruited through a competitive process to provide quality assistance and assurance to the central level during implementation. This will include support to CPMU in reviewing, refining as needed, and re-enforcing the frameworks developed during project implementation so that they can serve as the framework for the national program. This process will be reviewed in the context of the revisions to Decree 72 to support MARD establish the necessary systems for implementation of the National Dam Safety Program and with its responsibilities for national dam safety.

8.1.2 Independent Third Party Monitoring

An Independent Third Party Monitor will carry out regular, independent monitoring and evaluations of project activities. The evaluation will be carried out against the approved framework documents for the technical and safeguard components, approved plans, including the detailed designs, financial management, procurement, contract and construction management and disbursements. The Third Party Monitor will also evaluate compliance with the applicable the Safeguard Policies and implementation of the various safeguard instruments, including the Environmental Management Plans/Environmental Codes of Practice, Resettlement Policy Framework/Resettlement Action Plans, Ethnic Minority Development Plans, and Gender Action Plans among others.

8.1.3 Dam Safety Panels

A National Dam Safety Review Panel and an International Dam Safety Panel would be established under the project to provide independent review and guidance to MARD and the Provincial authorities during implementation. The PoE would include specialists in at least three areas: Dam Safety, Geology and Geotechnics, and Hydrology and Hydraulics, each with considerable international experience in dam rehabilitation programs. The international experts would be accompanied by a minimum of two national experts in corresponding fields. The panels would be expected to visit at least twice a year for a period of two weeks, at minimum, to review, assess and advise Government on the program.

8.1.4 Provincial Level Project Implementation

The Provincial People's Committee (PPC) is responsible for project implementation within the Provinces and is the designated Executing Agency. Each province will have one implementing agency for all sub-projects and take advantage of existing Provincial Project Management Units (PPMU). PPMUs would only be established in those Provinces where they do not already exist if there was an identified need during implementation. The PPMUs are responsible for all bidding activities, construction supervision, implementation of Resettlement Action Plans, environmental and social action plans to be carried out in compliance with the agreed framework for the overall project. The PPMUs will be supported by the PMU, the Engineering Technical Assistance and the Environmental and Social Service Provider. The project implementation arrangement has been briefly shown in Figure 8.1.

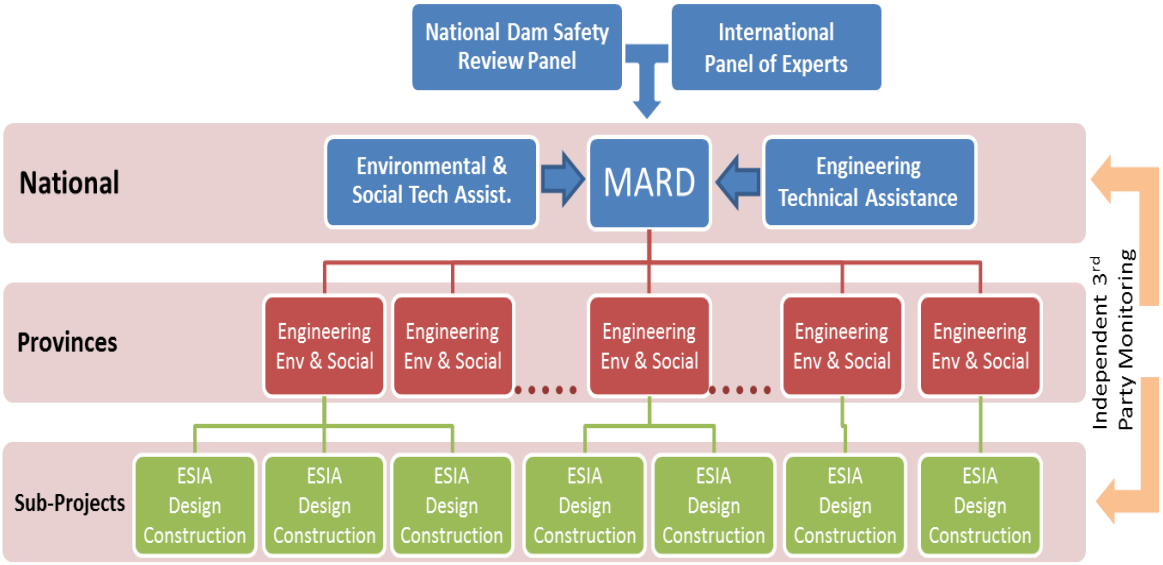


Figure 8. 1: Project Implementation Arrangement

8.2 Roles and Responsibility for E&S Safeguard Management

During the usual investment supervision activities, the CPO will check with local environmental authorities to determine if the project implementation is meeting all specified ESIAs and EMSP

requirements. They will also perform supervision site visits to the various stages of investments construction to confirm the ESMP/ESMoP is being adequately implemented. A supervision report covering the environmental management issues should be included in the overall site visit report. The designated environmental and social specialists will prepare quarterly and annual reports on the key steps, outputs and results of the environmental management actions taken for all investments throughout the project cycle.

As part of the normal reporting, the relevant office of MARD will request each PPMU to include a section on environmental performance with respect to their respective investments, including any critical mitigating actions taken and any significant environmental incidents. The PPMU will include an environmental section in every report prepared for the World Bank. As appropriate, the section will discuss details of any environmental issues that have occurred during the reporting period and the actions taken to resolve them.

Problems and issues arising during the use of the ESMF will be flagged and brought to the attention of Managers and for their action. Copies of the quarterly and annual environmental and social monitoring reports will also be sent to the World Bank. The Bank will also review these reports during the periodic supervision missions.

The implementation of Environmental and Social Management Framework, Environmental Management Plan and Resettlement Policy Framework will be responsibility of the Borrower and project designer (in the planning phase); the Executors of civil works and supervision works (in the construction phase), and the Manager(s) of each sub-project (in the implementation phase).

Stakeholder involvement is an important element of the overall Environmental and Social Assessment process for the DRSIP Project, as stakeholder identification and analysis at an early stage of a project is critical in the assessment of interests, concerns, relationships, assumptions, their level of influence and the ways in which they affect project risks.

Stakeholder identification and engagement commenced during project conceptualization and will continue throughout the ESIAs development. Effective implementation of this ESMF will require technical capacity in the human resources of implementing institutions as well as logistical facilitation. Implementers need to understand inherent social and environmental issues and values and be able to clearly identify them during project implementation.

Sufficient understanding of the mechanisms for implementing the ESMF will need to be provided to the various stakeholders implementing the DRSIP investments. This will be important to support and appreciate their role in providing supervision, monitoring and evaluation including environmental reporting on the projects activities.

In order to ensure that there is adequate capacity to implement and monitor the performance of this ESMF and its provisions, it is advised that environmental and social specialists/expertise be appointed to PPMU as part of each of subproject implementation. This expertise will contribute to the objectives of the Project, and will include, among other specific tasks:

- Preparing, together with the implementing entities, of annual work programs and budgets linked to ESMP/ESMoP, ESIA, SIAs.

- Monitoring project progress as it relates to compliance with the ESMF guidelines, resolving implementation bottlenecks, and ensuring that overall project implementation proceeds smoothly.

- Collecting and managing information relevant to the project and accounts (i.e., environmental and social monitoring and audit reports).

- Ensuring that the implementing bodies are supported adequately and that they adhere to the principles of the project, specific to compliance with the ESMF guidelines; and

- Responsible for the organization and provision of training sessions, including a training plan and its modules, in environmental screening and environmental management and similarly training is also needed in land acquisition and involuntary resettlement safeguard policies for field supervision staff, and communities representatives to familiarize them with the principles and procedures as set out in the ESMF.

8.3 Incorporation of ESMF into Project Operational Manual

For smooth planning, implementation and supervision, a Project Operational Manual (POM) will be prepared before the inception of the Project. The POM will have sections on environmental issues/procedures, resettlement and compensation and ethnic minorities plans. These sections will provide links to: (i) subproject screening; (ii) appropriate mitigation actions and/or checklists; (iii) practical pre-tested safeguard forms used at field subproject level; (iv) development of supplemental tools/guidance; (v) details on how monitoring and evaluation for safeguards will be undertaken; and(vi) definition and role of third party auditing. The consultant responsible for preparing the ESMF will ensure that the above areas are well covered in the POM.

CHAPTER IX. CAPACITY BUILDING, TRAINING AND TECHNICAL ASSISTANCE

9.1 Justification institutional capacity assessment

Effective implementation of this Environment and Social Management Framework (ESMF) will require technical capacity in the human resource base of implementing institutions as well as logistical facilitation. Implementers need to understand inherent social and environmental issues and values and be able to clearly identify indicators of these. Even with existence of policies and laws such as the Law on Environment Protection 2015 evidence on the ground, still indicates that there is significant shortcoming in the abilities of local and district level stakeholders to correctly monitor, mitigate and manage environmental performance of development projects.

Sufficient understanding of the mechanisms for implementing the ESMF will need to be provided to the various stakeholders implementing subprojects of DRSIP. This will be important to support the teams appreciate their role in providing supervision, monitoring and evaluation including environmental reporting on the projects activities.

9.2 Human Resource Capacity Requirements

Human capacity challenges for stakeholders involved in the implementation of the ESMF are of two types:

- Low technical capacity of current staff, and
- Inadequate (low) numbers of staff.

While adequacy in staffing requirements was found to be varied between the various stakeholders, there is very limited presence of directly trained and dedicated staff for environmental management purposes within institutions, in particular at the local levels. Staffs from other departments are usually assigned duties related to environmental management. As a result, sufficient knowledge on environmental management principles, project screening, impact mitigation, monitoring and follow up action was limited within most institutions.

In many institutions, staffs have been retained for core activities leaving little if any human resources to directly oversee environmental management activities. As a result, this portfolio which in many cases is given little attention is handled by staff members not adequately conversant with it.

9.2.1 Central project office capacity

With the experiences over 20 years, Central project office has prepared and implemented many international and national project, it can be seen that 09 big projects funded by the World Bank, 07 projects financed by ADB, 04 projects funded by JICA and 01 projects cooperated which Korean Kexim Bank financing. Within 5 years, CPO has successfully prepared 04 projects that's funded by the World Bank, include: Vietnam Water Resources Assistance Project (WB3), done

in 2013, disaster management project (WB5), Irrigation Management serves rural development in the Mekong River Delta Project (WB6) and irrigated agriculture improvement project (WB7). The projects of WB3, WB5 and WB7 projects related to the reservoir and dam safety are on going process.

The Resettlement and Environment Division of CPO will consult and implement environmental and social safety policies of CPO. The department has 09 staffs with their major as hydrology-environment, environment and social. The staffs have experienced in the preparations and implementation for environmental and social safety policies. The staffs of the department are participating in short-term training courses on the environment, society specialized workshops in the overall training program which conducted by World Bank, ADB and internal department.

However, due to increasing requirements on the management and implementation of safety environmental and resettlement policies, the staffs of CPO still need to improve their knowledge and skill as well as languages proficiency to meet the conditions.

9.2.2 PPMU

Most of the dams were built before 1990, at that time the law of environmental protection and the regulations on environmental impact assessment have not been issued. According to survey results of the first 12 subprojects, the construction works aren't archived the reservoir designs, because it were built by local people

Manpower on environmental resources management: According to survey results of the first 12 subprojects, 6/12 subprojects (50%) have not the specialized division or responsible personal for Environment science and Society. An about 50% of the sub-project has specialized sections for the Environment (the locals have been engaged by ADB projects or World Bank), however, the number of the staffs of environmental and social science is a few number of 16.6%, most of them are come from engineers and irrigation, economy.

In some cases, environment personnel are present but level of training and technical capacity on environmental principles and tools of management are not sufficient. Training and awareness creation will be undertaken at different levels of implementation.

These levels will entail the central Government, local authorities, private sector, NGOs, and grassroots stakeholders. The exercise will be customized according to each level's needs to ensure adequacy in implementation of the ESMF.

9.3 Capacity Building and Training

Education and training of the agency staff and the dam owner are important elements of any program. Newer staff needs training focused on dam safety engineering. Because state-of-the-practice technology for dam design, construction, and inspection activities is constantly changing, even experienced professional and technical staffs must be continually educated in these new techniques and trained in their use. Various levels and types of education and training can be employed to keep staff personnel up to date in their particular areas of expertise.

Likewise, there are different vehicles and resources available for informing the dam owner about the proper techniques of maintenance and operation of their dams.

Awareness creation, training and sensitization will be required for personnel of the following institutions:

- National Technical Committee
- National Project Coordination Team
- Local government authorities
- District Environment Officers
- Technical staff of MARD and Environmental and social expert consultants (including extension staff)
- NGOs, Cooperatives and Associations
- Community Implementing Units e.g. Social Groups, women's Unions, youth unions
- Contractors managers and personnel
- Private Sector Environmental Compliance personnel

Training will concern:

- Environmental and social impact screening process and using ESMF checklists
  - Screening process
  - Assignment of environmental categories
  - Rationale for using Environmental and Social Checklists
  - The importance of public consultations and participation of households in the screening and planning process
  - How to monitor ESMF implementation
- Safeguard policies, procedures and sectorial guidelines
  - Review and discussion of national environmental policies, procedures, and legislation
  - Review and discussion of the Bank's safeguard policies

- Selected topics on environmental protection and social safeguards
    - Air, water and soil pollution
    - Health and Safety
    - Waste management and disposal
    - HIV/AIDS etc.
    - Natural resource utilization
    - Selection of viable small & medium scale enterprise
    - IPM

Selection of training courses should identify potential guidelines or good practice documents on environmental management for the key sectors to be financed. The objective is to help staffs move beyond just compliance to cleaner production and improved environmental sustainability that would help reduce costs (e.g., due to use of less water and energy, generation of less wastes, etc.) and potential environmental problems. World Bank environmental safeguard specialists will provide periodic supervision and training relative to the identification and management of environmental risk in project evaluation and implementation. World Bank will assist Vietnam government to identify appropriate external training opportunities for environmental screening and environmental management for DRSIP project officers, field supervision staff, small and medium enterprise development officers and selected community representatives to familiarize them with the principles and procedures.

Specific areas of training for a beginning program include:

No	*Contents*	*Subjects*
1	Environmental and social safety policies	PPMU
2	Environmental management capacity improvement	PPMU and contractor
3	Environmental and society monitoring skills improvement	PPMU, construction consultant; environmental consultant, local authority
4	Training on environmental health and occupational safety measures, prevention of communicable diseases, infectious	Contractor
5	Training on dam safety awareness	Project operation agency
6	Training and raising awareness on gender equality	Local authority

CHAPTER X. ESMF IMPLEMENTATION BUDGET

According to the total costs of the first year subprojects, the total estimation cost for environmental and social management framework for project safety implementation is around US$ 92 mill. (VND 1,970 bill.). The allocations of budget are as follows:

- The estimation budget of environmental and social safety policies report consultant US$ 33.2 mill. (VND 713 Mill.).

- The estimation budget of mitigation measure implementing is US$ 10.7 Mill. (VND 230 Bill.). The monitoring contents are mentioned in the plan of environmental impact mitigation measures.

- The estimation budget of Environmental and social monitoring is US$ 10.4 mill. (VND 223 bill.). The parameters and frequency of the environmental monitoring are described in ESMP. The monitoring task would be carried out by an IEMC. The report of annual environment monitoring would be prepared by the contractor with the assistance of national consultants who financed by the World Bank.

- The estimation budget for training and capacity building is VND 187 Bill. (US$ 8,7 Mill.) to carry out the training on environmental safety and environmental protection of the DRSIP project

- The estimation budget of compensation and resettlement, it estimated US$ 39.4 mill. (VND 847 bill.) However, these costs can be unexpected change during project implementing process.

Summary of total estimation cost shows in table

Table 10. 1: Summary of total costs and budget

	Category	**Implementation cost**		**Finance resources**	
		VND (Bill.)	**US$ (Mill.)**	**WB**	**Counterpart**
1	Training on Environmental and social safety policies	713	33.2		x
2	Environmental impact mitigation measures	230	1.7	x	
3	Environmental and social safety monitoring plans	223	10,4	x	
4	Environmental safety policy training	187	8.7	x	
5	Compensation and resettlement	847	39.4		x
	Total	**2,200**	**102.4**		

CHAPTER XI. GRIEVANCE REDRESS MECHANISM

11.1 World Bank requirement OP 4.12

The concepts of social risk management and social license to operate have become an integral part of doing business in emerging markets. These dimensions of a company's social and environmental strategy can be achieved with effective stakeholder engagement, based on active participation of and feedback from groups affected by the company's operations. A mechanism to address affected communities' concerns and complaints a grievance mechanism is an important pillar of the stakeholder engagement process, since it creates opportunities for companies and communities to identify problems and discover solutions together.

A Grievance redress mechanism (GRM) is an integral element in project management that intends to seek feedback from beneficiaries and resolve of complaints on project activities and performance.

Since the GRM is required for all sub-projects, including those that are not identified to have involuntary resettlement issues, the same mechanism to be established under the RPF will be utilized for all project-related grievances. A national grievance committee mirroring that of the provincial committees will therefore be set up to handle project-related complaints/clarifications that cannot be handled by or are beyond the provincial committee's mandate and capacity. In addition, a Grievance Officer shall be designated at each local dam management units (LDMUs), at the PPMUs and at the project management unit who will perform the following functions:

- Receive, record and promptly acknowledge receipt of all grievances
- Conduct preliminary screening of grievances for the purpose of sorting out those that does not concern the Project and for determining the appropriate Project unit/office or committee to refer or forward the grievance to
- Maintain a database of grievances and monitor/track their status
- Periodically inform the complainants of the status of their complaints/claims/clarifications
- Prepare periodic report on the grievances, including pending grievances, to the Project Management.

To ensure that the GRM requirements are complied with in every sub-project, the sub-project owner (i.e. local dam/reservoir management units) and the PPMU will adopt their own GRM Procedure based on the Template provided in Annex 8– Generic Sub-project Grievance Redress Procedures for the PPMU. The adopted procedure will be included in the Sub-project document package that will be submitted to the relevant organization for review and clearance.

11.2 IFC approaches

Grievance mechanisms are an important part of IFC's approach to requirements related to community engagement by clients under the Policy and Performance Standards on Social and Environmental Sustainability. Where it is anticipated that a new project or existing company operations will involve ongoing risk and adverse impacts on surrounding communities, the client will be required to establish a grievance mechanism to receive and facilitate resolution of the affected communities' concerns and complaints about the client's environmental and social performance. The grievance mechanism should be scaled to risks and adverse impacts of the project, address concerns promptly, use an understandable and transparent process that is culturally appropriate and readily accessible to all segments of the affected communities, and do so at no cost to communities and without retribution. The mechanism should not impede access to judicial and administrative remedies. The client will inform the affected communities about the mechanism in the course of its community engagement process.

A grievance mechanism should be able to deal with most of the community issues that are covered by IFC's Performance Standards. Grievance mechanism requirements in relation to affected communities are explicitly stated with regard to security personnel, land acquisition and adverse impacts on indigenous peoples. Additional guidance is provided in the corresponding Guidance Notes.

IFC client companies will be asked to design the mechanism according to the extent of risks and adverse impacts of the project. Impacts on communities are evaluated within the Social and Environmental Assessment for a project.4 Based on the results of this assessment, IFC's project sponsors may be required to develop or improve their social and environmental management and community engagement, and to include appropriate steps in their action plans. However, all issues arising over the life of a project cannot be anticipated and pre-empted during the assessment process. While an upfront comprehensive social and environmental assessment can serve to reduce the likelihood and volume of grievances in the future, the need for a mechanism to address community grievances will always exist.

IFC views grievance management as one of the pillars of stakeholder engagement for all clients. Grievance mechanisms inform and complement but do not replace other forms of stakeholder engagement. Stakeholder engagement also includes stakeholder identification and analysis, information disclosure, stakeholder consultation, negotiations and partnerships, stakeholder involvement in project monitoring, and reporting to stakeholders.5 If strategically applied throughout the project life, an integrated range of stakeholder engagement approaches can help build trust, contribute to maintaining broad community support for the project, and ultimately help companies promote the long-term viability of their investments.

As part of the Performance Standards framework, the Compliance Advisor Ombudsman (CAO) responds to complaints from affected communities around IFC-financed projects, and thereby serves as an independent accountability body for IFC.

This Note is based on IFC's experience in applying its Performance Standards and is no prescriptive in its approach. It should be used in conjunction with Performance Standards and

IFC Guidance Notes, which contain basic requirements to be followed when developing grievance management procedures under the IFC Policy and Performance Standards framework. However, this document does not intend to duplicate existing IFC social and environmental policy requirements.

11.2.1 At the sub-project level

A project-level grievance mechanism for affected communities is a process for receiving, evaluating, and addressing project related grievances from affected communities at the level of the company, or project. In the context of relatively large projects, this mechanism may also address grievances against contractors and subcontractors.

Project-level grievance mechanisms offer companies and affected communities an alternative to external dispute resolution processes (legal or administrative systems or other public or civic mechanisms). These grievance mechanisms differ from other forms of dispute resolution in that they offer the advantage of a locally based, simplified, and mutually beneficial way to settle issues within the framework of the company community relationship, while recognizing the right of complainants to take their grievances to a formal dispute body or other external dispute resolution mechanisms. It should be noted, however, that complex issues that arise from high environmental and social impacts are seldom resolved in a relatively simple way. In such cases, projects should anticipate involvement of various third parties in the resolution process to achieve solutions with affected communities. These include, but are not limited to, various national and international mediation bodies, independent mediators and facilitators with sector and country specific expertise, and independent accountability mechanisms of public sector financiers.

11.2.2 Benefited communities and responsible

A project's grievance mechanism should be specifically designed with a focus on local communities affected by the project. The task of understanding who will be potentially affected by project operations, and who will therefore use the company grievance mechanism to raise complaints, is not always straightforward and depends on the project's particular circumstances. Thus, it is beneficial to review who may be affected by the project, and the nature of the potential impact, during the broader stakeholder analysis phase of the Social and Environmental Assessment.

The focus of the grievance mechanism on the needs of affected communities is substantiated by the fact that they are directly, and in some cases significantly, affected by project operations but often lack viable options or capacity for raising their concerns through formal structures such as the courts.

For a grievance mechanism to be effective, all project stakeholders need to understand and support its purpose. Affected communities must be aware of and understand the grievance mechanism's benefits to them. Other stakeholder groups need to understand why the grievance mechanism is not open to them or their issues and concerns (such as commercial or political disputes) and be informed of the avenues available to them to raise their complaints.

A company's grievance mechanism and its overall community engagement strategy are linked and should be mutually reinforcing. A transparent and legitimate process that is the product of a joint effort between the company and the community enhances their relationship, improves communication, and increases trust. When grievance mechanisms are designed with the participation of all affected groups and enjoy their support, the process is able to address concerns effectively and in a manner that is mutually beneficial to companies and communities.

Properly designed and implemented grievance management processes can benefit both the company and communities by increasing the likelihood of resolving minor disputes quickly, inexpensively, and fairly with solutions that reasonably satisfy both sides. Grievance mechanisms can also help identify and resolve issues before they are elevated to formal dispute resolution methods, including the courts.

Recognizing and dealing with affected communities' issues early can benefit the company by reducing operational and reputation risks that may result from leaving such issues unresolved. These risks can have a significant and direct business impact. Protests, road and bridge blockages, violence, suspension of operations, and plant closures are just a few examples of how the unsatisfactory handling of community concerns can directly affect a business's bottom line.

A grievance mechanism also gives the company access to important information about the project's external environment, and can help the business identify and correct weaknesses in its management systems or production processes

For companies as well as communities, escalation of conflict to courts and other formal tribunals can be lengthy and costly, and will not necessarily deliver satisfactory results for either party. For companies, the negative publicity can cause even greater damage. By creating a project-level structure, the company can address the source of the problem more efficiently. For example:

- Project level mechanisms offer locally tailored solutions and, unlike many government mechanisms, can cater to local needs and incorporate provisions to accommodate different groups within communities especially the disadvantaged (such as women, minorities, marginalized groups).

- Where government mechanisms are slow, ineffective, and costly, communities may welcome an opportunity to voice their complaints and receive free, locally based, speedy, and satisfactory resolution.

11.2.3 The role of third party

Third parties such as nongovernmental organizations, community-based organizations, local governments, local community and religious organizations and councils can sometimes be involved in companies' grievance mechanisms. They can serve as process organizers, places to bring a complaint to be passed on to the company, or as facilitators, witnesses, advisors, or mediators. In some cases, it may be beneficial to place part of the responsibility for the process on external entities formed within the communities themselves or acceptable to them while the company maintains ultimate responsibility and accountability for the process. Third parties can

help increase the level of trust from communities as well as overcome certain limitations of project-level mechanisms, such as lack of transparency, insufficient company resources, possible conflict of interest, and biases, provided that they themselves are perceived to be unbiased and impartial relative to both the company and the communities.

To have an effective project level grievance mechanism, companies need to understand the roles of third parties before engaging them. For example:

- Community self-governance structures (such as village councils, elders councils, tribal councils). Take these into account when developing a grievance mechanism—to ensure cultural appropriateness, community involvement in decision making, and efficient and effective use of existing community resources.

- Local and international NGOs. Identify those that are active in the area of project or company operations, learn about their interactions with the affected communities, determine what contribution they can make to effective resolution, and discuss options for an NGO to administer the project's grievance mechanism or a part thereof. Sometimes NGOs can also represent local communities and help them build their capacity to understand the process and its benefits, participate in decision making, and articulate grievances and bring them to the attention of companies. Such organizations can be viewed as a voice of communities, and companies should be prepared to deal with grievances brought by NGOs on behalf of communities.

- Local government authorities. Communities sometimes bring their project-related complaints to local governments. In cases where this is the established practice, consider partnering with local authorities to facilitate receipt of grievances from communities. Local governments can also be a resource to help companies resolve complaints, since local authorities may have an established relationship with the communities. They can participate as third parties and advisors in company-initiated resolution processes.

11.3 Vietnam Grievance Redress Mechanism

The DRSIP Resettlement Policy Framework (RPF) requires each sub-project to establish a Grievance Redress Mechanism (GRM) for the main purpose of addressing resettlement-related claims, clarifications, concerns or complaints (Please refer to RPF part VIII for the details of establishing the GRM at the sub-project and provincial levels.)

In order to ensure that all APs' grievances and complaints on any aspect of land acquisition, compensation and resettlement are addressed in a timely and satisfactory manner, and that all possible avenues are available to APs to air their grievances, a well-defined grievance redress mechanism needs to be established. All APs can send any questions to implementation agencies about their rights in relation with entitlement of compensation, compensation policy, rates, land acquisition and grievance redress. APs are not required to pay any fee during any of the procedures associated with seeking grievance redress including if resolution requires legal action to be undertaken in a court of law. This cost is included in the budget for implementation of RAPs.

11.3.1 Grievance Investigation and Resolution Process

The procedure consists of 4 stages as below:

(i) **The first stage in the Communal People's Committee**: An aggrieved APs may bring his/her complaint to the One Door Department of the Commune/Ward People's Committee, in writing or verbally. The member of CPC/WPC at the One Door Department will be responsible to notify the CPC/WPC leaders about the complaint for solving. The Chairman of the CPC/WPC will meet personally with the aggrieved APs and will have 30 days following the receiving date of the complaint to resolve it. The CPC/WPC secretariat is responsible for documenting and keeping file of all complaints handled by the CPC/WPC.

(ii) **The second stage in the District People's Committee**: If after 30 days the aggrieved affected household does not hear from the CPC, or if the APs is not satisfied with the decision taken on his/her complaint, the APs may bring the case, either in writing or verbally, to any member of the DPC or the DRC of the district. The DPC in turn will have 30 days following the receiving date of the complaint to resolve the case. The DPC is responsible for documenting and keeping file of all complaints that it handles and will inform the DRC of district of any decision made. Affected households can also bring their case to Court if they wish.

(iii) **The third stage in the Provincial People's Committee**: If after 30 days the aggrieved PAP does not hear from the DPC, or if the PAP is not satisfied with the decision taken on his/her complaint, the PAP may bring the case, either in writing or verbally, to any member of the PPC or lodge an administrative case to the District People's Court for solution. The PPC has 45 days within which to resolve the complaint to the satisfaction of all concerned. The PPC secretariat is also responsible for documenting and keeping file of all complaints that it handles. Affected households can also bring their case to Court if they want.

(iv) **The final phase, the arbitration by the Court**: If after 45 days following the lodging of the complaint with the PPC, the aggrieved PAP does not hear from the PPC, or if he/she is not satisfied with the decision taken on his/her complaint, the case may be brought to a court of law for adjudication. Decision by the court will be the final decision.

Decision on solving the complaints must be sent to the aggrieved APs and concerned parties and must be posted at the office of the People's Committee where the complaint is solved. After three days, the decision/result on solution is available at commune/ward level and after seven days at district level.

In order to minimize complaints to the provincial level, PMU will cooperate with the District Resettlement Committee to participate in and consult on settling complaints.
Personnel: The Environmental and Resettlement staff assigned by PMU will formulate and maintain a database of the APs' grievances related to the Project including information such as nature of the grievances, sources and dates of receipt of grievances, names and addresses of the aggrieved PAPs, actions to be taken and current status.

In case of verbal claims, the reception board will record these inquiries in the grievance form at the first meeting with affected people.

The independent monitoring Consultant will be responsible for checking the procedures for and resolutions of grievances and complaints. The independent monitoring Consultant may recommend further measures to be taken to redress unresolved grievances. During monitoring the grievance redress procedures and reviewing the decisions, the independent monitoring agency should closely cooperate with the Vietnam Fatherland Front as well as its members responsible for supervising law enforcement related to appeals in the area.

The grievance resolution process for the Project, including the names and contact details of Grievance Focal Points and the Grievance Facilitation Unit (GFU), will be disseminated through information brochures and posted in the offices of the People's Committees at the communes and districts and PMU.

At the same time, an escrow account for resettlement payments should be used when grievance is resolving to avoid excessive delay of the project while ensuring compensation payment after the grievance has been resolved.

To ensure that the grievance mechanism described above are practical and acceptable by APs, it were consulted with local authorities and communities taking into account of specific cultural attributes as well as traditional-cultural mechanisms for raising and resolving complaints and conflicting issues. The ethnic minority objects and efforts were also identified and determined which are culturally acceptable ways to find the solution.

CHAPTER XII. GUIDELINES ON PHYSICAL CULTURAL PROPERTIES MANAGEMENT

12.1 General

There are a number of historical sites and/or sites with a cultural value in each of the provinces. These sites have been well-protected by local communities and government. No proposed investments will affect any of the known cultural sites. Projects will be screened for impacts on PCR based on the list provided in Annex-C, C1.

As stated in the World Bank Physical Cultural Resources (PCR) Safeguard Policy Guidebook, The PCR policy applies to projects having any one or more of the following three features:

- Projects involving significant excavations, demolition, movement of earth, flooding or other major environmental changes
- Projects located within or in the vicinity of a recognized PCR conservation area or heritage site
- Projects designed to support the management or conservation of PCR

The sub-projects under the Dam Rehabilitation and Safety Project will involve significant excavation works, movement of earth and temporary flooding. The provinces have religious institutions, sites of archaeological importance, old academic institutions, public libraries, community centers, which can be considered PCRs. However, the sub-project area of influence may or may not intersect these regions (since the sub-projects are generic in nature, actual locations of most of them still undetermined). Therefore a generic impact assessment of Physical Cultural Resources is outlined in this section.

12.2 Guidance on identification of PCR

In the context of project, the probable examples of PCR may be the following:

- ***Human made:*** Religious buildings such as temples, mosques, churches, exemplary indigenous or vernacular architecture Buildings, or the remains of buildings of architectural or historic interest, Historic or architecturally important townscapes Archaeological sites (unknown or known, excavated or unexcavated), Commemorative monuments
- ***Natural:*** historic trees, natural landscapes of outstanding aesthetic quality
- ***Combined man-made or natural:*** Sites used for religious or social functions such as weddings, funerals, or other traditional community activities (community centers), burial grounds, family graves, cultural landscapes

- ***Movable:*** registered or unregistered artifacts in temples or mosques, paintings, statues of important historical figures, religious artifacts, cultural artifacts etc.

12.3 Assessment of Probable Impacts due to Activities

Below is a list of project activities or features under the context of the project which may commonly give rise to negative impacts on PCR, divided into two periods: construction phase and operational phase.

Construction phase:

- Establishment of work camps:

  - Vandalism, theft and illegal export of movable PCR, and of pieces of monumental PCR accessible directly or indirectly to migrant laborers,
  - Desecration of sacred sites.

- Excavation, construction and soil compaction:

  - Direct physical damage to natural, manmade and buried PCR on site

- Construction traffic:

  - Vibration, soil, air and water pollution causing damage to natural or manmade PCR on site.

  - Noise pollution can interfere with the use and enjoyment of PCR such as tourist destinations, historic buildings, religious establishments and cemeteries.

- Mobilization of heavy construction equipment:

  - Damage to natural or manmade PCR on site
  - Soil compaction, damaging buried PCR (archaeological) onsite, and damaging pipelines and drains serving built PCR in the vicinity.

- Flooding and Inundation:

  - Submergence or destruction of human-made, natural or buried PCR.
  - Barrier to access of all types of PCR.
  - Raised water table can lead to damage to all types of PCR.
  - Damage to aesthetics of scenic landscapes.

- Waste disposal or landfill: Burial or damage to natural, buried or underwater PCR.

Operation phase:

- Access Roads:

- Increased human traffic enjoying improved access to PCR of public interest leading to increased wear and damage, sacrilege of sacred sites, theft and vandalism of movable and, breakable PCR.

- New highways cutting off access to living-culture PCR by residents of settlements on other side of the highway.
- Increased air pollution and vibration from traffic causing damage to man-made PCR, particularly monuments and buildings.

- Increased noise pollution interfering with enjoyment of people in tourist destinations, historic buildings, religious establishments and cemeteries.

- In scenic areas, obtrusive highways having a negative visual impact on the landscape.
- Roads and bridges which themselves constitute PCR being damaged by increased traffic.

- Positive impacts may also occur, through the discovery of hitherto unknown sites and artifacts and generation of tourism.

- Induced development:

  - Induced development leading to increased wear and damage, sacrilege of sacred sites, theft and vandalism of movable and breakable PCR, and damage to the aesthetics of scenic landscapes and townscapes.

- Area development:

  - Changes in demography or settlement patterns leading to abandonment and neglect of older residential areas/settlement containing built PCR such as vernacular architecture.

  - Developments which are out-of-character with their surroundings diminishing the aesthetic value of the settlements, decline in property values and ultimately, neglect of built PCR in the area.
  - Damage to the aesthetics of scenic landscapes.

12.4 Guidelines for Archaeological Impact Assessment

To reduce the possibility of damaging archaeological objects, in case they are found while undertaking excavation works for different types of constructions, the PPMU will immediately ask an authorized archaeological unit or at least an archaeologist to monitor the site periodically. The archaeologist, according to the Rules and Regulation of the Government of Vietnam will study, make inventory and record it for the future.

12.4.1 Tasks:

The key tasks of the archaeologist are:

- Conduct archaeological impact assessment where necessary.
- Execute sampling excavation and assess the significance of the materials found, propose mitigation measures to safeguard buried archaeology or erected/surface remains and suggest future research activity.

- Assess risks to these archaeological materials by the proposed infrastructure and suggest changes to the infrastructural works.

- Identify suitable mitigation measures and prepare management plan.

12.4.2 Investigation

Archaeological impact assessment in the project area and its vicinity to identify impacted sites/remains in relation to the infrastructural work proposed. A team of experts need to conduct an extensive study and survey at the sub-project areas. The objective of this survey will also be to develop proposal of appropriate mitigation measures to be undertaken to safeguard the buried or surface archaeology. The other objective is to suggest for changes, if any, to the proposed infrastructure works which could better assure the safeguarding of archaeological materials of cultural and historical significance and also suggest for future archaeological research and excavation of the buried archaeology.

The team can adopt three different methods for this purpose:

- Examination of available cartographic and other photographic records.

- Review of available literature, reports of archaeological researches and explorations conducted at the project sites and surrounding areas.

- Through site inspection to unveil the historical facts.

- On-site interaction with local people and to investigate clues if any in their traditions and legends.

12.5 Chance Find Procedures

The project works could impact sites of social, sacred, religious, or heritage value. “Chance find” procedures would apply when those sites are identified during the design phase or during the actual construction period.

Cultural property includes monuments, structures, works of art, or sites of significant points of view, and are defined as sites and structures having archaeological, historical, architectural, or religious significance, and natural sites with cultural values. This includes cemeteries, graveyards and graves.

In the event of finding of properties of cultural value during construction, the following procedures for identification, protection from theft, and treatment of discovered artifacts should

be followed and included in standard bidding document.

- Immediately stop the construction activities in the area of the chance find
- Delineate the discovered site or area
- Secure the site to prevent any damage or loss of removable objects.
- Notify the supervisory Engineer who in turn will notify the responsible local authorities
- Responsible local authorities and the relevant Ministry would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures.
- Decisions on how to handle the finding shall be taken by the responsible authorities and the relevant Ministry. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance), conservation, restoration and salvage.
- Implementation of the authority decision concerning the management of the finding shall be communicated in writing by the relevant Ministry of Culture, Sport and Tourist
- Construction work could resume only after permission is given from the responsible local authorities and the relevant Ministry concerning safeguard of the heritage.
- The World Bank needs to be notified by PMU on the issues and actions taken.
- These procedures must be referred to as standard provisions in construction contracts. During project supervision, the Site Engineer shall monitor the above regulations relating to the treatment of any chance find encountered.
- Relevant findings will be recorded in World Bank Supervision Reports and the overall effectiveness of the project's cultural property mitigation, management, and activities will be assessed.

CHAPTER XIII. ESMF CONSULTATION AND INFORMATION DISCLOSURE

13.1 Requirement of Consultation

The WB requires consultations held with the project affected peoples, local community and other relevant stakeholders. This consultation should provide information on the following aspects: a) purposes of the project; b) results of the environmental and social evaluation; and c) presentation of the complementary studies required in the case that they apply. The ESMF has been prepared through a detailed consultative process both at the field level and central level.

13.2 Consultation at Provincial Levels

Extensive consultation taken place at the provincial levels during the twelve (12) priority dam's ESIA preparation. These consultations provided valuable information for the ESIAs preparation as well as developing the ESMF. Mention in a table on the dates and locations of the consultations. Also results must be the people's concern, comments and feedback and how their concerns have been addressed. Currently results include a summary of resettlement and ethnic minority issues from ESIAs (see annex I)

13.2.1 Requirement of consultation.

The WB requires consultations held with the local community. This consultation should provide information on the following aspects: a) purposes of the project; b) results of the environmental evaluation; and c) presentation of the complementary studies required in the case that they apply. The results should be presented in the ESMP or ESMoP report. Consultation through a community outreach or relations program during implementation is considered a good practice to ensure that the potential negative impacts and concerns are properly addressed during construction and operation of a project. Required extensive consultation with affected population and ethnic minority are required when the activities involve relocation, land acquisition, and ethnic minority.

13.2.2 Consultation process summary.

Public consultation was a key component of the DRSIP and it was pivotal in:

Finalizing the report on Environmental and Social Impact Assessment (ESIA) and Environmental and social Management Plan (ESMP), environmental and social management framework (ESMF) for DRSIP Project are necessary.

- Creating the Resettlement Development Plan (RDP), with three main components: the Resettlement Action Plan (RAP), Community Livelihood Improvement

- Development Plan, Ethnic Minority Development Plan (EMDP) and the communication and information management component.

- Designing an open dialogue between DRSIP authorities, village leaders and affected households. The goal was to ease the transition into resettlement areas, while improving living conditions and quality of life of affected households

a) Previously Completed Consultation Activities

Two consultation rounds with local communities and communes were carried out in January and February of the first year sub-project as to:

- Inform affected households and communities about project impacts

- Collect information and initial feedback that will be used as input data to prepare for the project, particularly the RAP, RPF, DSRF and EIA, ESIA, ESMF and ESMoP reports.

- The requirements of the World Bank on the implementation of environmental safeguard policies, in consultation with the consensus on the implementation of the project, discovered the positive effects, the negative of the project, the incident happened in history use and recommendations for investors.

b) Public Consultation Results

During the public consultation, the participants expressed their supports for investment projects have been proposed, the project investment will improve safety dam, resolve concerns of the locals people to ensure stable and safe production life of the people, and improve the quality of life. Besides, the participants also expressed their concerns about compensation related to land acquisition and measures to minimize the impact of the construction (such as interrupting water for irrigation and domestic users during construction phase, support and compensation, compliance, etc.)

The most concerns of the local community and relevant local authorities are:

- Agricultural land and its productivity are the main concerns of local villagers. Resettlement land and its productivity need to be of equal or greater value to the lost land. The reallocated households have to change livelihood and adapt new place, it takes several months. Therefore, adequate financial or "land-for-land" compensation will be vital in supporting villages during and more importantly, after construction. Resettled and affected areas will also receive financial support and health, education and community services and programs.

- Village security and maintenance of social order were also common concerns. The rapid population could dramatically increase the demand for food, water and local security. ***Table 13.1 guides how to summarize issues and make a note of requests raised by village leaders and household resident*** below.

Table 13. 1: Example how to summarize the issues and make a note of requests raised by village leaders and household residents

Province	Sub-Project	Ethnic majority	Main concerns	Local requests	Provincial request
Thanh Hoa	Dong Be	-	- Loss of agricultural land and productivity - Pollution of Ma River and tributaries - Loss of income - Adequate and fair "land-for-land" compensation Village security and protection	- Low interest loans for purchase of cattle - Training assistance and program development for income diversification# - Low interest loans for purchase of cattle - Youth education and job creation - State guards - Loans with incentives Enhanced village security	RAF, RPD, Job creation
Nghe An	Khe San	-	-	-	-

Consultation details and feedback from local authorities, project affected households, non-governmental organizations, and individuals were synthesized and presented in the consultation report by the relevant authorities as provincial, district and local levels.

Households requiring resettlement were provided with options:

- Relocation to resettlement sites as planned. Relocation to a site within the project area instead of resettlement sites as planned.

- Relocation out of the district/province area with little assistance.

- Alternative cultivations and extra-water sources for irrigation have to make a plan

- Wastes management as the planned

- The most issues t to the local community happen in construction phase

- Material and wastes transportation have to follow the mitigation measures to reduce noise, dust and vibration

- Job creation is the important thing to increase local income. Prioritize the use of local labor to create employment opportunities and raise awareness of the irrigation protection.

- The impact of subprojects in the construction process as waste, dust, noise, workers only for a short time, and less affecting residential because most of the construction site are far residential areas. However, PPMU shall require the contractor to implement mitigation measures.

- During the design and construction time of the subproject, PPMU should work closely with local authorities to arrange for structures in accordance with planned transportation-irrigation system at field in building new rural of localities.

- The transport activities of the subproject shall be ensured safety and minimize impacts to traffic operations people. Need plans and funds to repair the transportation work that damaged by the activities of the subproject.

- Community representatives should supervise the implementation of the compensation. Committee monitoring of local community shall be founded

13.3 Consultation at Central Level

To understand and comprehends TOR of Vietnam Dam Rehabilitation and Safety Improvement Project (DRSIP) project was carried out in February 27th, 2015 by MARD, the participations of the relevant organisation of MARD, General Department of Irrigation, Department of International Cooperation, non-governmental organizations such as Committee on Large Dams and water Development, Society of Irrigation, water Resources Association, Office of water Partnership Network of Vietnam, Centre for Natural Resources and Environment (CRES), Institute of Economics ecology (ECO-ECO), Vietnam Association for Conservation of Nature and Environment (VACNE), Institute of Environment and Resources (IER), Representative staffs of Department of Agriculture and Rural Development of the first year subprojects, Environmental and Social Consultants at central level, Environmental and Social Consultants of the first year subproject. The conference was discussed about the following contents:

- All subprojects in the first year would be repair on the exiting works and the implementing time of the sub-project is very short (1-2 year), so its impacts on environment and social assessing at low level.

- The synthesized impacts of the first year sub-project should be divided into 3 impact groups: large (A), low (B) and non-impact (C).

- CPO should prepare the environmental and social management framework ESMF to the project, establish TOR for environmental and social consultants at central and local levels.

The concerned impacts of the project implementing

- During reparation or upgrading headwork of the dam, water store in the reservoir have to drainage below the range of reservoir function, it leading to water interruption and water deficit to downstream areas, the project owner have to develop the plant to reduce this issue, such as compensate to agricultural cultivation of the affected households, make extra water resources to maintain the productions. The project owner have also set the temporally land acquisition to original state after completing construction

- Repairing and improving headwork of the dam may have to impact to aquaculture activities and inland water transportation due to low water level in reservoir low. In additional, it leads to release toxic into environment, because of the decomposition of nutrient compositions or toxic gases in sludge. Hence, it requires a bit long time to de-toxic compositions and extend the construction schedule

- In case of longer construction, local people can use the dryer-areas of the reservoir to cultivate. Before refill water in reservoir, the project owner and local authority have to announce to this person about the time and possible impacts.

- Gender analysis and development plant are very important, the reason is promotion of the person in local to involve the project activities, such as supply food, par-time job and services

- Have to hire the third environmental and social consultant to monitor the compliance of the construction contactor in all phase of the sub-projects implementation, also provide the necessary support

- The GRM (supported by World Bank) have to maintain in all phases of construction and operation of the sub-project to solve problems and ensure the right of the affected households.

- Resettlement strategies were based on World Bank safeguard policy, on reality/typical conditions of the local and cultural and on four principles: a) Minimize environmental and social impacts during land acquisition, b) If resettlement is unavoidable, affected people shall receive financial compensation to sustain their livelihood. Compensation shall be provided before or after the acquisition of land from RAP and RPF c) the project provides employment opportunities to the local people and d) participation of local people and communes in planning and implementation.

13.4 Disclosure

Information disclosure: according to the World Bank's policy on access to information, all draft safeguard instruments, including the ESMP/ESMoP, are disclosed locally in an accessible place and in a form and language understandable to key stakeholders and in Vietnamese and English at the CPO and InfoShop before the appraisal mission. EMP is locally disclosed at the sites and in the Vietnam Development Information Centre of the World Bank in Hanoi

The report of ESIAs, DRS, EDMP, A-RAP of the sub-project and summarized reports of ESMF, RPF, EMDF, DSRF will be published in Vietnamese version on the website of the Ministry of Agriculture and Rural Development and relevant organisations, People's Committee of provinces. ESIA, RAP, DRS, EMDP summary will be sent to the Department of Natural Resources and Environment of District People's Committee, the local CPC and interested organizations can access, monitor the plan of ESMP implement.

The ESMF, EMDF, EMDP, RAP, RPF, DRSF, ESIAs of the sub-project in English will be published at VDIC .

ANNEXES

Annex - A: 12 First Year Subprojects Information

Table - A.1: Proposed Scope of Works of 12 First Year Subprojects

Sub-Project	*Location (province)*	*Height of dam (m)*	*The investment items*
Repairing and improving the safety of Khe Che reservoir, Dong Trieu District	Quang Ninh	12.5	• Concrete dam surface with 658m in lenght 4,2m, in width and keep the height of dam is of 12,5m; • Treat termite • extend spillway from 14m to 24m in width , keep the spillway crest is of 23,7m • Construct/repair the drainage layout at the toe of downstream slope • Repair the power house (outlet works) and manage house • Hardnose the access and management road with 140m in lenth, road foundation 5m and road surface is 3,5m in width • Operate the new inner-servicing road with the length is of 2.000m, macadam foundation of road is: 7,5m in width, and surface is 6,5m and off-side: 2x0.5m.; • Construct a new bridge over canal with 5 m in length
Repairing and improving the safety of Ngoi La 2 reservoir, Yen Son District	Tuyen Quang	15	• Treat water seepage by using jet grouting technique to embankment with lenght is 556m, keep originale dam crest is 44,5m. Reinforced and repair upstream slope by concrete panel with inner riprap, reinforce groin, dam surface and grass plantation in downstream slope to prevent erosion • Repair outlet works valves at both side of the outlet works • Extend principal chute spillway from 5m to 17m, remain the spillway crest is of 41,5m. Re-construct the bridge over the spillway with width is of 5,0m 17m in lenght • Reinforce access and management road by concrete with lenght is of 1.885m.

Repairing and improving the safety of Ban reservoir, Cam Khe district	Phu Tho	11	• Repair 354m in length of the main dam. Levelled the crest of dam from 32,5m to 33,5m but the capacity of the reservoir is not change, extend the dam surface from 4m to 6m, and reinforce the dam surface, both slopes by concrete, plant grass on the downstream slope; • Construct a new auxiliary dam due to the crest of the main dam levelled, the auxiliary dam is located in the South of the reservoir. • Repair and upgrade spillway with lenght is of 6,5m, 10m in width,, remain the spillway crest is of 31,5m; • Construct a new outlet works with length is of 35m at the right abutment of dam • Construct a new management house with total areas is of 108m^2; • Reinforce the access and management road with 1600m in length and 5 m in width by concrete
Repairing and improving the safety of Dai Thang reservoir, Lac Thuy District	Hoa Binh	16	• Upgrade 200m in length of the main dam, extend the surface From 3,5m to 10m and reinforce dam by concrete, remain the crest of dam is of 16m,. Reinforce upstream slope by concrete panel, and plant grass on downstream slope to avoid erosion; • Construct a new outlet works by tube type D400 (at the same position of the old unit) with lenght is of 96m, diameter D400; • Concrete the spillway (the existing construction is earthen structure) with 20m in width, principal chute spillway elevation is 33,5m ; • Upgrade the access and management road by concrete with the lenght is 110m • Construct a new management house with total of the building is 50m^2; • Install a new monitoring system at the headwork of dam
Repairing and improving the safety of Dong Be reservoir, Nhu Thanh District	Thanh Hoa	11,4	• Increase the crest of dam from 41,4m to 42,3m but the capacity of the reservoir does not change, extend the surface dam from 4,0m to 5m and reinforce it by concrete, • Replace the old spillway by a new one with principal chute is 5,6m, the spillway crest is maintain by 39,4m • Replace the old outlet works by new construction with 52,65m in length (at the same position); • Extend the flooding dyke from 450m to 800m in

			length • Construct a new management house withtotal areas of the building is of 60m^2.
Repairing and improving the safety of Khe Gang reservoir , Quynh Luu District	Nghe An	12,5	• Repair and extend the length of embankment from 460m to 487m, remain the spillway crest is of 23,6m, extend the dam surface from 3 ÷ 4(m) to 5m in width, and reinforce it by concrete. Reinforce the upstream and downstream slopes. Seepage treatment at right abutment of dam; • Extend the spillway from 45m to 75m in width,, remain the spillway crest is of 23,6m; • Construct a new outlet works with the length is of 49m, tube type D800 • Construct a new of new management house with an area of 55m^2; • Concrete the access and management road with lenght is of 303,4m.
Repairing and improving the safety of Khe San reservoir , District Quỳnh Lưu	Nghe An	14,5	• Repair and upgrade the main dam with length is extended from 320 to 389m, height of crest dam is increased from 46m to 47,6m but the capacity of the reservoir does not change, extend the dam surface from (2,6÷3,2)m to 5m, and reinforce by concrete. Use concrete panel to reinforce the upstream and downstream slopes, plant grass on downstream slop to prevent erosion progress • Reinforce spillway, extend the principal chute from 23m to 30m, remain the spillway crest id of 45,3m; • Construct a new outlet works by replacement of the old unit (12m from old culvert towards the right abutment of dam) with drain aperture type F500; • Construct a solid water gathering basin with size is B×L×H = (1,0×2,0×1,6) m • Construction a new power house (outlet works) with the size is of B×L×H = (2,6×2,6×3,2) m; • Concrete the access and management road with length is of 146m • Construct a new management house with total areas of the building is of 80m^2 at downstream of dam, 150m to right abutment of dam.
Repairing and improving the safety of Phu Vinh reservoir,	Quang Binh	27,6	• Upgrade, repair the main dam with the length is of 1.776m, remain the dam crest is of 25m, extend the dam surface from 5m to 6m, and reinforce it by concrete. Construct a new parapet-wall by

Dong Hoi city			concrete. Treat water seepage by using Jet grouting technique. fill and earth work to reinforce both slopes of dam • Construct a new outlet works with the length is of 92m, with aperture 1,2×1,2 (from old drain m to the old unit) • Reinforce the valve of the outlet works and reinforce the auxiliary spillway • Renovate and upgrade access and management road by concrete; with599m in length
Repairing and improving the safety of Dap Lang reservoir, Nghia Hanh District	Quang Ngai	13,1	• Extend the length of the main dam from 135,0m to 148,5 m, leveling the crest of dam from (30,8÷31,1)m to 32, but the capacity of the reservoir does not change. , extend the dam surface from 3m to 6m, treat water seepage by using Jet grouting technique; • Reinforce the spillway, increase the length of the spillway from 88m to 165m, leveling the spillway crest from 28,5 to 28,8m, the principal chute is 20m in width. • Construct a new outlet works with the length is of 65m (current unit with length is 45m). Replace the culvert type D800 by steel tube type D400 • Construct a new management house with total areas is of 42m^2.
Repairing and improving the safety of Thach Ban reservoir, Phu Cat District	Binh Dinh	12,1	• Upgrade, repair the main dam with the length is of 897m remain the crest of dam crest with 52,5m , extend and reainforce by concrete the surface of dam from 4m to 5,8m; Reinforced upstream slope by slabs concrete, plant grass on downstream slope • Reinforce and reapir the spillway, construct a new section of the spillway crest with length is 5m and spillway with lenght is 11,10m. Leveling the spillway crest from 50,6m to 50,8m. • Construct a new outlet works with the lengh is of 60m by steel tube type D600 • Concrete access and management road with the lenght is of 845m.
Repairing and improving the safety of Da Teh Reservoir, Da Teh District	Lam Dong	27,3	• Extend the main dam with the length from 600m to 700m, leveling the crest of dam from 158m to 159m but the capacity of reservoir does not change, Reinforce the dam surface and both slopes by concrete, constructe a new parapet wall upto elevation of 159,8m. Treat water seepage at the

			section with length is of 318m by using jet grouting techniques • Reinforce the spillway with the principal chute is 24m, remain the spillway crest is of 151,7m elevation; reconstruct the bridge across spillway with the width is of 5m; • Reinforce, repair the outlet works with new power house (outlet works and bridge) • Construct a new management house with total areas is of 150m^2; • Reinforce the access and management road by concrete, the raod starts from outlet work position to the spillway with length is of 1,7 km.
Repairing and improving the safety of Song Quao reservoir, Ham Thuan Bac District	Binh Thuan	40	Upgrade 886m in length of the main dam, , Reinforce the dam surface and both slopes of the dam extend the berm of dam up to 6m; in width, Reinforce auxiliary dam 1 (with lenght is 150m) and auxiliary dam 3 (with lenght is 325m); Construct a new spillway no.2 by concrete, the spillway crest is of 84m elevation; Repair and upgrade access and management roand no.1, 2, 3, 4, 5 with total lenght is of 5 km; Construct a new management house with total areas is of 475m^2 (2 floors) Repair and upgrade Dan sach embankment Construct a new ooutlet works at the North of reservoir

Table - A.2: Beneficiary Household in the First Year Sub-Projects

Subproject/ Province	*Household*	*Number of people*	*% Ethnic Minority*	Ethnic minority people
1. Ngoi La 2 reservoir, Tuyen Quang province	500	2,000	20	Kinh, Tay, Cao Lan
2. Ban reservoir , Phu Tho province	1,161	5,225	0	Kinh
3. Đai Thang reservoir, Hoa Binh province	372	1,402	64	Kinh, Muong
4. Khe Che reservoir, Quang Ninh province	15,305	52,149	7.48	Kinh, Tay, Thai, Hmong, Dao, San Chay, San Du, Thoi, Son Chay, Son Dou, Muong, Hoa, Nung, Giay, Lao, Kho Me.
5. Đong Be reservoir, Thanh Hoa province	2,495	24,716	24.17	Kinh, Muong, Thai, Tay, Tho.
6. Khe San reservoir, Nghe An province	400	1,800	0	Kinh
7. Khe Giang reservoir, Nghe An province	800	2,500	0	Kinh
8. Phu Vinh reservoir, Quang Binh province	4,600	27,600	0	Kinh
9. Dap Lang reservoir, Quang Ngai province	346	1,651	0	Kinh
10. Thach Ban reservoir, Binh Đinh province	355	1,460	0	Kinh
11. Quao reservoir, Binh Thuan province	19,094	79,613	5	Kinh, Gialay, Khome, Tay
12. Da Teh reservoir, Lam Dong province	1,614	6,606	8.35	Kinh, Chau Ma, Tay, Nung
Total	**47,042**	**206,722**	**9,92**	

Table - A.3: Local Infrastructure Protected by the First Year Sub-Projects Implementation

Sub-project/ province	*Protect construction*						
	Road (km)	*Canal (km)*	*School*	*Medical Centre*	*Office*	*Water supply*	*Power supply*
1. Ngoi La 2 – Tuyen Quang	20	68	07	01	01	0	2 PL 35 Kv
2. Ho Ban – Phu Tho	6,2	8,1	01	01	02	0	0
3. Dai Thang- Hoa Binh	06	05	03	01	01	0	0
4. Khe Che – Quang Ninh	66.2	39.2	04	01	01	0	7 PS
5. Dong Be-Thanh Hoa	15	07	11	04	04	0	0
6. Khe San- Nghe An	123.26	6.8	03	01	01	0	6 PS, 53.6 km PL
7. Khe Gang- Nghe An	01	3,5	04	01	01	0	0
8. Phu Vinh-Quang Binh	87	03	09	02	02	01	2 PS
9. Dap Lang-Quang Ngai	26	12	03	01	03	0	2 PSs, 15km PL
10. Thach Ban-Binh Dinh	60	21	03	01	01	0	29 km 22kV PL , 7 PS
11. Song Quao-Binh Thuan	01	NI	11	07	07	01	0
12. Da Teh- Lam Dong	NI	NI	04	02	02	01	0
Total	**411.66**	**173.6**	**63**	**23**	**26**	**03**	

PS = Power Station, PL = Power Line NI = not identified

Table - A.4: Positive Impacts by Sub-project Implementation

Sub-project/province	*Protection*					
	Agricultural cultivation (ha)	*Forest land (ha)*	*Aquatic cultural ha)*	*Fruit/ industry plants*	*Forest fire reduction*	*Others*
1. Ngoi La 2 – Tuyen Quang Province	351.2	257	15	0	275,2	0
2. Ho Ban – Phu Tho	75	742.6	22	284.7	742.6	0
3. Dai Thang- Hoa Binh	130	1,600	96	-	1,600	-
4. Khe Che – Quang Ninh	1,000	-	-	-	-	-
5. Dong Be-Thanh Hoa	255	3,051.9	107.5	-	-	-
6. Khe San- Nghe An	300	1,625.5	126	709.9	1,317	350
7. Khe Gang- Nghe An	175	1,439.3	160.7	182	0	1,325
8. Phu Vinh-Quang	1,041	0	80	0	0	0

Sub-project/province	*Protection*					
	Agricultural cultivation (ha)	*Forest land (ha)*	*Aquatic cultural ha)*	*Fruit/ industry plants*	*Forest fire reduction*	*Others*
Binh						
9. Dap Lang-Quang Ngai	160	30	12,9	0	0	0
10. Thach Ban-Binh Dinh	130	7,138.7	0	995.3	0	0
11. Song Quao-Binh Thuan province	11,120	-	1,154	-	-	0
12. Da Teh- Lam Dong	2,300	12,618.1	25.1	0	0	0
Total	**17,037.2**	**12,618.1**	**1,666.2**	**2,171.8**	**3,934.8**	**1,675**

Table – A.5: Land Acquisition and Resettlement of the 1st Year Sub-Projects

AH. Effected household (household) AP: Affected person (person)

Sub-project	*Province*	*AH*	*AP*	*Reallocation/ resettlement HH/person*	*Displacements/ resettlement HH/person Indig./ethinic*	*Permant. land acquisition (m^2)*	*Temporary land acquisition (m^2)*	*Affected Resident areas (m2)*	*Affected Agri.land (m2)*	*Grave relocation*	*Affected Infrast.*
1. Ngoi La 2	Tuyen Quang	12	51	01/04	0	22,100	2,000	300	0	0	77 m^2 concrete house
2. Ho Ban	Phu Tho	15	78	0	0	15,000	11,000	0	15,000	0	0
3. Dai Thang	Hoa Binh	12	45	0	0	15,935	4,438	500	19,373	0	60 m^2 house, 40 m^2 kitchen + 70m brick wall.
4. Khe Che	Quang Ninh	0	0	0	0	0	1,000	0	0	0	0
5. Dong Be	Thanh Hoa	13	78	0	0	49,900	10,800	0	4,910	0	0
6. Khe San,	Nghe An	02	05	0	0	12,200	10,000	0	0	0	70 m^2 (house?) +15 m^2 (house?)
7. Khe Gang	Nghe An	01	04	0	0	5,000	10,000	0	0	0	0
8. Phu Vinh	Quang Binh	24	105	0	0	12,179.7	0	0	0	0	0
9. Dap Lang	Quang Ngai	23	119	0	0	13,778	39,875	0	13,778	0	0
10.Thach Ban	Binh Dinh	17	68	0	0	1,500	75,000	0	76.500	0	46 m^2 unconcreted house
11. Song Quao	Binh Thuan	18	77	10/39	8/32	164,332	0	2,332	162,000	0	298m^2 house (IV)+ 154m^2 unconcreted construction house
12. Da Teh	Lam Đong	0	0	0	0	10,000	0	0	0	0	0
Total		**137**	**630**	**11/43**	**8/32**	**321,924.7**	**164,113**	**2,332**	**291,561**	**0**	

Table- A.6-Summnaries the impacts on environment and social of the first year sub-project

No	Impact	Subproject name	Volume	Phase
1	Permanently land acquisition	Khe Gang, Khe San, Dong Be , Dai Thang, Thach Ban, Dap Lang, Khe Che, Song Quao- Binh Thuan, Ngoi La 2, Ho Ban, Phu Vinh, Da Teh	- 32.2 ha	- Pre-construction (Site cclearance) - Construction
2	Temporally land acquisition	Khe Gang, Khe San, Dong Be, Dai Thang, Thach Ban, Dap Lang, Khe Che,Song Quao, Ngoi La 2, Ho Ban, Phu Vinh, Da Teh	- 16.4 ha	- Pre-construction (Site cclearance) - Construction
3	Resettlement of households	Ngoi La 2, Song Quao	- 11 households	- Construction - Operation
4	Loss of crops, fruit trees or household infrastructure.	Khe Gang, Dong Be, Dai Thang, Thach Ban, Dap Lang, Ngoi La2, Ho Ban, Phu Vinh, Da Teh	- 26.3 ha	- Pre-construction
5	Increased dust level or add pollutants to the air	Khe Gang, Khe San, Dong Be, Dai Thang, Thach Ban, Dap Lang, Khe Che, Song Quao, Ngoi La2, Ho Ban, Phu Vinh, Da Teh	- 105.9 m^3/ year - 128.3 ton/ year (un uniform unit)	- Pre-construction - Construction (for offloading material)
6	Interruption water supply to domestic users and to irrigation	Khe Gang, Khe San, Dong Be, Thach Ban-Binh Dinh; Khe Che, Ngoi La 2, Phu Vinh, Da Teh	- 14.142 ha of arable land - 16,020 people	- Construction - Operation
7	Disfiguration of landscape and increased waste generation.	Khe Gang, Khe San, Ngoi La 2, Dong Be,Thach Ban, Dap Lang	- Water waste: about 50.14 m^3/ day.night - Solid waste generation: about 245 kg / day (un uniform unit)	- Pre-construction (Site cclearance) - Construction - Camping site
8	Separation or fragmentation of habitats of flora and fauna	Khe Gang- Nghe An; Dong Be - Thanh Hoa; Ho Ban- Phu Tho	- Fauna: 30 species - Flora: 25 species	- Construction

9	Removal of vegetation cover or cutting down of trees	Khe Gang- Nghe An; Khe San- Nghe An; Dong Be - Thanh Hoa		- Pre-construction (Site Clearance)
10	Increase flooding level and reservoir sedimentation	Khe Gang, Dong Be, Dai Thang		- Operation
11	Change of surface water quality or water flows	Khe Gang, Khe San, Dong Be Dai Thang, Thach Ban, Dap Lang, Da Teh		- Construction - Operation
12	Potential for conflict between construction workers and local peoples	Khe Gang, Khe San, Dong Be, Dap Lang, Song Quao, Ngoi La 2, Phu Vinh, Da Teh, Da Teh		- Pre-construction (Site clearance) - Construction
13	Increased the amount of waste (domestic, construction) or add pollutants to the soil	Thach Ban- Binh Dinh; Dap Lang, Khe Che, Ho Ban, Phu Vinh		- Construction - Operation -
14	Making erosion and sedimentation of reservoirs.	Khe San, Thach Ban, Khe Che, Khe Che, Song Quao, Ngoi La 2, Phu Vinh, Da Teh		- Construction (extending the spillway) - Operation
15	Risks to safety and health of worker/ local people	Khe Gang, Khe San, Dong Be, Thach Ban, Ngoi La 2, Phu Vinh, Da Teh		- Pre-construction - Construction
16	Interruption to transportation and infrastructure	Khe Gang, Dong Be, Dai Thang, Thach Ban, Dap Lang, Khe Che, Song Quao, Ngoi La 2, Ho Ban, Phu Vinh, Da Teh		- Pre-construction - Construction (transporting materials) - Operation
17	Increased noise and/or vibration	Dai Thang, Thach Ban, Dap Lang, Khe Che, Song Quao		- Construction (transporting materials; waste)
18	Accident risks for workers and community	Khe Gang, Khe San, Ngoi La 2, Ho Ban, Phu Vinh, Da Teh		- Construction (digging and leveling, transporting

	during construction phase			materials)
19	Construction that could cause disturbance to the transportation, traffic routes	Dong Be, Khe Che, Song Quao,		- Pre-construction (gathering materials) - Construction
20	Risk to landslide spillway areas	Khe Che		- Operation
21	Use of explosive	Song Quao, Ho Ban, Phu Vinh		- Pre-construction (Site Clearance, land mines clearance) - Construction (construction the spillway no.2)
22	Use of hazardous chemicals	Ho Ban, Da Teh, Phu Vinh		- Pre-construction (Site clearance) - Construction
23	Affecting to gender and children's rights	Khe San, Thach Ban, Song Quao		- Pre-construction

Annex – B: Environmental and Social Screening

1. ***ENVIRONMENTAL SCREENING***

Table - B.1: Eligibility Screening

Screening Questions	Yes	No	Remarks, (If yes)
1. Does the proposed sub-project lead to an increase in the dam height and/or reservoir's design storage capacity?			
2. If the answer of the question 1 is yes, does the increase is not necessary from safety management perspective?			
3. Does the proposed sub-project encroach on a critical natural habitat, a protected area of natural habitat, a national park of nature or a nature reserve and would lead to temporary or permanent acquisition of 1 ha or more of land in that habitat, park or reserve?			
4. Does the sub-project displace, disfigure or render inaccessible any structure or site of great cultural or historical value to the country, to an ethnic group or to the local community.			
5. Does the sub-project use land that is currently occupied or regularly used for natural forest areas, defensive forest or leads to a change in the land use of forest lands during project implementation?			

If the answer of the any question from serial 2-5 is 'yes' the subproject will not be eligible directly for financing. However, the PPMU can send it to PMU for further review and the E&S consultant will conduct a quick assessment of the eligibility of the subproject financing. Otherwise, they can also confirm that that the subproject is not eligible for financing under the project.

Conclusion:
The proposed subproject is eligible
The proposed subproject is in eligible to be financed under DRISP

Table - B.2: Screening and Environmental Categorization

Screening Questions	Yes	No	Remarks
1. Does the subproject have the potential to cause significant adverse impacts to natural or critical natural habitats?			
Leads to loss or degradation of sensitive Natural Habitats such as: land and water areas where (i) the ecosystems' bio-logical communities are formed largely by native plant and animal species, and (ii) human activity has not essentially modified the area's primary ecological functions.			Indicate location and type of natural habitat and the kind of impacts that could occur, e.g., loss of habitat and how much, loss of ecosystem services, effects on the quality of the habitat. State why these impacts are or are not significant.
Leads to loss or degradation of Critical natural habitat, i.e., habitat that is legally protected, officially proposed for protection, or unprotected but of known high conservation value[7].			Note that the World Bank cannot fund any projects that result in significant conversion or degradation of critical natural habitats. Indicate location and type of critical natural habitat and state why they are or are not significant.
2. Does the subproject have the potential to cause significant adverse impacts to physical cultural resources?			
Leads to loss or degradation of physical cultural resources (PCR)[8].			Describe location and type of cultural resources and the kind of impacts that could occur. State the level of protection (local, provincial, national or international).Are any of these sites considered important to preserve in situ, meaning that the resources should not be removed from their current location? State why impacts are or are not significant.

[7] Critical habitats include existing protected areas and areas officially proposed by governments as protected areas (e.g., reserves that meet the criteria of the World Conservation Union [IUCN] classifications, areas initially recognized as protected by traditional local communities (e.g., sacred groves), and sites that maintain conditions vital for the viability of these protected areas. Sites may include areas with known high suitability for bio-diversity conservation; and sites that are critical for rare, vulnerable, migratory, or endangered species.

[8] PCR is defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. They may be located in urban or rural settings, above or below ground, or under water. Their cultural interest may be at the local, provincial or national level, or within the international community.

Screening Questions	Yes	No	Remarks
Potentially results in a contravention of national legislation, or national obligations under relevant international environmental treaties and agreements, including the UNESCO World Heritage Convention or affect sites with known and important tourism or scientific interest.			Describe any impacts that might contravene national or international legislation concerning cultural resources. If considered not significant, explain why.
3. Does the subproject have the potential to cause significant adverse impacts on the lands and related natural resources used by ethnic minorities?			
Potentially result in impacts on lands or territories that are traditionally owned, or customarily used or occupied, and where access to natural resources is vital to the sustainability of cultures and livelihoods of minority peoples. Potentially impact the cultural and spiritual values attributed to such lands and resources or impact natural resources management and the long-term sustainability of the affected resources.			Describe the type and extent of impacts and the significance of alterations to the resources of the affected minorities. Note that an Ethnic Minority Development Plan will also be required in accordance with World Bank OP 4.10.
4. Does the subproject have the potential to cause significant adverse effects to populations subject to physical displacement?			
Leads to physical displacement of populations dependent upon lands or use of specific use of resources that would be difficult to replace or restore? Otherwise lead to difficult issues in the ability of the subproject to restore livelihoods?			Indicate the numbers of households affected and the resources that will be difficult to replace in order to achieve livelihood restoration. Note that a Resettlement Action Plan will need to be prepared in accordance with World Bank OP 4.12.
5. Does the subproject entail the construction/rehabilitation of a large dam?			
Does the subproject require construction/rehabilitation of a dam that is: • 15 meters or more in height • Between 10 and 15 meters in height with special design complexities--for example, an unusually large flood-handling requirement, location in a zone of high seismicity, foundations that are complex and difficult to prepare, or retention of toxic materials. • Under 10 meters in height but expected to become large dams during the operation of the subproject?			Describe the issues and note the requirements of OP 4.37 concerning the appointment of an Independent Panel of Experts.
Does the operation of the subproject rely on the performance of: • an existing dam or a dam under construction (DUC) • power stations or water supply systems			If yes, World Bank requires inspection and evaluation of dam or DUC, its performance and operation and maintenance procedures, and

Screening Questions	Yes	No	Remarks
that draw directly from a reservoir controlled by an existing dam or a DUC • diversion dams or hydraulic structures downstream from an existing dam or a DUC, where failure of the upstream dam could cause extensive damage to or failure of the new World Bank-financed structure and irrigation or water supply projects that will depend on the storage and operation of an existing dam or a DUC for their supply of water and could not function if the dam failed.			recommendations for any remedial work or safety-related measures; previous assessments can also evaluated. The current project is intended to support only irrigation dams.
6. Does the subproject entail the chemical for soil treatment?			
Do the formulations of the products fall in World Health Organization classes IA and IB, or are there formulations of products in Class II?,			.
7. Does the subproject have the potential to cause irreversible impacts or impacts that are not easily mitigated?			
Leads to loss of aquifer recharge areas, affects the quality of water storage and catchments responsible for potable water supply to major population centers.			Name the water bodies affected and describe magnitude of impacts.
Leads to any impacts such that the duration of the impacts is relatively permanent, affects an extensive geographic area or impacts have a high intensity.			Describe any impacts considered to be permanent, affecting a large geographic area (define) and high intensity impacts.
8. Does the subproject have the potential to result in a broad diversity of significant adverse impacts?			
Multiple sites in different locations affected each of which could cause significant losses of habitat, resources, land or deterioration of the quality of resources.			Identify and describe all affected locations.
Potential, significant adverse impacts likely to extend beyond the sites or facilities for the physical works.			Identify and describe the types of impacts extending beyond the sites or facilities of the physical works.
Transboundary impacts (other than minor alterations to an ongoing waterway activity).			Describe the magnitude of the transboundary impacts.
Need for new access roads, tunnels, canals, power transmission corridors, pipelines, or borrow and disposal areas in currently undeveloped areas.			Describe all activities that are new that are required for the main activity to function.
Interruption of migratory patterns of			Describe how migrations of

Screening Questions	Yes	No	Remarks
wildlife, animal herds or pastoralists, nomads or semi-nomads.			people and animals are affected.
9. Is the subproject unprecedented?			
Unprecedented at the national level?			Describe why and what aspects are unprecedented.
Unprecedented at the provincial level?			Describe why and what aspects are unprecedented.
10. Is the project highly contentious and likely to attract the attention of NGOs or civil society nationally or internationally?			
Considered risky or likely to have highly controversial aspects.			Describe perceived risks and controversial aspects
Likely to lead to protests or people wanting to demonstrate or prevent its construction.			Describe the reasons that subproject is highly unwelcome.

Table – B.3: Additional Requirements and Suggested Tools

Does the sub-project entail these environmental impacts?	Yes		If Yes, Requirements
Encroachment on historical/cultural areas			Follow Chance find procedure (Chapter XII for guidance)
Use of explosive and hazardous chemicals			Use national approved safety procedure
Use of sites where, in the past, there were accidents incurred due to landmines or explosive materials remaining from the war			Adopt Unexploded Ordinance Procedure
Construction that could cause significant disturbance to the transportation, traffic routes, or waterway transport?			Traffic Safety Plan is required
Increase flood levels to downstream and reservoir sedimentation			Detailed assessment and include mitigation measures in ESMP
Acquisition (temporarily or permanently) of land (public or private) for its development			RAP is required
Use land that is currently occupied or regularly used for productive purposes (e.g., gardening, farming, pasture, fishing locations, forests)			RAP is required
Displacement of individuals, families or businesses			RAP is required
Temporary or permanent loss of crops, fruit trees or household infrastructure			RAP is required
Involuntary restriction of access by people to legally designated parks and protected areas			RAP is required
Ethnic minority groups are living within the boundaries of, or nearby, the subproject.			EMDP is required
Members of these ethnic minority groups in			EMDP is required

the area potentially could benefit or be harmed from the project.			
Involve the construction of a large dam (i.e. higher than 15m or more than 3M cubic meter reservoir capacity)?			DSR is mandatory
Depend on water supplied from an existing dam or weir or a dam under construction?			DSR is required

Summary of Screening (To be filled up after field validation by PMU engaged E&S Consultant)

_____The sub-project is not eligible for funding under DRSIP. State the reasons (write the main reason for rejection):

_____
_____

The sub-project is approved with the following conditions:

_____
_____

The sub-project is eligible for funding and is required to undertake/prepare the following safeguards activities/documents (Check those that apply).

___Full ESIA
___ESMP with ECOP
___Resettlement Action Plan (RAP)
___Ethnic Minorities Development Plan (EMDP)
___Dam Safety Plan (DSP)
___Road Safety Plan (RSP)
___Evidence of free prior and informed consultation
___Evidence of broad ethnic community support
___Adoption of Chance Find Procedure
___Adoption of Grievance Redress Procedure

Validate by: _____Date:_____

Table - B.4: Levels of Potential Environmental and Social Impacts to be addressed

	Does the subproject entail these environmental impacts?	**No**	**Low**	**Medium**	**High**	**Not known**	***Remarks***
1.	Encroachment on historical/cultural areas						
2.	Encroachment on an ecosystem (e.g. natural habitat sensitive or protected area, national park, nature reserve etc.)						*Describe and briefly assess impact's level*
3.	Disfiguration of landscape and increased waste generation						
4.	Removal of vegetation cover or cutting down of trees during clearance for construction						
5.	Change of surface water quality or water flows (e.g. Increase water turbidity due to run- off, waste water from camp sites and erosion, and construction waste) or long-term.						*Indicate how and when this occurs.*
6.	Increased dust level or add pollutants to the air during construction						*Indicate how and when this occurs*
7.	Increased noise and/or vibration						*Indicate how and when this occurs*
8.	Resettlement of households? If yes, how many households?						
9.	Use of resettlement site that is environmentally and/or culturally sensitive						*Briefly describe the potential impacts*
10	Risk of disease dissemination from construction workers to the local peoples (and vice versa)?						*Note estimated number of workers to be hired for project construction in the commune/district and what kind of diseases they might introduce or acquire.*
11	Potential for conflict between construction workers and local peoples (and vice versa)?						
12	Use of explosive and hazardous chemicals						

13	Use of sites where, in the past, there were accidents incurred due to landmines or explosive materials remaining from the war						
14	Construction that could cause disturbance to the transportation, traffic routes, or waterway transport?						
15	Construction that could cause any damage to the existing local roads, bridges or other rural infrastructures?						
16	Soil excavation during subproject's construction so as to cause soil erosion						
17	Need to open new, temporary or permanent, access roads?						*Estimate number of and length of temporary or permanent access roads and their locations*
18	Separation or fragmentation of habitats of flora and fauna?						*Describe how.*
19	Long-term impacts on air quality						
20	Accident risks for workers and community during construction phase						
21	Use of hazardous or toxic materials and generation of hazardous wastes						
22	Risks to safety and human health						*Describe how.*
Does the subproject entail land acquisition or restriction of access to resources?							
23.	Acquisition (temporarily or permanently) of land (public or private) for its development						*List land areas for permanent and temporary land acquisition, type of soils, duration and purpose of acquisition*
24	Use land that is currently occupied or regularly used for productive purposes (e.g., gardening, farming, pasture, fishing locations, forests)						
25	Displacement of individuals, families or businesses						
26	Temporary or permanent loss of crops, fruit trees or household infrastructure						
27	Involuntary restriction of access						

	by people to legally designated parks and protected areas						
	If the answer to any of the questions 23-27 is "Yes", please consult the ESMF; preparation of a Resettlement Plan (RP) is likely required.						
Are ethnic minority peoples present in the subproject area?							
28.	Ethnic minority groups are living within the boundaries of, or nearby, the subproject.						
29	Members of these ethnic minority groups in the area potentially could benefit or be harmed from the project.						
	If the answer to questions 28 or 29 is "Yes", please consult the ESMF; and preparation of an Ethnic Minority Development Plan (EMDP is likely required.						
Does the subproject entail construction of or depend upon a dam?							
30.	Involve the construction of a large dam?						*See Table E.1 for definition of a large dam.*
31	Depend on water supplied from an existing dam or weir or a dam under construction?						*Describe the functional relationship between the subproject and the existing dam or a dam under construction.*

2. SOCIAL SCREENING

1.1 For new subprojects to be identified during project implementation, PPMUs need to go through the following screening steps -- to determine how to proceed with the preparation of social safeguards instruments:

1. Land acquisition impact. If yes, prepare RAP

2. Temporary impact for the water user downstream due to water cut during subproject rehabilitation, or any other impact that affected people's income generation activites/livelihood. If yes, prepare RAP

3. Screening for presence of Ethnic Minority Peoples. If EM peoples are present in the subproject area/area of influence - as confirmed by respective ESIA, conduct a social assessment of the subproject in relation to subproject interventions. Determine if an EMDP is required

4. Screening of social legacy issues – as per guidance below (in this Annex)

5. As part of the ESIA, conduct the social assessment of the subproject, covering both potential positive and negative impact of the proposed subprojects, and proposed mitigations measures.

GUIDANCE NOTE ON

SCREENING OF SOCIAL LEGACY ISSUES AND CONDUCTING DUE DILIGENCE FOR RESETTLEMENT ALREADY COMPLETED UNDER THE ORIGINAL CONSTRUCTION OF DAMS/RESERVOIR

1. PURPOSE:

Under the Project, an estimated 450 dams/reservoirs will be rehabilitated to enhance safety of the dams. As part of Bank's requirements, before the dams/reservoirs are accepted for Bank's financing, a screening of social legacy issues – done by PPMU for their proposed subproject, is required. The purpose of screening to check if there are any issues related to land acquisition/resettlement, which were associated with land acquisition for the original construction of the dams), which remain unresolved so that measures could be taken to solve such outstanding issues and ensure that the resettlement outcome, (done by local government), meets the objectives of Bank's OP 4.12

2. PROCEDURES:

While preparing the investment documents of the subproject to submit to CPMU and the Bank for review and approval, PPMU is requested to conduct the following screening steps.

<u>Step 1</u>. Identify the year when the land acquisition and resettlement was completed for the original construction of the proposed subproject.

<u>Step 2</u>. Determine the scope of the due diligence (DD) review by following one of the following paths.

- **<u>PATH 1:</u>** If the resettlement process was recently completed, (**<u>less than two years before the World Bank became involved – as determined by date when the Identification Mission started)</u>**, PPMU is required to conduct a DD review (as outlined in Section 3 and 4 below). . The DD review should focus on the following: (a) Reviewing of outstanding complaints, if they exist; (ii) checking whether an effective grievance redress mechanism has been in place; and (iii) determination if affected people, especially vulnerable ones, were able to restore the livelihoods. If significant issues/gaps are found, recommendations and actions will be proposed for the project owner to remedy the situation. **<u>Proceed to Step 3.</u>**

- **<u>PATH 2:</u>** If resettlement process has been completed for several years (**for two to five years**), PPMU is required to conduct a DD review (See Section 3 and 4 below for details on guiding principles and methods for conducting a DD). The DD should determine whether there are lingering issues and/or outstanding reputational risks. If yes, recommendations will be proposed for the PPMUs and relevant government agencies to take action to remedy the situation, such as addressing outstanding complaints or failure of DPs to restore income and livelihoods. **<u>Proceed to Step 3.</u>**

- **<u>PAHT 3:</u>** If the resettlement process has been completed for 5 years or more, PPMU is required to confirm whether there are any pending issues, and or reputational risks for the Project. In finding show no outstanding issues, **no further action is required by PPMUs. If it is found that significant issues persist, appropriate redress measures will be taken.**

<u>Step 3</u>. Conduct the DD review and submit the DD report to Bank for review. If needed, revise and re-submit to conclude the DD review.

3. PRINCIPLES OF DUE DILIGENCE APPROACH

As a guiding principle, the DD review should seek to determine compliance or lack thereof with OP 4.12 and the steps that need to be taken to achieve compliance, or in the case of already completed resettlement to achieve objectives of OP 4.12 and/or remedy deficiencies and reputation risks. In relation to this, the following recommendations are made:

- The number of documents to be reviewed and number of affected households to be interviewed should be greater for the recent compensation (and less for compensation that happened years ago). The number of household interviews should be representative and commensurate to the magnitude of issues.

- Interviews should be conducted for various types of impacts (loss of land, loss of houses, loss of business, loss of other types of assets, need for physical relocation, etc.) but priority should be given to severely affected households in terms of any sampling and extent of analysis.

- Methods of inquiries: focus groups discussion and key informant interview should be used as key inquiry methods to assure the validity and reliability of the review results.

4. METHODS FOR DUE DILIGENCE REVIEW

4.1 Collect, Review and Analyze Key Documents and Information

For each related or legacy project/activity, a primary objective is to have an overall understanding of the project, scope of its involuntary resettlement impacts and mitigation measures, legal framework for involuntary resettlement, the Resettlement Plan and implementation practices. This background is needed to assess compliance of planned or already implemented involuntary resettlement with OP 4.12, identify gaps exist and analyze pending issues. Examples of documents to be collected and reviewed are:

- General information on the project, its activities, cost, sources of funding, implementation arrangement, implementation plans and schedules
- Project resettlement-–related planning documents and information, including the RPF if one exists, procedures and policy provisions, and all involuntary resettlement plans if they exist;
- Information on consultation and disclosure;
- Resettlement database (or whatever data is available) in order to review coverage of DPs, payments and potential accuracy of the database.
- Involuntary resettlement policies and regulations issued by Government and pertinent local Provincial People Committees (PPCs).
- Implementation documentation on:
    - continuing consultations with DPs and information disclosure,
    - PPC approved compensation plans,
    - DPs detailed compensation plans, particularly detailed compensation plans of severely affected HHs, those physically relocated and those with income severely affected,
    - samples of a (full) set of DPs compensation and involuntary resettlement documents;
    - grievance redress mechanism, list of DPs grievances and redress outcomes, pending grievances,
    - documentation on method and timing of compensation payments;
    - involuntary resettlement site and allocation of land for relocation; and
    - Livelihood restoration and rehabilitation plans/activities.
    - Monitoring reports – internal and external, if they exist

4.2 Conduct Focus Group Discussions and Interviews of Key Informants

- Interviews of the project investor on current status of involuntary resettlement activities in relation to construction activities; institutional arrangements for internal monitoring; results of internal monitoring; and implementation issues.

- Interviews and discussions with different stakeholders, including key staff of the project resettlement implementation agencies and organizations directly involved in resettlement implementation, in order to:

- Gather and cross check information on their views and concerns about the project's involuntary resettlement implementation;
- Assess compliance with the project's involuntary resettlement policy provisions and gaps with OP 4.12;
- Identify grievance redress mechanisms (GRM) in place and their functioning and their effectiveness;
- Determine whether or not stakeholders believe that PAPs and those of vulnerable group can restore their livelihoods and living standards;
- Evaluate available social assistance and training programs provided to PAPs and how these programs have been made accessible to severely affected and vulnerable PAPs.
- Examine and evaluate monitoring results.

4.3 Conduct Site Visits and Interviews

- Visit sites where PAPs have been displaced and any sites to which PAPs have been relocated
- Conduct discussion with PAPs and non-PAPs, and other key informants, civil society, including local mass organizations (in particular Women's Union and Farmer's Association, Fatherland Union), and NGOs, using open ended questions, Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) techniques.

This process is conducted to check and validate information gathered from different stakeholders on the project's implementation.

4.4 Qualitative and quantitative approaches

A DD review will generally employ a qualitative approach. In certain circumstances a quantitative approach, particularly where large numbers of DPs are involved, will be appropriate. Such quantitative approaches could utilize stratified and random selection methods with restricted sampling size. Depending on the scale and scope of the related or legacy project resettlement impacts, the level and number of administrative units as well as number of PAPs to be interviewed will vary.

Focus and priorities should be given to province/district/communes that have experienced major land acquisition and involuntary resettlement impacts. The same priorities will be given to severely affected DPs, including relocated and income severely affected HHs, and vulnerable ones.

4.5 Action plan

Based on results of the DD review of a related project or results of rapid assessment of a legacy project, an action plan should be developed to address the involuntary resettlement issues, in accordance with the stage of resettlement, to ensure achievement of the World Banks' involuntary resettlement policy.

The longer the involuntary resettlement has been completed the more limited the action plan is likely to be, but there can be exceptions to this rule of thumb. When involuntary resettlement has not begun, the action plan should recommend a joint RP in common with the World Bank (see Annex 1) or revising the RP, following OP 4.12.

Annex 1 - An illustrative Action Plan is shown in Table 4 below.

No	Activity	Responsibility	Actions (Depending on identified issues)	Target completion date
1	Remedy of gaps and outstanding issues	Project owner	- Remedy of identified gaps with World Bank policy - Resolve outstanding grievances - Provide adequate assistance measures to help severely affected people and vulnerable affected people to restore to their prior-project income level and living standards	MM/ DD/YY
2	Independent monitoring and ex-post evaluation	External Monitoring Consultant	Monitor compliance of practice with project policy and achievement of OP 4.12 policy	MM/ DD/YY
3	World Bank's supervision	World Bank staff/ Consultant	Supervision over achievement of OP 4.12 policy	MM/ DD/YY

Annex – C: Guidelines for ESIA/ESMP Preparation

This annex provides the guidelines on environmental and social impacts assessment (ESIA) process applicable to subprojects prepared during project implementation. The Project is required to comply with both Vietnamese environmental legislations and the World Bank Safeguard Policies. Generally, ESIA is a process with five steps summarized in the Table C.1 below

Table C.1: Summary of ESIA Process and Methodology

Step	Objective	Methodology
Step 1: Screening	Screen to identify eligibility of subproject, and safeguard tools to prepared for a subproject if it is eligible to be financed	Follow the principles described in section 7.1 of the ESMF
Step 2: Scoping	Prepare Terms of Reference for the preparation of safeguard Tools: ESIA/ ESMP/ECOP	Detail scope of the ESIA provided in the Annex
Step 3: Prepare draft ESIA/ESMP, including public consultation and information disclosure	- Identify the potential impacts, assess the potential negative social and environmental impacts - Propose mitigation measures and management plan for addressing the identified potential negative impacts - create a channel for public participation in decision making process	Follow the instructions given below this table
Step 4: Submit draft ESIA for review and clearance	Obtain comments, and finally clearance from reviewing authorities	Follow LEP 2015 and this ESMF
Step 5: Post ESIA monitoring, supervision and reporting	- To ensure compliance to ESIA - To verify the effectiveness of mitigation measures - To identify arising issues, if any, and take actions in a timely manner - To withdraw lessons for similar projects in the future	- Incorporate mitigation measures into engineering designs and cost estimation - Incorporate environmental specifications into bidding and contractual documents (both construction and construction supervision contracts) - Recruit independent monitoring consultant for capacity building and independent monitoring - Monitor and supervise the works carried out by the contractor and consultants

1.2 C.1 – Guidance on ESIA Preparation

Category A-equivalent subprojects requires an ESIA be prepared. The preparation of an ESIA should apply participatory approach with the engagement of the project owners, feasibility study engineers, affected communities and any interested parties. The key contents of an ESIA will be:

Executive Summary

1. Introduction
2. Subproject Description
3. Legislations
4. Baseline conditions
5. Alternative analysis
6. Potential Social and Environmental Impacts
7. Environmental and Social Management Plan
8. Institutional Arrangement and Capacity Building
9. Public Information and Information Disclosure

Annexes

Reference Documents
Design of the subproject
Map of the subproject location
Environmnetal and Social Screening Checklists
Records of Consultations (minutes and photographs)
etc.

The preparation of an ESIA should be carried out in the following steps

1) Familiarization with subproject background (legal and physical) and preliminary engineering proposals on subproject intervention. Desk review for information data collection.
2) Prepare a plan for field trip: site observations, additional information and data collection, environmental baseline monitoring. In preparing this plan, the information required in each section of the ESIA as described below should be noted carefully so as adequate information can be collected during field visit
3) Preliminary field work: meetings with project owners, the feasibility study consultant, representative of benefited/affected communities and relevant stake holder, visit the site for observation
4) Scoping for preliminary identification of subproject potential impacts
5) Public Consultation Meeting (PCM) for sharing initial findings of potential impacts and receiving feedbacks on the proposed investments
6) Detailed field survey on the preliminary identified impacts at scoping
7) Assessment of potential impacts and examination of mitigation measures of the potential impacts
8) Draft the ESIA report

9) Carry out consultations on impacts assessment and the proposed mitigation measures
10) Assess the institutional capacity and suggest appropriate capacity building plan and implementation arrangement for ESMP implementation and monitoring.

Below are the guidance on 'what" and "how" to write each section of an ESIA for a subproject under DSRIP.

Executive Summary

In the Executive Summary, the key contents of the ESIA should be presented: subproject context, proposed scope of works, list of key impacts and risks, mitigation measures, monitoring and supervision plan, capacity building plan and total cost estimation. The key messages from Public Consultation should also be mentioned in the Executive Summary

1. Introduction

This section should not be longer than one page.
The first one to two paragraphs should introduce about the Dam Safety and Rehabilitation Project and safeguard requirements applicable to its subprojects.
The next paragraphs give a brief introduction about the subproject to be financed under DSRP with information about the name, location, existing conditions and the need to rehabilitate the work, the scope of the proposed interventions, and objectives.

2. Subproject Description

This section should describe in detail about the subproject, including the proposed subproject interventions, resources used for the construction, construction schedule and any other related aspects. The following information should be presented:

2.1 Subproject overview

In this section, the geographical location should be described: province, district, commune, geographical coordinates, distance to the nearest main city, town or highway. A map showing the location of the reservoir and surrounding features should be enclosed to geographical location
Then introduce briefly about the existing components of the work under the subproject such as the dam, the reservoir, spillway and downstream canal, the outlet work, accessibility to the site etc. and the reasons for rehabilitation/upgrading the of works

2.2 Proposed scope of work:

The proposed scope of work should be discussed component by component. Engineering parameters (dimensions, capacity etc.) and quantity of work should be specified where possible. Although the focus of this subsection is to describe the proposed project intervention, existing conditions of each component in connection to the proposed investments should also be discussed.

Photos showing the existing conditions of the workers to be repaired/rehabilitated, engineering drawings showing the proposed investments should be presented to illustrate the descriptions.

2.2.1 Main Items

This subsection should cover the items that will be remained permanently after the construction phase is completed. These should include the dam, spill way, outlet and access/management road

- The dam and reservoir:
    - The year the dam as was built, type of structure (e.g. earth), height, crest length and width; storage capacity, water surface area, depth of the reservoir etc.
    - Existing issues and problems related to the dam
    - Proposed interventions with quantity or parameters where possible, such as lining the slopes (how many square meters, with which materials), termite treatment (the type of chemicals used, if any), build drainage system on dam slopes and toes (type, size and quantity), grass planting (area) for slope protection/stabilization etc.
    - Auxiliary dam
- The spillway:
    - Location in relation to the main dam (s) site, structure height and width, connecting structures etc.
    - Existing operational issues
    - Proposed intervention, such as strengthening or hardening the dam structure. Any changes in the spillway structure should be specified in this section
- The outlet:
    - Location in relation to the main dam (s) site, structure, dimensions
    - Existing operational issues
    - Proposed interventions, such as repairing, replacement of the pipes, construction and installation of new valve system etc.
- The access road:
    - Location with starting and ending points; type, length, width and existing operational issues
    - Proposed interventions, such as repairing, upgrading, widening etc. Specify the dimensions and quantity where possible
- Other existing facilities, if any, such as administration building available at the site

2.2.2 Ancillary Items

This subsection should cover the major items that will be developed for use during construction but the sites used by the subproject once construction phase is completed. These may include the workers camp, material storage areas, batching plant, vehicle parking area, borrow pits, quarries spill way, disposal sites etc.

- Worker's camps: location, land area, the number of workers to be accommodated, ancillary items proposed such as kitchen, washing area, toilets etc.
- Borrow pits and quarries, and transportation route: location, distance to construction site, land area, capacity, etc.
- Disposal site and transportation route: location, distance to construction site, land area, the volume of materials to be disposed of, etc.
- Source of power supply for construction
- Water and energy supply for the workers camp
- etc.

2.2.3 Quantity of materials and resources used or generated under the subproject

Under this sub-section, the information should be presented in a tabular form recommended below

Table – C.2: Estimated Resources Used in subproject

	Item	Unit	Type/capacity	Quantity
1	Excavation			
2	Filling			
3	Construction materials (sand, steel, crushed stone, concrete, gasoline, etc.)			
4	Construction plants (trucks, excavators, bulldozers, etc.)			
5	Etc.			

3. Legislations

The key Vietnamese safeguard legislations applicable to the subproject, and the World Bank Safeguard Policies triggered under the subproject should be listed and discussed briefly under this subproject. Please refer to chapter 3 in the main part of this ESMF documentation.

4. Baseline Conditions

Baseline conditions of subprojects can be collected based on literature review of other reports prepared in the past. Additional information and data may also be necessary and can be collected through sampling, interview and observations in the field. As common practice, baseline conditions are usually discussed generally or based on the regional information. For subprojects under the Dam Safety and Rehabilitation Project, it is required that existing conditions in the subproject areas are described specifically for each site, each component in the area of influence based on the field works carried out either by the PMU, FS or environmental consultants.

Baseline information presented in this sub-section should cover at least the following features: Regional general information

- ***Physical Environment***, dry and rainy season, climate change issues surface water hydrology including flooding time of the year, flood hazard potential, water resources, erosion and sedimentation issues; environmental quality: receiving water quality – both surface and ground water, noise level, ambient air quality.

- ***Biological environment:*** terrestrial and aquatic flora, fauna species, biodiversity values the rare or endangered species within or in areas adjacent to area of influence, sensitive habitats, including wetlands, parks or reserves, significant natural habitats within or in areas downstream/down gradient of project area, species of economic/commercial importance in areas affected by the sub-project.

    - existing infrastructure and public services: road and transportation, power and water supply, drainage, sanitation, waste management, education, health care etc

    - Cultural settings: cultural/historical/religious sites, tourist destinations etc.; archaeological issues

- ***Socio-economic and socio-cultural environment:*** population, ethnicity, demographic characteristics economic conditions, specific traditions and customs, sources and level income of the population in the sub-project's area of influence [refer to social assessment reports. Other information includes: land use; the agricultural cultivation calendar, employment and labor markets, household income sources, gender equity and decision making, the role of women in household economic development and social activity. The baseline survey should include the public health, education, and recreation, secondary data, household surveys, focus group and key person interviews. The presence of physical cultural property should be noted, the "chance finds" procedure have to apply if any archaeological significance

- ***Ethnic minorities.*** Where people identified as "indigenous people" who meet the criteria of World Bank policy OP 4.10 are found to be the majority in the sub-project's area of influence, the rehabilitation sub-project will be implemented as an Ethnic Minority Development Plan. OP 4.10 provides for free, prior and informed consultations in a culturally appropriate way to ensure broad-based community support for the project. Where ethnic groups are in the minority, consultations will be carried out in a culturally appropriate way to ensure their inclusion in project benefits and participation.

Subproject area specific information:

Descriptions on the existing conditions at subproject area are required. Below are some guidance:

Table –C.3: Specific Existing conditions in subproject area

	Specific Item	Requirements
1	Downstream area of the spillway	- Drainage pattern - Flooding, erosion and sedimentation issues in the surrounding area in history
2	Borrow pits an quarries, if any Disposal site(s)	- Land area - Drainage pattern - Flooding issues in the surrounding area in history - Existing land use at the site: agriculture, residential, public land, etc. - Existing infrastructure on the site, such as power lines, water pipes, drainage ditches, irrigation canals etc.

		- Trees, vegetation cover at the sites, aquatic species, specify if any of these are rare/endangered or threatened according to the Red Book - Storage /exploitable capacity - Distance to the nearest residential area - Distance to the nearest public building or public area such as classrooms, clinic, People's committee office, etc.
3	Access roads, including access roads (i) from the main road the dam site, (ii) from construction sites to borrow pits and quarries if different from access road, (iii) from construction site to disposal site, if no on the same route as the access road	- Length and width - Existing land use along the access roads: agriculture, residential, public land, etc. - Existing infrastructure along the access roads, such as power lines, water pipes, drainage ditches, irrigation canals etc. - Trees, vegetation cover along the access roads - Specify if any tree or structures that are very important to the local community that should be protected during construction phase - Sensitive locations along the access road, such as residential houses, public building, schools, clinics, office, etc.

For the borrow pits and quarries, sketches showing the boundary and existing features surrounding the sites should be presented. Photos showing the borrow pits and quarries, and existing sensitive features surround these sites should be presented
For the access roads, map or sketch showing the road alignment and existing land use/sensitive features along the access roads, and pictures showing the sensitive features along the access roads should be presented
Legacy Issues should also be discussed in this section of the ESIA: history of the dam construction and reservoir operations, negative impacts, actions undertaken and pending for mitigation etc.

5. Alternative Analysis

The alternative analysis is to be carried out to identify the appropriate location/design/technology that would generate least adverse impact. Please use the Chapter V of the ESMF as reference for discussions about alternative analysis of subprojects

6. Impacts Assessment

During the implementation of each DRISP subprojects, there will be common construction impacts and some other specific impacts based on the baseline conditions and scope of investments. These potential impacts should be screened before detail assessment is carried out. Impacts screening should be done using the table recommended below:

After the potential impacts are identified through the screening table above, carry out detail assessment. Discussions should be presented in the same sequence shown in the table above. For each type of assessment, the following aspects should be discussed.

- The source of impacts: the types of activities that cause the impacts

- Time length that the impacts would occur and the magnitude of impacts
- Spatial boundary to be affected and the number of objects to be affected
- The number of people or objects to be affected by the impacts
- reversibility of the impacts

(Use Chapter VI of the ESMF as reference for impacts assessment)

7. Environmental and Social Management Plan (ESMP)

See the guidance in Section C.2 of this Annex.

8. Institutional Arrangement and Capacity Building

Describe the subproject institutional arrangement focusing on the implementation of the mitigation and monitoring plan. Assess the capacity of the local level agency and suggest additional manpower required for ESMP implementation and monitoring. Capacity building plan will be provided.

9. Public Consultation and Information Disclosure

Public Consultation

Information Disclosure Plan

See the guidance given in Section C.3 of this Annex

1.3 C.2: Guidance on ESMP Preparation

The key contents of an ESMP are:

1. Mitigation Measures
2. Monitoring and Supervision Plan, Reporting requirements
3. Institutional Arrangements for mitigation, monitoring and supervision
4. Training, Capacity Building Plan
5. Cost Estimation for ESMP implementation

Below are the contents to be presented in each section of an ESMP

1. Mitigation Measures

The mitigation measures will be proposed to address the potential negative impacts identified in Section 6 discussed in Subsection C.1 above. ESMP will be prepared based on the actual impacts identified and it will be site specific. In addition, as subproject will have to follow the standard mitigation practices mentioned as bid specifications or ECoP mentioned in Annex-E. Mitigation measures can be proposed for various phase of a subproject, such as engineering design, construction or operation phase. If not already included in the estimated construction contract value, the costs associated to the implementation of mitigation measures should also be estimated and included in the total budget of a subproject.

When preparing proposals on the mitigation measures for a subproject, Section VI of the ESMF should be used as reference). Note that the mitigation plan should take into account the legacy issues, i.e. it may need to include the measures to address the identified legacy issues.

2. Monitoring and Supervision Plan, Reporting Requirements

Environmental Monitoring and Supervision include:

- Monitor the changes in the environmental conditions associated with subproject activities
- Monitor contractor's environmental performance to ensure compliance to requirements, ESIA/ESMP that the potential impacts are addressed adequately, and to ensure
- Environmental quality monitoring to verify the effectiveness of mitigation measures and identify if environmental issues, if any, has arisen associated with subproject activities. Environmental Quality Monitoring may also be require to meet the requirements of Vietnamese Environmental regulations
- Supervise the contractor to implement corrective actions when non-compliance are identified, when there are environmental complaints, or failure or accidents happened, or instruct the contractors on the actions in the event of Chance Find.

The ESMP should specify the monitoring requirements for each type of monitoring, including the parameters to be monitored, the location and suggested methodology, frequency and who carry out monitoring. Tables C.4 and C.5 below should be used specifying monitoring requirements. The cost of monitoring should be estimated and presented in Table C.6.

Regarding reporting requirement, the ESMP should specify the type of reports to be prepared, prepared by whom, the key contents and frequency of preparation and submit to whom. Table C.7 should be used for presenting the reporting requirements

Table – C.4: Compliance Monitoring Plan

	Impacts/Risks	**Parameter to monitor**	**Location/ method**	**Frequency**	**Who monitor**
	(below is only indication)				
1	Land acquisition				
2	Safety risks related to (UXO)				
3	Social impacts:				
4	Gender impacts:				
5	Landscape modification				
6	Biological impacts				
7	Increased dust and gas emission				
8	Noise, vibration				
9	Solid waste management				
10	Waste, wastewater from camp				
11	Hazardous management				
12	Changes in flow pattern, water quality				
13	erosion risks, sedimentation				
14	Traffic disturbance, increased traffic safety risks				
15	Damages to local road % other				

	Impacts/Risks	Parameter to monitor	Location/ method	Frequency	Who monitor
	(below is only indication)				
	rural infrastructure				
16	Health and Safety risks for workers				
17	Health and safety risks for local community				
18	Disruption of irrigation and other public service:				
19	Agrochemical use in extended irrigated area				
20	Sedimentation in reservoir before refill				

Table –C.5: Environmental Sampling Plan Requirements

No.	*Sample*	*Location*	*Frequency*	*parameter*	*Standard*
1	Air quality				
2	Surface Water				
3	Ground water				
4	Soil				
	Etc.				

Table –C.6: Estimated cost for Environmental and Social Monitoring

	Categories	Unit	Quantity	Price	Amount
	Total				

Table – C.7: Summary on Reporting Requirements

Responsibility for Preparation	*Report to be prepared*	*Key Contents*	*Frequency*	*Submit to*
Contractor				
CSC				
Independent Environmental Consultant				
PPPMU				

3. Implementation Arrangements

In this section, the ESMP should present the organizational structure for ESMP implementation. Stakeholders in the implementation of ESMP can be the Project Owner, the FS consultant, the engineering design consultant, the contractor, construction supervision consultant, independent monitoring consultants, the affected households and the beneficiaries etc. Their roles and responsibility could be implementation of mitigation measures, monitoring or supervision, or provide feedback. The ESMP should describe their key roles in the subproject using Table 8 below

Table –C.8: The Roles and Responsibilities of Stakeholders in implementing ESMP

	Stake holders	***Responsibilities***
	MARD	
	CPO	
	PPMU	
	FS consultant	
	Design Consultant	
	Contractor	
	Construction Supervision	
	Independent Monitoring Consultant	
	Affected Households	
	Benefited Households	
	Local Communities	
	Reservoir management and development agency.	
	MONRE/DONRE	
	Local Authority/CPC	
	Etc.	

4. Training, Capacity Building

In this section, the ESMP should discuss the existing capacity of stakeholders in managing and implementing safeguard issues. The number of staff, their background education and qualifications, their experience in similar subprojects should be discussed. Then make assessment on whether the existing capacity is adequate to manage and implement the subproject ESMP. In this section, the ESMP can also propose a training/capacity building program to ensure that safeguard issues is properly managed during subproject during implementation. Table C.9 below can be used to present capacity building proposals.

Table –C.9: Budget for Training, Capacity Building

	Activities	***Unit***	***Quantity***	***Amount***
Total				

5. Cost Estimation

In this section, the estimated costs for the implementation of the mitigation measures, monitoring and supervision, training and capacity buildings should be brought together in Table 10, which finally indicate the total budget for ESMP implementation.

Table – C.10: Budget of ESMP implementation

	Item	Budget	
		Construction phase	Operation
	Mitigation measures		
	Independent Monitoring		
	IMP training		
	Capacity Building		
	TOTAL		

1.4 C.3: Guidance on Public Consultation and Information Disclosure

During the preparation of the ESIA, two rounds of public consultation should be carried out. For ESMP, at least one round (Round 2 described below) of consultation should be carried out after the draft ESMP has been prepared.

Round 1: the ESIA team should meet with Project Owner, engineering consultant and related stake holders to inform them about the subproject safeguard requirements, collect information that would be useful for ESIA and ESMP preparation

Round 2: Round 2 consultation meeting should be conducted after the first draft of the ESIA has become available. The ESIA consultant team in coordination with the project owner, and the feasibility consultant should meet with the community, particularly the representatives from the affected households, to inform them about:

- the proposed project interventions and objectives
- the potential social and environmental impacts that may happen during construction and operation phases of the subproject
- the proposed mitigation measures

Then the participants of the meeting should be invited to give comments, feedback, and suggestions about the potential impacts, mitigation measures, their expectations etc.

The information from public consultation should be recorded in the form given below:

Dam Safety Rehabilitation and Improvement Project

PUBLIC CONSULTATION ON ESIA

MEETING MINUTES

Name of Subproject:

I. General Information

Date
Location
Number of Participants: (attached with the list of the participants attended the meeting)
Number of women
Number of representatives from ethnic households

II. Key Information given to the participants

(focus on summarizing the key potential impacts and mitigation measures informed to the participants)

III. Feedback received from the participants (record in detail

	Name	Feedback/comments/suggestions

Start time: End Time

Minutes prepared by

List of participants (attached to the meeting minutes\

	Name	Commune/Village	Signature

DISCLOSURE: The draft ESIA, ESMP should be submitted to the Bank for disclosure on the Bank website, and the Vietnamese version of the report should also be disclosed in project area before appraisal of subproject.

Annex- D: Potential Impacts and Mitigation Options

The following are indicative and generic mitigation options based on the anticipated impacts and issues associated with dam rehabilitation works. Depending on the actual environmental and social conditions in the subproject site and severity of the impacts, dam rehabilitation sub-projects may adopt and/or modify on these mitigation measures.

Table –D.1: List of Possible Impacts and Mitigation Options – Pre-Construction Phase

Issue/ Negative impact	**Mitigation Measure**
1. Permanent or temporary loss of land or resources for any families, resettlement	- Impact on land acquisition and resettlement are low, the amount of effected household just only a dozen, most of the sub-projects do not require resettlement plan. A sub-project requires resettlement for household needs following: - Identify the amount and nature of land required, owner, and/or other issues and prepare a RAP to provide compensation and/or assistance following the RPF.
2. Physical relocation of graves is likely	Most of sub-project do not have the task. If this is the case follows the procedure described in the RPF
3. Road Traffic condition	Need to consult to local authorities before site clearance taking place. - Traffic management plan needed to manage the raipid desity of vehicle transportation and road realignment. Avoid transporting via vulnerable areas such as school, hospital or market. - Install nigh illuminating system if necessary - Install trafic instructions and warning boards. - Install traffic signage boards - Install waterway signal boards if necessary
4. Health Impacts on Construction Workers/Camps	- Educate and promote awareness on personal hygiene and transmission of diseases - Install barrier, fence, warning boards, restricted areas, and illuminating systems to protect local people and warn potential dangers may have. - Contractor must to apply safety regulation and monitor the compliant to protect people and vulnerable areas

Issue/ Negative impact	**Mitigation Measure**
5. Risks of unexploded ordnances	It impacts to many subjects, hence: - The contractor should announce to community and/or the local population around the areas about the noise impact likely to be affected by noise from activities such as blasting and have to minimize these activities - The contractor should apply appropriated method to reduce the nose as much as possible to the vulnerable areas (school, hospital, clinic center, resident areas, etc.) - Do not open within radius 200m to resident areas - Do not open in the abnormal weather condition - Before fire, have to watering the surface of the blasting areas, construct a new fence to protect and avoid debris flowing - Do not fire at night time, except a schedule have been approved by CPC and PEO - turn off all transmission devices within 50m to exploded position before and after blasting time - Explosive materials must be kept in safe and checked weekly.
6. Ethnic minorities and/or adversely affect ethnic groups	- Carry out social assessment process through free, prior, and informed consultations and prepare an EMDP in accordance with guidance in the EMPF. - The project will support increasing awareness of affected population, in respective languages of ethnic minority groups, about the Grievance Redress mechanisms, and building capacity of those involved in the existing Grievance Redress mechanism on the required tasks, including dealing with or mediating complaints from individual and/or ethnic groups, recording and reporting, and monitoring proposed resolutions.
7. Health Impacts to local villagers and communes	- Health villagers and communities management plan needed. Educate and promote awareness on personal hygiene and transmission of diseases - Heath villagers and communities checking periodically - Ensure local medical centers are adequately staffed and have ample treatment supplies
8. Impacts to infrastructure and utilities	- Implement protective measures during transportation - Announce construction, water and power supplies schedule on the public media and development to affected household at least 2 days before the task taking place. - Repair, maintain and compensate to local roads, infrastructures as necessary required, particularly those which are damaged by construction vehicles.
9. Impact to gender	- Compensation plan needed due to household economic lost - Use local labour maximize to increase household incomes, specially women in the local involves to the works of the sub-project

Issue/ Negative impact	Mitigation Measure
10. Changes landscape due to borrow pit exploitation and disposal areas operations	Earth works; camp building and construction of items will change the landscape of construction area and increase erosion progress. Contractor should follow: - The solid waste such as wood shall be collected for reuse or buried at dumping site. - Reuse the removed soil layer to plantation and ground leveling - Contractor will clear away and remove all materials and rubbish and temporary works after complete work
11. Air, water and soil pollutions in constructing site	Solid and liquid wastes transportation harm to air, water and soil pollutions at low level. However, the contractor have to apply mitigation measures to reduce the issues by following: - Collect the solid waste, wastewater from constructing site following regulations - Watering road surface to reduce dust - Washing vegetation covers around the site
12. Reservoir sedimentation	- Management of catchments areas to minimize erosion and sedimentation avoid the borrow pit disposal areas or material storage construct in reservoir - Quarry material areas need cover or installation fence to avoid material fall down
13. Impacts to biodiversity and natural habitats	Activities of the project cannot avoidable the problems, some mitigation measures can be: - Develop a plan to reduce blasting time, noise - Reduce the impact to aquatic creatures - Limit land occupational to site clearance - Use chemical to clear site is not allow - Wash vegetation cover and plant around the transportation road - Do not remove or damage vegetation without direct instruction. Or cut trees for any reason outside the approved construction area

Table – D.2: Possible Issues and Impacts and Mitigation Options – Construction Phase

Issue/impacts	Mitigation measures
I. Social Impacts	
1. Impact on traffic condition in project area	- Consultation with local authority, local community and traffic police must be done in pre –construction stage. - Transportation method, routine and road alignment plan needed, the plan must be considered avoiding vulnerable areas such as school, hospital, and market. - Installation of light signal to ensure traffic safety at night. - Install instruction boards around the construction site and material exploitation areas. - Material transportation should be avoided in rush hour. - Install signs for road instructing if necessary.
2. Impacts on production and domestic water	The impacts are assessed at high level and the mitigation measures should follows: - A construction plan needed, and it concerns to less water use

Issue/impacts	Mitigation measures
supply	period - Announce water supply schedule on the public media and to local communities - Use alternative water supply sources for domestic users and production - Calculate compensation in case of no alternative solution of water supply found
3. Impacts on fishery and downstream area	- Select the construction techniques to avoid to drainage water - Use alternative water supply sources for domestic users and production - Announce the time of drainage water on the public media and to fishery households
4. Impact on tourism, inland water way transportation	Some reservoirs have tourism activities and inland water way transportation, the mitigation measures must be applied as follows: - Select the construction techniques to avoid to drainage water - Announce construction time and potential impact to tourist agencies and transportation representative division - Install protect fences to avoid impacts to tourist activities
5. Impact on people's income and livelihood	- Compensate the damage follows to project policies - Employing the local labor to work in the project
6. Potential conflict between workers and local residents	- Develop a worker management regulations and median resolution mechanisms - Register temporary accommodation for workers - Use maximum local people to work in the project - Increase local people's awareness about the conflicts and resolution
7. Impacts on Construction Workers/ Camps	- Train workers about working safety and provide personal clothing according to current regulations of Vietnam - Install barrier, fence, warning boards, restricted areas, illuminating systems to protect local people and warning potential dangers and may have. - Contractor will implement the safety mitigation measures such as install protection fence, warning signs, traffic lights to avoid accidents in local as well as vulnerable areas
8. Disease spread	- Develop a community health protection plan - Check the worker physical and local community frequency - Hygiene and sanitaria the constructing site and camping site
9. Health Impacts to local villagers and communes	- Provide medicine cabinet and first aid response - Heath villagers and communities management plan needed. - Provide protective clothes for workers and monitoring compliant
10. Damage local roads and infrastructures	Activities of sub-project will damage local road or interrupt the services such as power, water supply to local person, hence the contractor must follow a regulation to minimize the issues, are as following: - Limit the heavy vehicle and load rate - Repair the damaged infrastructures (raod, power station, grids, water supply station and pay compensation cost and contact to

Issue/impacts	Mitigation measures
	local authorities
11. Impact on gender	- Compensation plan needed due to household economic lost - Use local labour maximize to increase household incomes, specially women in the local involves to the works of the sub-project
12. Impact on social unions	- Train the staffs of the social unions on the right and their responsibility to the ESMP monitoring and the contractor compliant - Train staffs on the monitoring skills, reflecting information skill regarding social and environmental impact of construction activities - Develop information systems between Social union and local authority, PMU, construction contractors and supervision contractor in order to receive and process information on time
13. Impact of public services.	- Provide information for the affected households regarding on construction time and cutting off water/electricity at least 2 days before the work taking place. - Any damage to public service has to report to relevant agencies and should be repaired as soon as possible. - Compensate damaged due to construction activities
II. Environmental Impacts	
Issue/ impacts	**Mitigation measures**
1. Changing Water quality or flow patterns	Due to excavation operation and waste generation by workers and waste by workers. Contractor have to implement a mitigation measures are as follows: - Minimize the solid or rocks falling to reservoir - Use local labour force in manual labour force to reduce household wastes. Install collection and treatment system domestic wastewater that meet discharge criteria and transport to the treatment facilities or discharge to city sewage systems. - Wastewater must be collected in specific tanks and have to get permission to transport. - The septic pits will be covered and sealed after finishing construction - The hazardous wastes such as waste oil, chemical termite must be collected and processed according to the management of hazardous waste - Hazardous waste must be labeled and stored in separate containers with appropriate labeling. Containers are located away from riverbank and domestic water source in order to avoid making bad affects on water quality
2. Emission gases, dust polluting air	- The traffic vehicles, machines, construction equipment's must be followed inspected regularly inspected , and maintenance regularly - Watering material transportation roads, and on site construction - Cover the material storages site - Transportation vehicle have to cover during transport material - Construction site must be covered, isolated from surrounding area
3. Increase noise and vibration	- All vehicles must have a "*certificate of inspection standards of quality, technical safety and environmental protection*" consistent

Issue/impacts	Mitigation measures
	with Decision No. 35/2005/QD-BGTVT to avoid excessive noise from inappropriate maintenance machines - All vehicles avoid transport materials in rush hours and at night time - Alignment traffic road. Organize the working time to avoid all activities happen in same time
4. Changes landscape due to borrow pit exploitation and disposal areas operations	Earth works; camp building and construction of items will change the landscape of construction area and increase erosion progress. Contractor should follow: - The solid waste such as wood shall be collected for reuse or buried at dumping site. - Reuse the removed soil layer to plantation and ground leveling - Contractor will clear away and remove all materials and rubbish and temporary works after complete work
5. Reservoir sedimentation	- Management of catchments areas to minimize erosion and sedimentation avoid the borrow pit disposal areas or material storage construct in reservoir - Quarry material areas need cover or installation fence to avoid material fall down - Material, soil, rock and waste are not allowed to storage in reservoir area
6. Impact on dam safety	- Construction time must in dry season - Speed up construction progress
7. Impact on habitats of plants and animals	- Activities of the project can not avoidable the problems, some mitigation measure can be - Develop a plan to reduce blasting time, noise - Reduce the impact to aquatic creatures - Limit land occupation to site clearance - Wash vegetation cover and plant around the transportation road - Use chemical to clear site is not allow - Do not remove or damage vegetation without direct instruction. Or cut trees for any reason outside the approved construction area
8. The negative impact after completing construction	After completing the work, the contractor have to clean and remove all materials, rubbish and temporary works out of the site
9. The negative impact of the demolition phase construction	- The disposal areas, land mines, workers' camping site, materials storage areas, and other area used to built temporarily construction have to recover to original state. Develop a pant banks and construct a water drainage and sewage systems - Earth fill to borrow pit and quarry material site, plantation - Chemical contaminated soil will be moved, transported and buried in the indicated area - Disposal areas must be covered by clay on top, leaching treat and by plant

Table D.3: Possible Issues/Impacts and Mitigation Measures in Operation Phase

Issues/ negative impacts	***Mitigation measures***
1. Sedimentation	Management unit of reservoir need to implement a mitigation measures in order to minimize the erosion progress or landslide occur during this phase. There are: - Planting a tree bank in bared land area and slope areas to reduce the risks. - Limiting the actives on slope areas and within reservoir
2. Waste from agriculture, forest, tourism, and fishery activities impacts to water quality	- Train to local community about the law of environmental protection and sustainable development - Develop a regulations, sanction to violated person or household to environmental protection such as person discharge hazard chemical into reservoir or discharge waste without treat direct to - Install collection and treatment system domestic wastewater around the reservoir - Assign an organization or individual to manage wastes or related material to protect local environment. - Strengthening to environmental staffs capacity
2. Domestic waste impacts to water quality	The households, service and tourist agency responsible to manage domestic wastes. Waste treatment plant response to treat wastes to meet QCVN
3. Negative impacts due to extending spillway	- It is necessary to calculate sediment transportation into reservoir in case of extending spillway - Announce the potential negative impacts to residents and local authority in affected area
4. Impacts due to unexpected releasing water	- Announce water release schedule to downstream on the public media to local authority about the volume of water will be release potential negative impacts - Develop evacuate and rescue plans, provide shelter and water supply facilities plan to protect downstream resident if necessary.
5. Involve risk related to safety of dams	- Assess to effectiveness of the project on dam safety. - Capacity building to staffs on the reservoir/dam management - Regularly inspect and detect incidents lead to unsafe dams and the authority competent to handle - Maintenance frequency and early detect mechanisms - Budget allocation to maintain and repair the appurtenant structures if necessary

Mitigation Measures for Incidents, Risks during Project Implementation

The risks occur to the project during implementation can be: irregular rainfall, camping site flooding, soil erosion, fire explosion, short circus, land mine etc. Hence, it must have a manage plan to avoid or reduce the risks.

Table - D.4: Mitigation Measures for Incidents, Risks to Project during Implementation

Problems/ incidents	***Mitigation Measures***
1. UXO risks	- If identified at the feasibility stage, include the clause in the EMP. The procedures would include: contact responsible agencies and complete the clearance before conducting construction activities. - The subproject will be required to provide a UXO clearance certificate before undertaking site clearance and/or construction.
2. Fire and explosion risks and short circuit	- Implement electrical safety and fire safety instruction on construction sites. - Provide adequate firefighting equipment. - Established rescue teams and equipment to provide first aid on site
3. Unusual flood at construction site	- Getting information from weather forecast agency: rain, tropical depressions, and storms, continuously. - Opening the block flowing points, install protecting fences digging holes,, install signage board and light system - Draining water if high flood occur. - Managing and monitoring the affected areas. - Cleaning and sanitizing the affected areas after flooding - Warning about the disease exposing in rainy season - Providing first aid and medicines cabinets on site
4. Accidents at work and traffic accident during construction phase	- Install fully signs, warnings, speed limits, barrier on the construction site and roads. - Implement the regulation of compliance monitoring to contractors - When the accident first aid to victims and moved to the nearest medical facility - Notify the owner and the contractor. - Prepare a companion Emergency Response - Contract with the investor and contractor.

Annex-E: Bid Specification- General Construction Management and Contractors' Responsibilities (Environmental Code of Practice-ECoP)

1.5 E-1: Construction Camp Management Plan

Workforce and Camps: *General Requirements*

The Contractor shall, wherever possible, locally recruit the available workforce and shall provide appropriate training as necessary. The Contractor shall consider all aspects of workforce management and address potential ethnic tensions between workers and the local communities, increased risk of prostitution and communicable diseases, theft, drug and alcohol abuse, market distortion due to temporary inputs to local economy and other local tensions such as unemployment, ethnicity and divergent cultural values.

The following general measures shall be considered for construction camps:

1. The construction camp site will have to be approved by the local authority.
2. The Contractor shall present the design of the camps including details of all buildings, facilities and services for approval no later than two months prior to commencement of any construction work. Approvals and permits shall be obtained in accordance with applicable laws, applicable standards and environmental requirements for the building and infrastructure work for each camp area.
3. The Contractor shall provide adequate and suitable facilities for washing clothes and utensils for the use of contract labor employed therein.
4. Camp site selection and access roads shall be located so as to avoid clearing of major trees and vegetation as feasible, and to avoid aquatic habitats.
5. Camp areas shall be located to allow effective natural drainage and landscaped so as to avoid erosion.
6. The Contractor shall provide suitable, safe and comfortable accommodation for the workforce.
7. The Contractor shall provide adequate lavatory facilities (toilets and washing areas) for the number of workers expected on site, plus visitors. Toilet facilities should also be provided with adequate supplies of clean or potable water, soap, and toilet paper. Separate and adequate bathing facilities shall be provided for the use of male and female workers. Such facilities shall be conveniently accessible and shall be kept in clean and hygienic conditions at all times.
8. The Contractor shall implement effective sediment and erosion control measures during construction and operation of the construction work camps in accordance with the environmental requirements as stipulated by the EMP and SESIA, especially near rivers.
9. The Contractor shall provide recreational facilities to the workforce. Such facilities will help to mitigate against potential conflict and impact on the local population as the incentive to go outside the camp will be reduced.
10. The Contractor shall provide safe potable water for food preparation, drinking and bathing.
11. The Contractor shall install and maintain a temporary septic tank system for any residential labor camp, without causing pollution of nearby watercourses. Wastewater should not be disposed into any water bodies without treatment, in accordance to

applicable Vietnamese standards.

12. The Contractor shall establish a method and system for temporary storage and disposal or recycling of all solid wastes generated by the labor camp and/or base camp.
13. The Contractor shall not allow the use of fuel wood for cooking or heating in any labor camp or base camp and provide alternate facilities using other fuels.
14. The Contractor shall ensure that site offices, depots, and workshops are located in appropriate areas as approved by the appropriate the Dam Safety Project environmental officer or the Supervisory Engineer;
15. The Contractor shall ensure that storage areas for diesel fuel and lubricants are not located within 100 meters of watercourses, and are operated so that no pollutants enter watercourses, either overland or through groundwater seepage, especially during periods of rain. A ditch shall be constructed around the area with an approved settling pond/oil trap at the outlet.
16. Areas for the storage of fuel or lubricants and for a maintenance workshop shall be fenced and have a compacted/impervious floor to prevent the escape of accidental spillage of fuel and or lubricants from the site. Surface water drainage from fenced areas shall be discharged through purpose designed and constructed oil traps. Empty fuel or oil drums may not be stored on site. Waste lubricants shall be recycled, and not disposed to land or adjacent water bodies.
17. The Contractor shall ensure that site offices, depots, and workshops are located in appropriate areas as agreed by local authorities and approved by the Dam Safety Project or supervisory engineer. They shall not be located within 200 meters of existing residential settlements.
18. Concrete batching plants shall not be located within 500 m of any residence, community or work place.
19. The Contractor shall provide medical and first aid facilities at each camp area; and
20. All medical related waste shall be disposed off in proper containers, or dealt with accordingly with established procedures for safe disposal.

Security

Security measures shall be put into place to ensure the safe and secure running of the camp and its residents. As a minimum, these security measures should include:

1. Access to the camp shall be limited to the residing workforce, construction camp employees, and those visiting personnel on business purposes.
2. Prior approval from the construction camp manager shall be required for visitor access to the construction camp.
3. Adequate, day-time night-time lighting shall be provided.
4. A perimeter security fence at least 2m in height shall be constructed from appropriate materials; and
5. Provision and installation in all buildings of firefighting equipment and portable fire extinguishers.

Maintenance of Camp Facilities

The following measures shall be implemented to ensure that the construction camp and its facilities will be organized and maintained to acceptable and appropriate standards:

1. A designated camp cafeteria shall be established under strict sanitary and hygiene

conditions

2. Designated meal times shall be established
3. Cooking or preparation of food shall be prohibited in accommodation quarters
4. Designated rest times shall be established
5. Designated recreational hours shall be put in place
6. Smoking shall be prohibited in the workplace
7. Procedures shall be implemented to maintain the condition of the construction camp and facilities and ensure adequate cleanliness and hygiene
8. The latrines and urinals shall be adequately lighted and shall be maintained in a clean sanitary condition at all times
9. Water shall be provided in or near the latrines and urinals by storage in drums; and
10. A complaint register to receive and respond to complaints from the construction camp residents regarding facilities and services provided.

Code of Conduct

A major concern during a construction of a project is the potentially negative impacts of the workforce interactions with the local communities. For that reason, a Code of Conduct shall be established to outline the importance of appropriate behavior, drug and alcohol abuse, and compliance with relevant laws and regulations. Each employee shall be informed of The Code of Conduct and bound by it while in the employment of the Client or its Contractors. The Code of Conduct shall be available to local communities at the project information centers or other place easily accessible to the communities. The Code of Conduct shall address the following measures (but not limited to them):

1. All workers and subcontractors shall abide by the laws and regulations of Vietnam
2. Illegal substances, weapons and firearms shall be prohibited
3. Pornographic material and gambling shall be prohibited
4. Fighting (physical or verbal) shall be prohibited
5. Workers shall not be allowed to hunt, fish or trade in wild animals
6. No consumption of bush meat shall be allowed in camp
7. No pets shall be allowed in camp
8. Creating nuisances and disturbances in or near communities shall be prohibited
9. Disrespecting local customs and traditions shall be prohibited
10. Smoking shall be prohibited in the workplace
11. Maintenance of appropriate standards of dress and personal hygiene shall be in effect
12. Maintenance of appropriate hygiene standards in accommodation quarters shall be set in place
13. Residing camp workforce visiting the local communities shall behave in a manner consistent with the Code of Conduct; and
14. Failure to comply with the Code of Conduct, or the rules, regulations, and procedures implemented at the construction camp will result in disciplinary actions.

1.6 E-2: Construction Impact Management Plan

In order to reduce the impact of the construction activities on local communities and the environment, the Construction Contractor shall implement the following Sub-Plans in accordance with the following stipulations:

Erosion and Sedimentation

Site activities shall be carefully managed in order to avoid site erosion and sedimentation of downstream waterways. In order to minimize negative erosion impacts in the project area, the following activities shall be carried out by the Contractor:

1. Erosion and sedimentation shall be controlled during the construction. Areas of the site not disturbed by construction activities shall be maintained in their existing state.
2. Disturb as little ground area as possible; stabilize these areas as soon as possible, control drainage through the area, and trap sediment onsite. Install erosion control barriers around perimeter of cuts, disposal pits, and roadways.
3. Slope works and earth moving/excavation shall be conducted in order to minimize exposure of the soil surface both in terms of area and duration. Temporary soil erosion control and slope protection works shall be carried out in sequence to construction.
4. Conserve topsoil with its leaf litter and organic matter, and reapply this material to local disturbed areas to promote the growth of local native vegetation.
5. Apply local, native grass seed and mulch to barren erosive soil areas or closed construction surfaces.
6. Apply erosion control measures before the rainy season begins, preferably immediately following construction. Install erosion control measures as each construction site is completed.
7. In all construction sites, install sediment control structures where needed to slow or redirect runoff and trap sediment until vegetation is re-established. Sediment control structures include windrows of slash, rock berms, sediment catchments basins, straw bales, brush fences, and silt fences.
8. Control water flow through construction sites or disturbed areas with ditches, berms, check structures, live grass barriers, and rock.
9. The ground surface at the construction site offices shall be concreted or asphalted in order to minimize soil erosion.
10. Erosion control measures shall be maintained until vegetation is successfully re-established.
11. Water shall be sprayed as needed on dirt roads, cuts, fill material and stockpiled soil to reduce wind-induced erosion and dust, and
12. Larger changes in the landscape from quarries, tunnel spoil tips, etc. should be landscaped and replanted, both to reduce erosion problems and to reduce the visual impact of construction.

Particulate Emissions and Dust

The Contractor shall propose methods and actions to control dust resulting from construction related activities, including quarry sites, crushing and concrete batching plants, earthworks including road construction, embankment and channel construction, haulage of materials and construction work camps. In particular the Contractor shall undertake the following:

1. Minimize production of dust and particulate materials at all times, to avoid impacts on surrounding communities, and especially to vulnerable people (children, elderly people).
2. Use appropriate timing for removal of vegetation to prevent large areas from becoming exposed to wind.
3. Place screens around construction areas to minimize dust proliferation, paying particular attention to areas close to local communities.
4. Spray water as needed on dirt roads, cut areas and soil stockpiles or fill material.

Spraying shall be carried out in dry and windy days, at least twice a day (morning and afternoon). The frequency of spraying near local communities shall be increased as needed.

5. Pave access roads with gravel in the sections which near the communities and other sensitive receptors to reduce generation of air-borne dust.
6. Provide an adequate ventilation system and other measures to control concentration of air pollutants within tunnels.
7. Transportation of materials by vehicles and construction of access roads shall be properly designed. For example, the access road can be constructed and paved by concrete/asphalt, or laid with small graded rocks, prior to major earthworks which may require transportation of substantial amount of materials on-site and off-site.
8. Ensure adequate maintenance of all vehicles. Construction plant/vehicles that generate serious air pollution and those which are poorly maintained shall not be allowed on site.
9. Transport of chemicals or materials such as cement, sand and lime shall be covered entirely with clean impervious material to ensure that these materials shall be contained. Overflow of material shall be avoided; and
10. The exhaust gases from construction machinery and vehicles are accepted. However, the engines shall be inspected and adjusted as required to minimize pollution levels.

Noise

To minimize noise the Contractor shall:

1. Maintain all construction-related traffic on project access roads at established speed limits.
2. Maintain all on-site vehicle speeds at or below 30 kph, or otherwise designated.
3. To the extent possible, maintain noise levels associated with all machinery and equipment at or below 90 db.
4. In sensitive areas (including residential neighborhoods, hospitals, rest homes, schools, etc.) more strict noise abatement measures may need to be implemented to prevent undesirable noise levels.
5. Apply proper measures to minimize disruptions from vibration or noise coming from construction activities.
6. Design a transportation schedule for entry of construction materials to minimize the adverse impact on residents, as well as the traffic on the existing roads. The transportation vehicles shall be required to slow down and banned from using horns when passing sensitive areas. Transportation during peak hours should be minimized. . The Contractor shall provide the transportation route in advance to the Engineering Supervisor.
7. Maintain the construction equipment in its best operating conditions and lowest noise levels possible.
8. Use temporary noise barriers to minimize the noise caused by construction equipment
9. Provide hearing protection to workers who must work with highly noisy machines such as piling, explosion, mixing, etc., for noise control and workers protection.
10. Areas for the storage of fuel or lubricants fenced and have a compacted/impervious floor or other surface to prevent the escape of accidental spillage of fuel and/or lubricants from the site. Surface water drainage from fenced areas shall be discharged through an oil skimmer or other appropriate device to remove hydrocarbons. Empty fuel or oil drums may not be stored on site. Proper MSDS labeling shall be in place

and training provided to workers handling these materials.

11. The construction supervision team shall be equipped with portable noise detection devices to monitor the noise level at the sensitive receptors.
12. Materials leaving the construction site shall be transported during non-peak hours in order to minimize traffic noise due to the increase in traffic volumes.
13. Use of properly designed silencers, mufflers, acoustically dampened panels and acoustic sheds or shields, etc. shall be made. Mufflers and other noise control devices shall be repaired or replaced if defective.
14. Use of electric-powered equipment when applicable instead of diesel-powered or pneumatic-powered equipment.
15. Equipment known to emit strong noise intensity in one direction, shall when possible, be oriented to direct noise away from nearby sensitive receptors.
16. Machines and equipment that may be in intermittent use shall be shut down between work periods or throttled down to a minimum operation.

Nighttime Construction Noise Mitigation

Although in general, nighttime construction shall be banned near sensitive receptors, some construction may still occur for technical and other reasons (e.g., bridge piles required and continued around clock concrete pouring). Because nighttime construction, if occurring near local communities, will result in significant impacts to residents and other sensitive receptors, the following special measures shall be taken during the construction phase:

1. People living within potentially impacted areas shall be notified ahead of time of the length and noise intensity of the proposed nighttime construction. Residents shall be informed as to why night construction is necessary and they shall be provided with the mitigation measures that are going to be implemented to obtain their understanding. These residents shall be allowed to express their concerns, difficulties, and suggestions for noise control prior to the commencement of night time construction. These concerns shall be addressed and suggestions adopted where appropriate.
2. Concrete batching plants, generators and other stationary equipment shall be carefully placed as far away from local communities to reduce noise impacts from these machines. Where possible, municipal power supply shall be used for nighttime construction as diesel generators are extremely noisy and avoiding their use is the best mitigation possible.
3. Equipment with lower noise levels shall be used for concrete pouring operations, which may require 24 hour non-stop operation.
4. Temporary noise barriers shall be installed at the appropriate locations to avoid nighttime noise impacts, and
5. Notification boards shall be posted at all construction sites providing information about the project, as well as contact information about the site managers, environmental staff, telephone numbers and other contact information so that any affected people can have a channel to voice their concerns and suggestions.

Blasting

The contractor shall ensure that the following procedures are undertaken:

1. The contractor shall warn local communities and/or residents that could be disturbed by noise generating activities such as blasting well in advance and shall keep such

activities to a minimum

2. In sensitive areas (including residential neighborhoods, hospitals, rest homes, schools, etc.) more strict measures may need to be implemented to prevent undesirable noise levels
3. Blasting shall not be carried out within 200 m of residences or local communities;
4. Blasting shall not be carried out under adverse weather conditions
5. Prior to a blasting event, water shall be sprayed on the surface of the blast area to increase its moisture content. Wire mesh gunny sacks and sandbags shall be used on top of the blast area at each shot to prevent flying rocks and dust
6. Before blasting is carried out, a detailed survey shall be conducted at nearby communities to evaluate the degree of impacts due to the blasting activity (e.g. possible damage to structures or infrastructure due to vibration, effects on animals, local residents, etc.)
7. No blasting shall be allowed during nighttime unless prior approval is obtained from the government authority and the PEO.
8. All persons shall be at least 200m away from the blasting point
9. Except for blasting equipment all electricity shall be turned off within 50m of the blasting location prior to and during the blast; and
10. The quantity of blasting materials shall be managed in a secure manner and audited weekly.

Earthworks, Cut and Fill Slopes

The contractor shall ensure that the following procedures are undertaken:

1. All earthworks shall be properly controlled, especially during the rainy season.
2. The Contractor shall maintain stable cut and fill slopes at all times and cause the least possible disturbance to areas outside the prescribed limits of the works.
3. The Contractor shall complete cut and fill operations to final cross-sections at any one location as soon as possible and preferably in one continuous operation to avoid partially completed earthworks, especially during the rainy season.
4. In order to protect any cut or fill slopes from erosion, in accordance with drawings, cut off drains and toe-drains shall be provided at the top and bottom of slopes and be planted with grass or other plant cover. Cut off drains should be provided above high cuts to minimize water runoff and slope erosion.
5. Any excavated cut or unsuitable material shall be disposed of in designated disposal areas as agreed to by the Supervisory Engineer, and
6. Disposal sites should not be located where they can cause future slides, interfere with agricultural land or any other properties, or cause runoff from the landfill towards any watercourse. Drains may need to be dug within and around the landfills, as directed by the Supervisory Engineer.

Stockpiles and Borrow Pits

The Contractor shall prepare and overall Stockpiles and Borrow Pits Management Plan for the total works. Operation of a new borrowing area, on land, in a river, or in an existing area, shall be subject to prior approval of the Environmental Supervisor, and the operation shall cease if so instructed by the Supervisory Engineer.

Borrow pits shall be prohibited where they might interfere with the natural or designed drainage patterns. River locations shall be prohibited if they might undermine or damage riverbanks, or carry too much fine material downstream. The location of crushing plants shall be subject to the approval of the Supervisory Engineer, and not be adjacent to environmentally sensitive areas, or to existing residential settlements, and shall be operated with approved fitted dust control devices. Rock or gravel taken from a river shall be far enough removed to limit the depth of material removed to one-tenth of the width of the river at any one location, and not to disrupt the river flow, or damage or undermine the riverbanks.

The Plan shall include:

1. A map showing the extent of the area to be developed.
2. A method statement defining the proposed working methods.
3. The proposed access and haulage routes between the borrow pits and the destination for the extracted materials.
4. A justification for the quantities of materials to be extracted, an estimation of the waste material to be generated and disposal details for such waste materials.
5. Details of the measures taken to minimize the borrow pit areas and their visual impact on the surrounding area, and
6. Details of the measures to be taken for the long-term rehabilitation of the borrow pit areas in order to avoid situations that could constitute a threat to health and safety and cause environmental degradation.

In general terms, the Contractor shall:

1. Identify and demarcate locations for stockpiles and borrow pits, ensuring that they are 15 meters away from critical areas such as steep slopes, erosion-prone soils, and areas that drain directly into sensitive water bodies.
2. Limit extraction of material to approved and demarcated borrow pits.
3. Stockpile topsoil when first opening the borrow pit. After all usable borrow has been removed, the previously stockpiled topsoil should be spread back over the borrow area and graded to a smooth, uniform surface, and adequately sloped for drainage. On steep slopes, benches or terraces may have to be established to help control erosion.
4. Excess overburden should be stabilized and re-vegetated. Where appropriate, organic debris and overburden should be spread over the disturbed site to promote re-vegetation. Natural re-vegetation is preferred to the best extent practicable.
5. Existing drainage channels in areas affected by the operation should be kept free of overburden.
6. Once the job is completed, all construction -generated debris should be removed from the site to an approved disposal location.
7. The Contractor shall ensure that all borrow pits used are left in an appropriate condition with stable side slopes, re-establishment of vegetation, restoration of natural water courses, avoidance of flooding of the excavated areas wherever possible so no stagnant water bodies are created which could breed mosquitoes, and
8. When the borrow pits or the local depressions created by the construction activities cannot be refilled or reasonably drained, the Contractor shall consult with the local community to determine their preference for reuse such as fish farming or other community purposes.

Disposal of Construction Waste

The Contractor shall carry out the following activities:

1. Establish and enforce daily site clean-up procedures, including maintenance of adequate disposal facilities for construction debris.
2. Debris generated due to the dismantling of the existing structures shall be suitably reused, to the best extent feasible (e.g. as fill materials for embankments). The disposal of remaining debris shall be carried out only at sites identified and approved by the Supervisory Engineer. The Contractor should ensure that these sites (a) are not located within designated forest areas; (b) do not impact natural drainage courses; and (c) do not impact endangered/rare flora. Under no circumstances shall the Contractor dispose of any material in environmentally sensitive areas.
3. In the event any debris or silt from the sites is deposited on adjacent land, the Contractor shall immediately remove such, debris or silt and restore the affected area to its original state to the satisfaction of Supervisory Engineer.
4. All arrangements for transportation during construction including provision, maintenance, dismantling and clearing debris, where necessary, will be considered incidental to the work and should be planned and implemented by the contractor as approved and directed by the Supervisory Engineer.
5. Consult with local communities, if any, living close to spoil disposal sites that may be affected. The consultation shall provide local stakeholders with detailed information of the potential spoil disposal site, and provide an opportunity for them to express their opinions and concerns with the proposed plans. Information and feedback from the consultation process shall be incorporated into the final design for each spoil disposal site.
6. Include provisions for incorporating the most appropriate stabilization techniques for each disposal site.
7. Assess risk of any potential impact regarding leaching of spoil material on surface water.
8. Include an appropriate analysis to determine that the selected spoil disposal sites do not cause unwanted surface drainage, and
9. Stabilize spoil disposal sites to avoid erosion in accordance with the requirements of the Landscape and Re-vegetation Plan.

Demolition of Existing Infrastructure

1. The Contractor shall implement adequate measures during demolition of existing infrastructure to protect workers and public from falling debris and flying objects. Among these measures, the Contractor shall:
2. Set aside a designated and restricted waste drop or discharge zones, and/or a chute for safe movement of wastes from upper to lower levels.
3. Conduct sawing, cutting, grinding, sanding, chipping or chiseling with proper guards and anchoring as applicable.
4. Maintain clear traffic ways to avoid driving of heavy equipment over loose scrap.
5. Use of temporary fall protection measures in scaffolds and out edges of elevated work surfaces, such as hand rails and toe boards to prevent materials from being dislodged.
6. Evacuate all work areas during blasting operations, and use blast mats or other means of deflection to minimize fly rock or ejection of demolition debris if work is conducted in proximity to people or structures.
7. Provide all workers with safety glasses with side shields, face shields, hard hats, and

safety shoes.

1.7 E-3: Other Management Plans

The contractor shall be responsible for preparing the following management plans in accordance with the stipulated terms of reference:

Waste Management Plan

During the construction stage, the Contractor shall prepare a Waste Management Plan before commencement of project works. The Plan shall include:

Water and Wastewater

1. A review of the preliminary site drainage design prepared during the detailed design.
2. An update of the preliminary design based on the actual construction program and site specific conditions (e.g. the geographical conditions, location of slopes and the nature of construction work).
3. Detailed design including drawings, location maps, specifications of drainage collection channels and wastewater treatment facilities.
4. Proposed discharge locations and treatment standards.
5. A detailed implementation program of the proposed drainage system.
6. As part of the design of the site drainage system, surface runoff within the construction site shall be diverted in order to avoid flushing away soil material and the water is treated by device such as sediment trap before discharge.
7. Domestic sewage from site offices, toilets and kitchen shall either be collected by a licensed waste collector or treated by on-site treatment facilities. Discharge of treated wastewater must comply with the discharge limits according to Vietnamese legislation.
8. A Wastewater treatment device such as a sediment tank can be installed near each of the constructions activities that may generate wastewater. Alternatively, sedimentation ponds can be constructed on-site to settle out excessive suspended solids (SS) before discharging into a discharge outlet.
9. Retaining walls and sandbags barriers shall be constructed surrounding the bored piling machine in order to trap bentonite and wastewater within the piling location. The collected spent bentonite or the wastewater shall be pumped for treatment before discharge.
10. Prior to the rainy season, all exposed surfaces and slopes shall be properly covered or landscaping shall be provided to minimize run-off of sediment laden. Slope protection can be carried out in sequence to construction and in advance of the rainy season.
11. Drainage control devices such as sediment traps shall be installed at each discharge outlet, and they shall be cleaned regularly, and
12. Chemical toilets can be provided on each work site employing 5 workers or more.
13. At least one toilet shall be installed per 25 workers. Domestic sewage collected from the site office and chemical toilets shall be cleaned up on regular basis. Only licensed waste collectors shall be employed for this disposal. The sludge shall be treated according to the requirements of the Contractor's Waste Management Plan.

Solid Wastes

Wastes such as those listed below are expected due to construction activities:

1. Surplus excavated materials requiring disposal due to earth moving activities and slope cutting.
2. Disposal of used lumber for trenching works, scaffolding steel material, site hoarding, packaging materials, containers of fuel, lubricant and paint.
3. Waste generated by demolition of existing houses / buildings affected by the project or breaking of existing concrete surfaces.
4. Waste from on-site wastewater treatment facility (e.g. treatment of bentonite from tunnelling works by sedimentation process), and
5. Domestic waste generated by construction workers, construction campsite and other facilities.
6. The above wastes must be properly controlled through the implementation of the following measures:
7. Minimize the production of waste that must be treated or eliminated.
8. Identify and classify the type of waste generated. If hazardous or chemical wastes are generated, proper procedures must be taken regarding their storage, collection, transportation and disposal. (See Emergency Plan for Hazardous Materials and Chemical Waste Management Plan).
9. Identify and demarcate disposal areas clearly indicating the specific materials that can be deposited in each, and
10. Control placement of all construction waste (including earth cuts) to approved disposal sites (>300 m from rivers, streams, lakes, or wetlands). Collect and recycle and dispose where necessary in authorized areas all of garbage, metals, used oils, and excess material generated during construction, incorporating recycling systems and the separation of materials.

The Contractor shall make a commitment to waste recycling and re-use methods in consideration of the following:

1. A method statement on waste recycling, re-use and minimization of waste generation.
2. Excavated material shall be re-used on-site or the nearby road segment / other projects as far as possible in order to minimize the quantity of material to be disposed of.
3. Recyclable materials such as wooden plates for trench works, steel, scaffolding material, site holding, packaging material, etc. shall be collected and separated on-site from other waste sources. Collected recyclable material shall be re-used for other projects or sold to waste collector for recycling, and
4. Collected waste shall be disposed of properly through a licensed waste collector.

Pollution Prevention Plan

Emergency Plan for Hazardous Materials

If the construction site is expected to have or suspected of having hazardous materials (chemicals, asbestos, hydrocarbons, or other similar hazardous materials), the Contractor will be required to prepare a Hazardous Waste Management Plan and Emergency Response Plan to be approved by the Environmental Supervisor. Removal and disposal of existing hazardous wastes in project sites should only be performed by specially trained personnel following national or provincial requirements, or internationally recognized procedures.

The Contractor shall:

1. Make the Hazardous Waste Management Plan available to all persons involved in operations and transport activities;
2. Hazardous waste (or chemical waste) shall be properly stored, handled and disposed of in accordance with the local legislative requirements. Hazardous waste shall be stored at designed location and warning signs shall be posted;
3. Inform the Environmental Supervisor, or Construction Supervisor of any accidental spill or incident in accordance with the plan;
4. Prepare a companion Emergency Response Plan outlining all procedures to be undertaken in the event of a spilled or unplanned release;
5. Initiate a remedial action following any spill or incident; and
6. Provide a report explaining the reasons for the spill or incident, remedial action taken, consequences/damage from the spill, and proposed corrective actions. The Emergency Plan for Hazardous Materials shall be subsequently updated and submitted to the PEO for no objection.

Chemical Waste

During construction there will be a potential for pollution to adjacent habitat areas and watercourses caused by chemical wastes such as spent waste oil, spent lubricant, contaminated soil material due to leakage of hydraulic oil, fuel from construction plant or vehicles, etc.

The following measures shall be put into place in order to minimize the damage caused by chemical waste:

1. All refueling of heavy equipment and machinery shall be undertaken by a service vehicle to prevent any spillage or contamination by chemical wastes such as maintenance oils, lubricants, etc.
2. All the fuel and hazardous material storage shall be adequately enclosed to prevent any spillage problems;
3. Storm water runoff from open workshops, repair areas, and enclosed storage areas shall be collected and treated in hydrocarbon separation pits/tanks before discharge to drains and waterways.
4. All explosives shall be transported, stored and handled in accordance with applicable laws and good design engineering and constructions practices. The contractor shall provide details of proposed storage and security arrangements, and
5. Pesticides and shall be packaged, labelled, handled, stored and disposed of according to standards acceptable to the World Bank and the government of Vietnam.

Maintenance of Construction Equipment

The Contractor shall:

1. Identify and demarcate equipment maintenance areas (>15m from rivers, streams, lakes or wetlands). Fuel storage shall be located in proper areas and approved by the PEO.
2. Ensure that all equipment maintenance activities, including oil changes, are conducted within demarcated maintenance areas; never dispose spent oils on the ground, in water courses, drainage canals or in sewer systems, and

3. All spills and collected petroleum products shall be disposed of in accordance with standard environmental procedures/guidelines. Fuel storage and refilling areas shall be located at least 100m from all cross drainage structures and important water bodies or as directed by the PEO.

Vegetation Clearing and Salvage

Clearing of Construction Areas

Areas proposed for clearing shall be included in the Vegetation Clearing and Salvage Plan. Only those proposed areas shall be cleared in accordance with the Plan and approved by the Engineering Supervisor. The Vegetation Clearing and Salvage Plan shall consider the existing usage of the project land to allow its existing usage to continue as long as is practicable, without interference with the Contractor's activities. Vegetation shall not be disturbed in those areas not submitted with the Plan.

The Contractor shall also arrange to coordinate with local communities as part of the Livelihoods Development Plan to clear the reservoir area. The following measures shall be implemented:

1. Large or significant trees in camp areas and access roads should be preserved wherever possible.
2. The application of chemicals for vegetation clearing shall be minimized. To the best extent possible, non-residual chemicals shall be selected and with negligible adverse effects on human health.
3. Herbicides use in the project shall be shown to be effective against the target vegetation species, have minimum effect on the natural environment, and be demonstrated to be safe for inhabitants and domestic animals in the treated areas, as well for personnel applying them.
4. Herbicides shall be appropriately packaged, labelled, handled, stored, disposed of, and applied according to international standards proposed by the Contractor for the project authority's non-objection, and
5. The design of roads, including temporary and permanent access roads shall avoid crop areas where reasonable and practical.

Landscape, Visual impacts and Re-vegetation

The construction program of the project shall be executed in phases, particularly in those locations where severe or high landscape and visual impacts are expected.

The following measures shall be implemented:

1. Construction shall be programmed in sequence so that the scale of earth moving activities and area of exposed surface can be minimized.
2. Re-vegetation shall start at the earliest opportunity. Appropriate local species of vegetation shall be used.
3. The requirement of compensatory planting shall be included in the design and project contract. A Master Landscaping Plan and requirements of ecological monitoring or survey during different stages of the project shall be prepared during the design stage that shall be implemented during the construction and maintained during operation.

4. Facilities and structures shall be located according to the terrain and geographical features of the project site.
5. Restoration, of cleared areas such as borrow pits no longer in use, disposal areas, construction roads, construction camp areas, stockpiles areas, working platforms and any areas temporarily occupied during construction of the project works shall be accomplished using landscaping, adequate drainage and re-vegetation.
6. Existing trees and plants within the construction boundaries shall be tagged to indicate whether the trees are to be retained transplanted or removed. Transplantation of existing trees affected by the project works shall be carried out prior to the commencement of construction.
7. Excavations shall avoid damage to the root systems. Mitigation measures are also required to prevent damage to trunks and branches of trees.
8. Temporary hoarding barriers shall be of a recessive visual appearance in both color and form.
9. Upon completion of the construction, the affected areas shall be immediately restored to their original condition, including the re-creation of natural and rocky shoreline, footpath and re-establishment of disturbed vegetation.
10. At the highly visually sensitive zones, construction may be scheduled where possible at the low tourist seasons.
11. Construction trucks shall operate at night when possible and kept cleaned and covered when shipping bulk materials.
12. Construction sites shall be surrounded with fence if located at the scenery zones to avoid direct visual sights of the construction sites.
13. There shall not be construction camps in scenic areas.
14. Random disposal of solid waste in scenic areas shall be strictly prohibited.
15. All mixing stations and concrete batching plants shall not be located near rivers or in scenic areas. The stockpiles shall be located in hidden areas, and outside of the sight from tourists;
16. Use the existing roads as access road if possible to minimize the need for new access roads which lead to damage existing landforms and vegetation.
17. Land use for agricultural activity prior to use for construction activities shall be, as much as possible, restored to a state to allow the same agricultural activity to continue.
18. Spoil heaps and excavated slopes shall be re-profiled to stable batters, and grassed to prevent erosion.
19. Topsoil stripped from the work areas shall be used for landscaping works, and
20. Watercourses, which have been temporarily diverted by the construction activities, shall be restored to their former flow paths.

Site Restoration

At the completion of construction work, all construction camp facilities shall be dismantled and removed from the site and the whole site restored to a similar condition to that prior to the commencement of the works, or to a condition agreed to with local authorities and communities.

Remedial actions that cannot be effectively carried out during construction shall be carried out on completion of the restoration works (and before issuance of the acceptance of completion of works).

Various activities to be carried out for site restoration are:

1. The construction campsite shall be grassed and trees cut replaced with saplings of similar tree species.
2. All affected areas shall be landscaped and any necessary remedial works shall be undertaken without delay, including grassing and reforestation.
3. Water courses shall be cleared of debris and drains and culverts checked for clear flow paths.
4. All sites shall be cleaned of debris and all excess materials properly disposed.
5. Borrow pits shall be restored.
6. Oil and fuel contaminated soil shall be removed and transported and buried in waste disposal areas.
7. Saplings planted shall be handed over to the community or the land owner for further maintenance and watering, and
8. Soak pits and septic tanks shall be covered and effectively sealed off.

1.8 E-4: Safety during Construction

The Contractor's responsibilities include the protection of every person and nearby property from construction accidents. The Contractor shall be responsible for complying with all national and local safety requirements and any other measures necessary to avoid accidents, including the following:

1. Present details regarding maximum permissible vehicular speed on each section of road;
2. Establish safe sight distance in both construction areas and construction camp sites;
3. Place signs around the construction areas to facilitate traffic movement, provide directions to various components of the works, and provide safety advice and warning. All signs shall be in English and Vietnamese language and be constructed according to Vietnamese specifications
4. Estimate maximum concentration of traffic (number of vehicles/hour)
5. Use selected routes to the project site, as agreed with the PEO, and appropriately sized vehicles suitable to the class of roads in the area, and restrict loads to prevent damage to local roads and bridges used for transportation purposes
6. Be held responsible for any damage caused to local roads and bridges due to the transportation of excessive loads, and shall be required to repair such damage to the approval of the PEO
7. Not use any vehicles, either on or off road with grossly excessive, exhaust or noise emissions. In any built up areas, noise mufflers shall be installed and maintained in good condition on all motorized equipment under the control of the Contractor
8. Maintain adequate traffic control measures throughout the duration of the Contract and such measures shall be subject to prior approval of the PEO
9. Carefully and clearly mark pedestrian-safe access routes
10. If school children are in the vicinity, include traffic safety personnel to direct traffic during school hours
11. Maintain a supply for traffic signs (including paint, easel, sign material, etc.), road marking, and guard rails to maintain pedestrian safety during construction
12. Conduct safety training for construction workers prior to beginning work
13. Provide personal protective equipment and clothing (goggles, gloves, respirators, dust masks, hard hats, steel-toed boots, etc.,) for construction workers and enforce their use
14. Provide post Material Safety Data Sheets for each chemical present on the worksite

15. Require that all workers read, or are read, all Material Safety Data Sheets. Clearly explain the risks to them and their partners, especially when pregnant or planning to start a family. Encourage workers to share the information with their physicians, when relevant
16. Ensure that the removal of asbestos-containing materials or other toxic substances be performed and disposed of by specially trained workers
17. During heavy rains or emergencies of any kind, suspend all work; and
18. Brace electrical and mechanical equipment to withstand seismic events during the construction.

1.9 E-5: Environmental Training for Construction Workers

During construction there will be a potential for workers to damage protected areas and waterways adjacent to camps and work areas. The Contractor shall prepare an Environmental Training Plan for all construction workers: the Plan shall address the following items:

1. All Contractors' employees shall be required to comply with environmental protection procedures and they shall be able to provide evidence that they attended the training sessions detailed in the Plan
2. The Plan shall educate all construction workers on the following issues but not limited to them: fire arm possession, traffic regulations, illegal logging and collection of non-timber forestry products, non-disturbance of resettlement communities, hunting and fishing restrictions, waste management, erosion control, health and safety issues, all prohibited activities, the Code of Conduct requirements and disciplinary procedures, and general information on the environment in which they will be working and living
3. Establishment of penalties for those who violate the rules; and
4. Proposed methods for conducting the training program, which shall include formal training sessions, posters, data in newsletters, signs in construction and camp areas and 'tool box' meetings.

1.10E-6 Construction Worker Health Management Plan

Health Management Plan

The Contractor shall prepare and enforce a Health Management Plan to address matters regarding the health and safety of construction workers and project staff. The Contractor shall include in his proposal the outline of the Health Plan. The Environmental Supervisor will issue a certificate of compliance to the Contractor prior to the initiation of Construction.

The following measures shall be implemented by the Contractor to ensure an adequate Project Health Program:

1. Screening of all workers on recruitment and annually
2. Implementation of a comprehensive vaccination program including but not limited to hepatitis A and B, tetanus, polio, etc.
3. Implementation of anti-malaria measures following current accepted practice at the camp area and establishment of facilities for the early diagnosis and treatment of patients with the disease
4. Storing sufficient medicines for malaria treatment
5. Collecting and testing sputum of individuals who are at risk for Tuberculosis (TB)

infection
6. Storing antibiotics for treatment of respiratory infections
7. Storing medicines and transfusion fluid to treat food poisoning and diarrheal
8. Develop solutions for mass outbreaks of food poisoning
9. Periodic monitoring of public kitchen in construction camps
10. Storing and distributing vermifuges to workers
11. Implementation of a disease control and pest management measures at the time the construction camps are built
12. Distribution of free condoms to camp workers
13. Monitoring of health indicators to follow the trends
14. When buildings cannot be made mosquito proof, pyrethroid-treated nets shall be provided
15. Appropriate measures shall be taken subject to risk assessment and review of potential environmental affects to address mosquito control including dengue fever control
16. Implementation of a program for the detection and screening of sexually transmitted infections, especially with regard to HIV/AIDS, amongst labourers
17. The smaller construction camps shall have subsidiary treatment or first aid posts staffed by either a trained nurse or a locally trained personnel, as required
18. Examine and screen construction workers before employment for schistosomiasis; and
19. Selection of suitable workers from the workforce who shall receive additional training in occupational health and first aid and shall form teams of two or three personnel at each work site. They shall be under the supervision of the medical officer.

1.11 E-7: Contractors' Environmental Supervision during Construction

The Contractor shall ensure adequate Workplace Safety and Environmental Officers (SEOs) are allocated and available for the implementation of the EMP throughout the construction period.

The SEOs are responsible for implementation and management of the EMP program. Regular environmental monitoring works, as required by the environmental legislation, shall be carried out by qualified laboratories and monitoring team. The laboratories and the monitoring team shall be considered members of the SEO. The roles and responsibilities of SEO and SEO are:

1. Sampling, analysis and evaluation of monitoring parameters with reference to the EMP recommendations and requirements
2. Carry out environmental site surveillance to investigate and audit the Contractors' site practice, equipment and work methodologies with respect to pollution control and adequacy of environmental mitigation implemented
3. Review the success of the EMP Implementation Plan to cost-effectively confirm the adequacy of mitigation measures implemented
4. Monitor compliance with environmental protection, pollution prevention and control measures, and contractual requirements
5. Monitor the implementation of environmental mitigation measures
6. Audit and prepare audit reports on the environmental monitoring data and site environmental conditions
7. Complaint investigation, evaluation and identification of corrective measures
8. Advice to the Contractor on environment improvement, awareness, proactive pollution prevention measures

9. Engage a qualified staff, preferably a Landscape Architect to review and monitor the Contractor's submitted Landscape, Visual Impacts and Re-vegetation Plan, and to supervise the Contractor's landscaping works
10. Follow the procedures in the EMP and recommend suitable mitigation measures to the Contractor in the case of non-compliance / discrepancies identified. Carry out additional monitoring works within the specified timeframe instructed by the PEO; and
11. Liaison with the Contractor and PEO on all environmental performance matters, and timely submission of EMP Implementation Plan reports to the PEO, SES, and relevant administrative authorities, if required.

Prohibitions

The following activities are prohibited on or near the project site;

1. Cutting of trees for any reason outside the approved construction area
2. Hunting, fishing, wildlife capture, or plant collection
3. Buying of wild animals for food
4. Having caged wild animals (especially birds) in camps
5. Poaching of any description
6. Explosive and chemical fishing
7. Building of fires
8. Use of unapproved toxic materials, including lead-based paints, asbestos, SEOc.
9. Disturbance to anything with architectural or historical value
10. Use of firearms (except authorized security guards)
11. Use of alcohol by workers in office hours
12. Washing cars or machinery in streams or creeks
13. Maintenance (change of oils and filters) of cars and equipment outside authorized areas
14. Driving in an unsafe manner in local roads
15. Working without proper safety equipment (including boots and helmets)
16. Creating nuisances and disturbances in or near communities
17. The use of rivers and streams for washing clothes
18. Disposing garbage in unauthorized places
19. Indiscriminate disposal of rubbish or construction wastes or rubble
20. Littering the site
21. Spillage of potential pollutants, such as petroleum products
22. Collection of firewood
23. Urinating or defecating outside the designated facilities; and
24. Burning of wastes and/or cleared vegetation.

Any construction worker, office staff, Contractor's employees, the Client's employees or any other person related to the project found violating theses prohibitions will be subject to disciplinary actions that can range from a simple reprimand to termination of his/her employment depending on the seriousness of the violation.

1.12 E-8: Guidelines for Community Relations Plans

In addition to the RLDP (and its 3 components Resettlement Plan, Community Livelihood Improvement Plan and Ethnic Minorities Development Plan, the contractor will be required to prepare a Community Relations and Community safety Plan.

Community Relations and Community safety Plan

Community Relations

To enhance adequate community relations the Contractor shall:

1. Inform the population about construction and work schedules, interruption of services, traffic routes and provisional bus routes, blasting and demolition, as appropriate
2. Limit construction activities at night. When necessary ensure that night work is carefully scheduled and the community is properly informed so they can take necessary measures; and
3. At least five days in advance of any service interruption (including water, electricity, telephone, and bus routes) the community must be advised through postings at the project site, at bus stops, and in affected homes/businesses.

A separate Community Relation Plan for the Project will be prepared by the Contractor, which will include:

1. Means to maintain open communications between the local government and concerned communities
2. Have a the mailing list to include agencies, organization, and residents that are interest in the project
3. Provide a community relations contact from whom interested parties can receive information on site activities, project status and project implementation results
4. Provide all information, especially technical findings, in a language that is understandable to the general public and in a form of useful to interested citizens and elected officials through the preparation of fact notes and news release, when major findings become available during project phase
5. Monitor community concerns and information requirements as the project progresses
6. Respond to telephone inquiries and written correspondence in a timely and accurate manner; and
7. Modify the Community Relation Plan for changes in community needs as necessary to be accurate during different project implementation phases.

Community Safety

Reservoir re-Filling

The Contractor shall, with no less than 30 days prior notice, inform the Environmental Supervisor and the local authorities of any planned construction events that will raise the water level in the reservoir and that could result in stranding or drowning any inhabitants in the area.

Traffic Safety

The Contractor will work with local communities and community leaders to implement community traffic and safety program aimed at minimizing traffic related risks during the construction phase. The community traffic safety program will consist of the following:

1. Present the community with details regarding maximum permissible vehicular speed on each section of road
2. Establish safe sight distance in both construction areas and construction camp sites
3. Place signs around the construction areas to facilitate traffic movement, provide directions to various components of the works, and provide safety advice and warning. All signs shall be in English and Vietnamese language and be constructed according to Vietnamese specifications
4. Use selected routes to the project site, as agreed with the PEO, and appropriately sized vehicles suitable to the class of roads in the area, and restrict loads to prevent damage to local roads and bridges used for transportation purposes
5. Be held responsible for any damage caused to local roads and bridges due to the transportation of excessive loads, and shall be required to repair such damage
6. Not use any vehicles, either on or off road with grossly excessive, exhaust or noise emissions. In any built up areas, noise mufflers shall be installed and maintained in good condition on all motorized equipment under the control of the Contractor
7. Maintain adequate traffic control measures throughout the duration of construction
8. Carefully and clearly mark pedestrian-safe access routes
9. If school children are in the vicinity, include traffic safety personnel to direct traffic during school hours
10. Maintain a supply for traffic signs (including paint, easel, sign material, SEOc), road marking, and guard rails to maintain pedestrian safety during construction
11. Conduct safety awareness programs in local schools and community facilities.

Blasting

The contractor shall ensure that blasting does not pose a risk to local residents or communities through the implementation of the following:

1. The contractor shall warn local communities and/or residents that could be disturbed by noise generating activities such as blasting well in advance and shall keep such activities to a minimum
2. In sensitive areas (including residential neighborhoods, hospitals, rest homes, schools, SEOc.) more strict measures may need to be implemented to prevent undesirable noise levels
3. Blasting shall not be carried out within 200 m of residences or local communities; and
4. Before blasting is carried out, a detailed survey shall be conducted at nearby communities to evaluate the degree of impacts due to the blasting activity (e.g. possible damage to structures or infrastructure due to vibration, effects on animals, local residents, SEOc.).

Worker Code of Conduct

The Contractor shall be responsible for the preparation of a Worker Code of Conduct. This shall be made available to local communities at project information centers or other place easily accessible to the communities. The Code of Conduct shall address the following measures (but not limited to them):

1. All workers and subcontractors shall abide by the laws and regulations of Vietnamese.
2. Illegal substances, weapons and firearms shall be prohibited.
3. Pornographic material and gambling shall be prohibited.
4. Fighting (physical or verbal) shall be prohibited.
5. Workers shall not be allowed to hunt, fish or trade in wild animals.
6. No consumption of bush meat shall be allowed in camp.
7. Creating nuisances and disturbances in or near communities shall be prohibited.
8. Disrespecting local customs and traditions shall be prohibited.
9. Smoking shall be prohibited in the workplace.
10. Maintenance of appropriate standards of dress and personal hygiene shall be in effect.
11. Maintenance of appropriate hygiene standards in accommodation quarters shall be in place.
12. Residing camp workforce visiting the local communities shall behave in a manner consistent with the Code of Conduct; and
13. Failure to comply with the Code of Conduct, or the rules, regulations, and procedures implemented at the construction camp will result in disciplinary actions.

1.13 E-9: Chance Find Procedures

The project works could impact sites of social, sacred, religious, or heritage value. "Chance find" procedures would apply when those sites are identified during the design phase or during the actual construction period.

Cultural property includes monuments, structures, works of art, or sites of significant points of view, and are defined as sites and structures having archaeological, historical, architectural, or religious significance, and natural sites with cultural values. This includes cemeteries, graveyards and graves.

In the event of finding of properties of cultural value during construction, the following procedures for identification, protection from theft, and treatment of discovered artifacts should be followed and included in standard bidding document.

- Immediately stop the construction activities in the area of the chance find.
- Delineate the discovered site or area.
- Secure the site to prevent any damage or loss of removable objects.
- Notify the supervisory Engineer who in turn will notify the responsible local authorities.
- Responsible local authorities and the relevant Ministry would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures.
- Decisions on how to handle the finding shall be taken by the responsible authorities and the relevant Ministry. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance), conservation, restoration and salvage.
- Implementation of the authority decision concerning the management of the finding shall be communicated in writing by the relevant Ministry of Cultural, Sport and tourist.
- Construction work could resume only after permission is given from the responsible local authorities and the relevant Ministry concerning safeguard of the heritage.
- The World Bank needs to be notified by PMU on the issues and actions taken.
- These procedures must be referred to as standard provisions in construction contracts. During project supervision, the Site Engineer shall monitor the above regulations relating to the treatment of any chance find encountered.

- Relevant findings will be recorded in World Bank Supervision Reports and the overall effectiveness of the project's cultural property mitigation, management, and activities will be assessed.

Annex – F: List of Protected Areas in the Program Provinces

BC = Biosphere Conservations Areas SC = Species Conservation Areas
HE = Historical Environmental Conservation Sites NP: National park

Province	No.	Name of Protected area	Years formed	Land Area (ha)	Type of protected area
Bac Giang	1	West Yen Tu	2002	13,023	BC
Bac Kan	1	Ba Be	1992	7,610	NP (lake is RAMSAR)
	2	Kim Hy	2003	14,772	BC
	3	Nam Xuan Lac Area for species, landscape and ecosystem conservation		1,788	SC
Cao Bang	1	Pia Oac Mountain		10,261	BC
	2	Cao Vit Trung Khanh monkey conservation area		2,261	SC
	3	Ban Doc		566	HE
	4	Thang HenLake		372	HE
	5	Lam Son		75	HE
	6	Lang Don mountain		1,149	HE
	7	Tran Hung Dao forest		1,143	HE
	8	Pac Bo		1,137	HE
Dak Lak	1	Yok Don	1991	115,545	NP
	2	ChuYang Sin	2001	58,947	NP
	3	Ea So		24,017	BC
	4	Nam Kar		21,912	BC
	5	Ea Ral		49	SC
	6	Trap Kso		100	SC
	7	Ho Lak		9,478.3	HE
Dak Nong	1	Yok Don	1991	115,545	NP
	2	Nam Nung		10,912	BC
	3	Ta Dung		17,915	BC
	4	Dray Sap - Gia Long		1,515.2	HE
Dien Bien	1	Muong Nhe	1996	44,940	BC
	2	Muong Phang		935.88	HE
Gia Lai	1	Kon Ka Kinh	2002	41780	NP
	2	Kon Cha Rang (Kon Chư Răng)		15,446	BC
Ha Giang	1	Bac Me	1994	9,043	BC
	2	Bat Dai Sơn	2000	4,531	BC
	3	Du Gia	1994	11,540	BC
	4	Phong Quang	1998	7,911	BC
	5	Tay Con Linh	2002	14,489	BC
Ha Giang	6	Khau Ca Area for species,		2,010	SC

		landscape and ecosystem conservation of monkey			
Hoa Binh	1	Hang Kia-Pa Co		5,258	BC
	2	Ngoc Son-Ngo Luong		15,891	BC
	3	Phu Canh		5,647	BC
	4	Thuong Tien		5,873	BC
Kon Tum	1	Chu Mom Ray	2002	56,621	NP
	2	Ngoc Linh		38,109	BC
	3	Dak Uy		660	SC
Lai Chau	1	Muong Te		33,775	BC
	2	Hoang Lien	1996	38,724	NP
Lam Dong	1	Bidoup Nui Ba	2004	64,800	NP
	2	Cat Tien	1978	71,920	NP and RAMSAR
Lao Cai	1	Van Ban		25,173	BC
	2	Hoang Lien	1996	38,724	NP
Phu Tho	1	Den Hung		538	HE
	2	Nui Na		670	HE
	3	Yen Lap		330	HE
Sơn La	1	Copia		11,996	BC
	2	Sop Cop		17,369	BC
	3	Ta Xua		13,412	BC
	4	Xuan Nha		16,317	BC
Thai Nguyen	1	Than Sa-Phuong Hoang		18,859	BC
	2	Đinh Hoa Safe Security Area		8,728	HE
	3	Tam Đao	1986	36,883	NP
Tuyen Quang	1	Cham Chu	2001	15,902	BC
	2	Na Hang		22,402	BC
	3	Tam Đao	1986	36,883	NP
Yen Bai	1	Na Hau		16,400	BC
	2	Che Tao		20,293	SC

Annex- G: Scopes of Environment and Social (E&S) Consultants

1.14G-1: International Environment and Social (E&S) Consultants

The PMU will hire the services of the International Qualified Environment and Social (E&S) Firm before inception of the project for the entire project period.

Objective of the Assignment:

The objectives of the assignment are three folds:

- To assist PMU for review and clearance of subproject ESIAs, supervision and monitoring of ESIAs and other plans, prepare quarterly and annual reports on implementation of ESMF, RPF and EMDF
- Build capacities in the PMU and provincial level PPMU with regards to environmental and social assessments relevant to the sub-projects
- Carryout basin level cumulative impact assessment link to the Component 2- Dam Safety Management and Planning.

Scope of Services

The key responsibility of the consultant is to ensure proper implementation of the ESMF and subproject specific ESMP, RAP and EMDP. The major scopes of the work under the 3 key objectives are provided below:

Support for ESIAs

i) Review the subproject ESIAs eligibility screening, technical screening, assessment and management plan by carrying out desk review and field visit
ii) Suggest necessary revision of the screening, assessment and management plan
iii) Recommend ESIAs for approval to PMU
iv) Regular supervise the implementation of the EMSP, ECoP, RAP and EMDP of the subprojects
v) Suggest recommendations to improve the quality of the future implementation of different plans
vi) Carrying out routine monitoring of key parameters
vii) Develop an Environment and Social Management Information System to track and present the progress, implementation, monitoring data etc.; and
viii) Prepare quarterly and annual progress report on implementation of the ESMF and subproject ESIAs.

Capacity Building

i) Conduct regular training programs on E&S issues, the ESMF, E&S assessment, reference frameworks, etc. (at least one training program in each province and 2 training at central level in first 2 years)
ii) Prepare and pre-announce a schedule of program for each quarter in consultation with PMU and communicate to PPMU and relevant consultants; and

iii) Conduct workshops/seminars for Project staff in PMU and PPMUs and other relevant stakeholders to enhance the participation, commitment and perception of the environmental and social aspects of the project.

Basin level Cumulative Environment Impact Assessment

i) Define potential project influence area with listing of all major infrastructures
ii) Identify Valued Environment Components (VECs) in consultation with affected communities and stakeholders. Determine present conditions of VECs mainly focusing on:

- Surrounding environment with respect to water availability, river flow and concurrent use of the river for all domestic, industrial, commercial and agricultural users and possible impacts on aquatic life and in habitants from dams; and
- One year monitoring of key environmental parameters.

iii) Assess the future climate change impacts with appropriate modelling tools;
iv) Assess cumulative impacts and evaluate their significance over VECs' predicted future conditions; and
v) Recommend: (a) appropriate monitoring indicators; (b) adequate strategies, plans, and procedures to manage cumulative impacts, improve the present environmental/social conditions including dam safety and also to address anticipated future impacts

1.15G-2: Environmental and Social Monitoring under Independent Third Party Monitoring

The PMU will hire an Independent Third party Monitor to carry out regular, independent evaluations of project activities. This firm will also evaluate compliance with the ESMF, applicable various safeguard instruments, including the Environmental Management Plans/Environmental Codes of Practice, Resettlement Policy Framework/Resettlement Action Plans, Ethnic Minority Development Plans, and Gender Action Plans among others. The consultant for the third party monitoring will have substantive knowledge and experience in environmental and social safeguards with specific experience in the manufacturing sector. The expert will also have specific skills in undertaking compliance assessments with combined considerations of social and environmental issues.

Objective of the Assignment:

The main objective of the consultancy services for environmental and social monitoring is to allow a third party team to monitor performance of the overall environmental management of the Project. Specifically, the third party will monitor compliance of the project activities with the Environment and Safeguards documents, including the relevant GoV regulations, WB operational policies, and provisions of the ESMF, RAF and EMDF.

Scope of Services:

The consultant will work with the concerned experts/ officials of the MARD to monitor and assess environmental management issues of the project. The Consultant will carry out the

tasks in accordance with accepted professional standards, utilizing sound engineering, economic, financial, and management practices. For all sub-projects to be implemented under the project, the third party Consulting firm will monitor the following:

i) Sub-projects are selected and approved following the standard environmental and social screening process
ii) Sub-project description is prepared properly, and sub-project "environmental and social screening" and "analysis of alternatives" are carried out properly following the formats and guidelines provided in the ESMF.
iii) Categorization and depth of environmental and social assessment (ESIA) of the sub-project are done following the provisions of the ESMF, relevant GoV regulations and WB operational policies.
iv) Environmental and social impact assessment (ESIA) of the sub-projects is prepared following the ESMF, and satisfying the relevant provisions of the GoV and WB; and necessary environmental clearance/ approval are taken for sub-project execution.
v) Specific environmental requirements/ clauses are included in the bidding document and they are being met.
vi) The sub-project activities meet the ESMP, ECoP, RAP and EMDP requirements.
vii) Implementation and effectiveness of the mitigation and enhancement measures specified in the ESMP.
viii) Actual and predicted changes to the environment, so that immediate actions could be taken to mitigate unanticipated impacts.
ix) Actual and predicted impacts, so that better prediction/ assessment of impacts could be made in the future
x) Environmental and monitoring is carried out in the field as outlined in the ESMP, monitoring and progress reports are regularly prepared and shared with PPMU and PMU; the monitoring reports are recorded and evaluated (by PPMU and PMU), and adequate feedbacks are provided to the field management.

In addition, for any observation of non-compliance, the third party consultant will provide specific recommendations for improvement of environmental and social management.

Annex – H: Integrated Pest Management (IPM) Framework

1. General

The project is not intended to purchase or promote the use of fertilizers or pesticides. However, rehabilitation of dam is expected to increase the agricultural command areas. There is possibility that as indirect or induced impact of the project, use of fertilizers or pesticides may be increased in the project area. As a 'good practice', the project will promote the Integrated Pest Management (IPM) in the project area.

2. Objectives

a, General objectives

Strengthening flora protection at local level, reducing pesticide use in the field, improving the efficiency of prevention, managing well pesticide and pesticide use process to reduce the risk of contamination pesticides on the environment and affect human health.

b, Specific objectives

- Support of the relevant agencies in project provinces in strengthening pest management and pesticide management in accordance with the national action plan on food hygiene and safety, food security, adaptation to climate change and the concerned international conventions that the Government has approved.
- Strengthening environmental protection, food safety through strengthening the role of predators; reduce pesticide residues to ensure food hygiene and safety, reduce environmental pollution (water, land, air).
- Improving farmers' knowledge: distinguish the major pests, secondary; identify predators and their role in the field, clearly understand the effect of two colors of pesticides, property use, know how to survey pest and use threshold control; understand and apply pest control measures in IPM to increase income for farmers.

3. Basic principles of IPM framework

The following principles will be applied to the sub-projects:
"Prohibited list": The project will not finance the purchase of fertilizers or pesticides.

a. IPM program and project support: support and implementation of IPM program is part of the ESMP for the sub-project. Support project will include technical assistance (consulting) to perform the non-chemical options, and priority support for agricultural extension services, including additional operating costs. The bank support fee for integrated prevention program of the sub-project and will be required or approved an independent program or as a part of ESMP. A proposed budget has been allocated for the implementation of IPM programs for the downstream areas of the project area. Detailed planning work will be completed through consultation close to farmers, local authority/community organization.

b. The project will apply IPM programs as a method to minimize the potential negative impact of the increased use of fertilizers and chemicals. However, the improvement of knowledge and experience in the use of fertilizers and chemicals are through research surveys and training courses in the work as well as selecting safe use of non-chemicals, other techniques, is being investigated and/or applied in Vietnam. National IPM Program

has also summarized the results of the implementation and the lessons of experience. The project will apply National IPM program results and detailed technical guidance.

c. IPM Program subproject can be set up to support the implementation of the Government's policy and objectives focusing on reducing the use of chemical fertilizers and pesticides.

d. In normal conditions, if pesticide use is considered to be a necessary option, only pesticides registered with the government and the international recognition in use and project will also provide technical and economic information for chemicals use demand. It should consider the options in the management of not harmful chemicals and can also reduce reliance on the use of pesticides. The measures will be incorporated into the project design to reduce risks related to the handling and use of pesticides to allowed possible level and managed by users.

e. The planning and implementation of mitigation measures and other activities will be carried out closely with the authorities, powers and stakeholders, including suppliers of chemicals, to facilitate cooperation and understanding each other.

4. The approach of IPM

Focus more on the risks of abuse and excessive use chemical of plant protection products. The concerned plant are rice, vegetables, tea etc. these plants tend to be sprayed more of pesticides.
Focus on community education, the initial survey will be incorporated into the task with the aim of clarifying the root cause of the abuse and excessive use of plant protection products and the associated risks. Support the capacity building of the instructor (trainer) IPM. The current program will need to be reviewed and new modules will be supplemented to increase the portion related to reducing the risk of plant protection products. The training program will be enriched with the integration of many activities such as System Rice Intensification (System Rice Intensification - SRI), minimum tillage (minimum tillage), production community and use of bio-products replacing plant protection chemicals the training activities, the application will be made in the wide area application of the model.

To perform this content, the following steps will be promoted in subproject triggering IPM:

- Step 0: Hiring consultant: IPM consultant will be hired to assist PMU/PPMU in implementing IPM programs including ensurring results and cooperation among the agencies, farmers, and other stakeholders. The task for the consultant will be implemented at an early stage of project implementation.

- Step 1: Set up the basic requirements of the register the program of farmers. This step should be implemented as soon as possible with appropriate questionnaire to establish base in 2013 for the use of fertilizers and of pesticides in the project area. Consultation with key agencies in the conduct of training, registration of participating farmers.
- Step 2: Set program goals and prepare a work plan. Based on the results from the questionnaire and consultation at Step 1, work plan and schedule will be prepared, including budgeting and implementation object. The work plan will be submitted to the PMU and approved by the World Bank for review and comment.

- Step 3: Implementation and annual review. After approval of the work plan, the activities will be implemented. Implementation progress will be included in the project progress reports. An annual evaluation report will be implemented by PMU with assistance of PPMU.

  Step 4: Evaluate the impact. An independent consultant will be hired to carry out the impact assessment. This is to assess the performance of the project and to provide lessons. PMU will hire a national consultant to perform impact assessment of IPM the program

5. Relevant Measure at the sub-projects

IPM measures will apply on specific crops in regions and localities implement the project through the following measures:

- Cultivation methods: Soil, field sanitation, crop rotation, intercropping, crop seasons, reasonable sowing and planting density, rational use of fertilizers; appropriate caring measures.
- Using seed: the tradition seed and the proposed seed in use.
- The biological measures: taking advantage of available natural enemies in the field, using probiotics.
- Determination of the level of harm and prevention threshold.
- Chemical measures: safe using with natural enemies, the economic threshold; correct use of medicines.

Develop of demonstration models IPM

This section done by the PPMU, based on soil characteristics, climate, farming skills. IPM activities in the pilot field will serve for sightseeing and guidance of practice.
Some of the main contents when building the IPM in the pilot field, as follows:

- Construction of demonstration models for applying IPM measures proposed above.
- Building model involved by the people with the guidance of technical staff.
- In the model, there need to build nuclear farmers, group leader.
- In addition to technical assistance there should be support materials, for households participating in demonstration models.
- Compiling IPM guiding documentation for major crops: rice, vegetables ...
- Scale of model: depending on crops, specific economic conditions, models were constructed using different scales: 5-10 ha / model.

Coaching and training of IPM staff

TOT (Training of trainers) and Farmer Field School (FFS):

- Relevant sub-project will organize workshops and staff training of IPM. The content of the training includes:

  - Distinguish the major and secondary pests.
  - Identify the natural enemies of pests and diseases in the field.
  - Investigate methods to detect worms and diseases.
  - Understand the impact of two pesticides, using appropriate pesticides.
  - The techniques pest control under IPM principles.

- Advanced farming techniques.

- The understanding must be trained in theory and practical application in the field. The contents above can be trained under thematic groups: farming thematic, identification thematic and detection methods of pests and their natural enemies, the thematic of IPM techniques in production.

Evaluate and visit the field based on of demonstration models and field applied of IPM following the models of farmers

Visit the coast conference, farmers performing the demonstration models are reporters. The farmers implement the model directly with the participants; visiting farmers will calculate, compare economic performance and identify lessons, limitations and the work being done and not being done.

7. Implementation of IPM programs

Currently, Vietnam is implementing the national IPM program, so sub-projects requires coordinated planning and integration of the IPM program of the project with the National IPM program to perform more effectively within of each sub-project.

- PMU:

Developing and implementing IPM program.

- To be responsible for the preparation of periodic reports on the implementation and submitting to CPO, WB. Final plan and budget will be completed and discussed with the CPO. All documents will be stored in the project file.

- PPMU:

  - Join coaching and staff training IPM.
  - Coordinate with IPM staff to implement coaching and trained of farmers implemented IPM through the approach and provide of knowledge, support for of farmers on the safe use of pesticides when necessary.
  - Guide the list of banned pesticides
  - Examine the distribution facility providing pesticides to ensure the provision of safe pesticides for farmers
  - Organizing for farmers decided to maintain the routine IPM was formed from a training course by organizing IMP-clubs or groups of farmers with the different levels of organization and structure, along with many activities (including the integration of the contents of cattle, credit, market access, etc.)

- Households in the project area:

  - Implementing IPM program has trained.
  - The members of the IPM club support together to develop agricultural activities. They also play a central role in the task of organizing community IPM program and general agricultural planning of commune and district as well.

- Environmental Monitoring Consultant

- Monitoring the implementation of IPM program of sub-projects.
- To recommend measures to improve the efficiency of implementation of IPM program of sub-projects.

8. Funds for implementation of IPM program

The relevant subproject ESMP budget will have provision for IPM promotion including awareness, training, pilot demonstration and evaluation

Additional Guidelines on IPM

Norms of Fertilizers for Some Major Crops

1. Norms of Fertilizer

a. For direct sowing rice:

- The amount of fertilizer is 1ha (8-10 tons) of manure, 250 kg Urea, 500 kg superphosphate, K chloride 150kg.
- Whole basal fertilizing of manure, phosphate + 20% urea + 30% K.
- Additional fertilizing tillering 60-70% urea + 20% K.
- Note: The spring crop only put down fertilizer when the weather is not too cold and nitrogen fertilizer limited when rice is in ear to avoid fall in the end of the crop pests.

b. For transplanted rice

Amount of the fertilizer for 1 acres: 4-5 kg decomposed manure, urea nitrogen 8-12 kg 6-12 kg K chloride, Lam Thao superphosphate 15-25 kg. Specific fertilizer depending on the frame with rice, soil properties:

- High-yielding hybrid rice varieties grown on sandy soils, silver colored, fertilize with manure maximum.
- Domesticated rice varieties, nutrient-rich soil fertilizer with a minimum quantity.
- Sandy soil, silver colored, with mineral fertilizer ratio 1 N: 1 K2O: 1 P2O5 (1 protein: 1 K: 1 time per pure fertilizer concentration).

Boggy land, wetlands regularly, typically acidic, rich in protein, lack of time, lack of potassium fertilizer lime powder before transplanting 7-10 days and reduced nitrogen fertilizers, increasing phosphorus, K, etc.

- Recommendation on manufacturing: For initiative water soil, the total amount of fertilizer deeply lined manure, 30-40% protein + phosphate, K before transplanting harrow. None initiative water land is not nitrogen fertilizer liner to prevent cold rice death.
- The 1st additional fertilizing when rice plants have taken root in green (15-20 days after transplanting). Apply 50-80% protein 20-40% + K, water levels flooded 5cm.
- Additional fertilizing Series 2: When the rice stand, about 1-4 to 10-4 every year, 10% nitrogen fertilizer notes and other potassium. Nitrogen pay attention to the color of the leaf, if the leaf is dark green, do not apply nitrogen fertilizer to increase the amount of K, so until flowering rice, the leaves are green ginger is good, keep humidity saturated soil (soft land, subsidence feet).
- In addition to ensuring high yield and stability need to better control some pests and diseases of rice such as BPH, stem borer, sheath blight, blast, etc.

Note: only rice cultivation and nitrogen fertilizer when the outdoor temperature is greater than 15^0C.

c. Hybrid maize crops:

- The amount of seed for 1 ha: 15 kg
- Organic manure: lowland areas reach at least 4-5 tons, and highland areas 3-4 tons or more.
- Urea 300 kg
- Phosphate 400 - 500 kg
- Potassium fertilizer 150 kg

d. Domesticated maize crop:

- The amount of seed for 1 ha: 25 kg
- Organic manure: lowland areas reach at least 4-5 tons, and highland areas 3 tons or more.
- Urea 200 - 250 kg
- Phosphate 350 - 400 kg
- Potassium fertilizer 100 - 120 kg

(If using other kind fertilizer to apply, must be taken to ensure the regularization the amount of according to 3 kinds of NPK fertilizer)

2. The requirement intensive technical guidance

a) The rice plants:

- About seed; cultivated by the new hybrid rice varieties, limit the use of the old hybrids, Steering simultaneously sowing of seasonality, monoculture on the same field, due to time of growth, leading to different characteristics difficult disease management, water control and take care.

- Regarding technical aspects

  - For rice sowing: Continue to apply the sowing areas with convenient conditions to ensure irrigation water, flat land (with accompanying technical process).
  - For rice plants: a new technique is applicable implanted moderately high density 55-60 clusters / m2, less transplant dedicated to saves Seed and time shorten the tillering, apply enough fertilizer under the guidance of technical staff.
  - Apply day intensive from Seed stage, saving seeds, apply integrated pest management (IPM), reduced plant pesticide to reduce input costs.

b) Maize crop:

- About seeds; lowland areas and upland in the uplands and upland villages of communal planting some of the maize hybrids. The area is not cultivated maize, maize buy pure, pure, high yield potential. Maize must originate clear, good quality seeds, the specialized agencies testing before supply for sowing.
- Technique: Planting density from 5.5 to 6 thousand plants / ha, only 1 tree / hole, the upland districts in density from 5 to 5.5 thousand plants / ha (1-2 plants / hole), enough

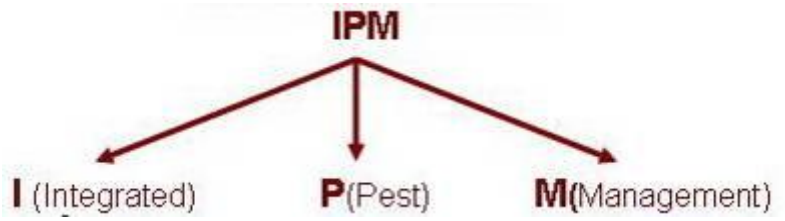
organic fertilizers and inorganic fertilizers are balance, Arlier additional fertilizing as instructed.

To be suitable to each sub of the communes climate in the district. Suggest People's Committees of communes selected for the 1 to 3 seeds of rice, maize applied to the area of their communes.

Integrated Pest Management for Rice Crops
Definition, basic principles of integrated pest management

1.1. What is Integrated Pest Management (IPM)?

According to the expert group of the Food and Agriculture Organization (FAO), "Integrated Pest Management" is a pest management system that in the specific the context of the environment and the population dynamics of the species causing damage, using all the techniques and appropriate measures can be, in order to maintain the density of the pest below cause economic damage.
Abbreviation



Thus, IPM stands for Integrated Pest Management

1.2. Five basic principles of integrated pest management (IPM)

(i). Planting and health care of crops:
- Choose good seed, suitable for local conditions.
- Choose healthy and qualified crops.
- Planting, cared for properly techniques to grow good crops which are resistant and high yielding.

(ii) Check fields regularly, understand the progress of the growth and development of plants, pests, weather, land, water to take timely remedial measures.
(iii) Farmers become experts field: Farmers' technical knowledge, management skills need to advocacy field for many other farmers.
(iv) Pest prevention
- Using appropriate preventive measures, depending on the severity of disease, parasitic natural enemies in each stage.
- Using of chemical drugs has reasonable and proper technique.

(v) Protect natural enemies: Protecting the beneficial organisms to help farmers kill pests.

2. Contents of integrated pest management

2.1. Farming methods

(i) Early land preparation and field sanitation

- Land preparation and field sanitation soon after planting to kill many caterpillars and pupae live in the rice stem borer and rice stubble, loss of shelter and food source of the brown planthopper, green hoppers... Brokers are the transmission of viral diseases for
- rice as dangerous illness blighted gold, rice ragged stunt disease.
- Principles of impact of field sanitation measures and handling crop residues after harvest is cut off the ring cycle of pests from the crop to other crops and pests limited source accumulation, transmission spread at beginning of the crop.

(ii) Crop rotation: Rice rotation with other crops to avoid pathogen accumulation in rice from the crop to other crop.

(iii) Appropriate Planting
Planting rice to ensure appropriate growth and good development, achieve high productivity, avoids the risk of the weather. The determination of appropriate the crop having to rely on the characteristics of the damage incurred pests important to ensure that rice avoiding peak of the epidemic.

(iv) Use healthy seeds, pest resistant and short seeds

- Healthy seeds, free disease helps to rice facilitate development.
- Using resistant rice seeds reduce drug use chemical pest control, reduce pollution, protect natural enemies; keep balance agricultural ecosystems.
- Rice seed with short growth period of about 100-110 days, plant earlier in the season could have been avoided borer, deep bite panicle. Rice seed with extremely short growing period is 80-90 days brown planthopper prevention measures effective for brown plant hopper could not accumulate in sufficient quantities to cause severe damage in extremely short day breeds.

(v) Cultivation density is reasonable

- The density and sowing techniques, depending on the rice seeds transplanting, crop, soil and nutrition, aged rice, rice quality, process agricultural intensification.
- The density is too thick or too little will affect productivity, while also affecting the generation and development of pests, weeds.
- The rice fields are often sown too thick closed up early, causing high humidity, creating conditions for sheath blight and brown plant hopper damage incurred at the end of the crop.

(vi) Using reasonable fertilizers

Fertilization excessive or unreasonable fertilizer will make plants grow normally and not prone to pest infestation. Rice fields fertilization are more susceptible to infectious diseases rice blast, sheath blight, leaf blight.

2.2. Manual methods
Light traps catch butterflies, break eggs, rub stripping foil fencing using leaf spray, dig down to catch mice.

2.3. Biological methods
(i) Creating a favorable environment for beneficial organisms are natural enemies of pest

development to contribute to kill pests:

- Protection of natural enemies to avoid toxic chemicals by using selective medication drugs, narrow-spectrum drugs, drugs used when absolutely necessary and should be based on economic thresholds...
- Create habitat for natural enemies after planting by intercropping, planting legumes on bunds, disintegrator for lurking natural enemies...
- Application of cultivation techniques facilitate reasonable development natural enemies.

(ii) Priority use drugs Biological Plant Protection
The medicines is effective only biological pest control, non-toxic to beneficial organisms, safe to human health and the environment

Termite Treatment Procedures

Name of chemical to be used: Metavina 10DP. This product can kill termite via directly exposure or infection. Process of survey, exploration and termite treatment and hidden risks for dam

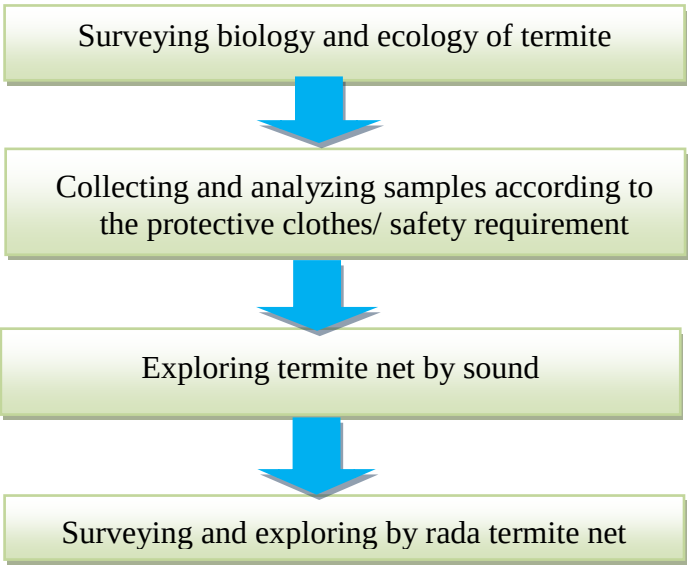


Figure H.1: Process of surveying and exploring termite net in dam

Process of termite treatment for dam

Drill a screw and inject termiticide into termite nests then inject clay to voids created by termites in the foundation of the dam in order to protect the surrounding environment and thorough handling of potential dangers caused by termites. This measure does not harm the environment but it requires construction unit to use the specialized equipment, and experience in construction termite treatment for irrigation works. Steps of construction termite treatment as follows:

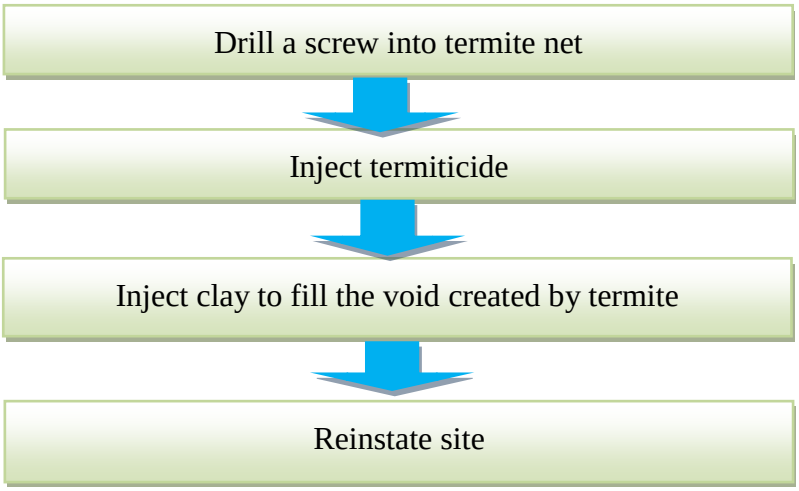


Figure H.2: Process of termite treatment in dam

Requirement of protective clothes/ safety for workers

For termite treatment, the potential impacts may occur such as incidents due to using construction machines in dam slope. Therefore, it is necessary to implement the requirement of protective clothes/ safety for works as follows:

i) Operating properly equipment and machine under right procedure to ensure safety.
ii) Checking current status of machines, equipment before operating. The people who are not responsible for construction, without training on technical operation are not allowed in operation, repairing construction machines.
iii) Staffs, workers must be equipped fully protective clothes such as shoes, gloves, helmet, name label etc.
iv) Power line, water for constructions have to arrange tidily to not obstruct construction activities Construction signs must be available at construction site.

List of Plant Protection drugs Banned in Vietnam

COMMON NAMES - TRADE NAMES	
Pesticides, preservatives forest	
1	Aldrin (Aldrex, Aldrite)
2	BHC, Lindane (Gamma - BHC, Gamma - HCH, Gamatox 15 EC, 20 EC, Lindafor, Carbadan 4/4G Sevidol 4/4G)
3	Cadmium compound (Cd)
4	Chlordance (Chlorotox, Octachlor, Pentichlor)
5	DDT (Neocid, Pentachlorin, Chlorophenothane)
6	Dieldrin (Dieldrex, Dieldrite, Octalox ...)
7	Eldrin (Hexadrin)
8	Heptachlor (Drimex, Heptamul, Heptox)
9	Isobenzen
10	Isodrin
11	Lead compound (Pb)

12	Methamidophos: (Dynamite 50 SC, Filitox 70 SC, Master 50 EC, 70 SC, Monitor 50 EC, 60 SC, Isometha 50 DD, 60 DD, Isosuper 70 DD, Tamaron 50 EC)
13	Methyl Parathion (Danacap M25, M40; Folidol - M50 EC; Isomethyl 50 ND; Metaphos 40 EC, 50 EC; (Methyl Parathion) 20 EC, 40 EC, 50 EC; Milion 50 EC; Proteon 50 EC; Romethyl 50 ND; Wofator 50 EC)
14	Monocrotophos: (Apadrin 50SL, Magic 50 SL, Nuvacron 40 SCW/DD, 50 SCW/DD, Thunder 515 DD)
15	Parathion Ethyl (Alkexon, Orthophos, Thiopphos)
16	Sodium Pentachlorophenate monohydrate (Copas NAP 90 G, PDM $_4$ 90 powder, P-NaF 90, PBB 100 powder)
17	Pentachlorophenol (CMM 7 liquid oil, Oil eradicate termites M-4 1.2 liquid)
18	Phosphamidon (Dimeccron 50 SWC/DD)
19	Polychlorocamphene (Toxaphene, Camphechlor)
20	Stroban (Polychlorinate of camphene)
Crops Fungicides	
1	Arsenic compound (As) except Dinasin
2	Captan (Captane 75 WP, Merpan 75 WP)
3	Captafol (Difolatal 80 WP, Folcid 80 WP)
4	Hexachlorobenzene (Anticaric, HCB)
5	Mercury compound (Hg)
6	Selenium compound (Se)
Rodenticides	
1	Talium compound (TI);
2	2.4.5 T (Brochtox, Decamine, Veon)

APPENDIX I

SOCIO-ECONOMIC SURVEY SAMPLE

1. Survey Area:

- Survey area name: .....
- No. of households: ..... (households). Total population: .....(persons). Average household size:..... persons/households.
- Average population growth rate: ..... %.

2. Land condition:

- Total land area:..... (ha). Of which, agricultural land: ..... (ha).
- Industrial land: .....(ha). Other: ..... (ha).

3. Economic condition:

- No. of forestry production households: ..... (households). No. Of non-agricultural production households: .....(households)
- No. Of employments in local industrial establishmnts: ..... (person)
- Average income:..... VND/month.
- Highest income: .....VND/month
- Lowest income: .....VND/month
- No. of rich households: .....(households). No. of poor households:.....(households)

4. Public and infrastructure facilities

- Number of offices, schools, research institutes: .....(establishments)
- Industrial plants and factories: .....(units)
- Hospitals and clinical centers:.....(units)
- Markets: ..... (markets). Cemeteries: .....(cemeteries)
- Com houses, pagodas and cathedrals: .....(units)
- Transport and road condition:

+ Soil road:..... %. + Gravel road: .....%
+ Concrete road:..... %. + Brick road:..... %

- Water and electricity supply:

+ No. of households accessed to the electricity source: ..... (households).
+ No. of households accessed to the clean water supply: ..... (households)

5. Health conditions:
- No. of infectious disease sufferers: ..... (persons).
- No. of chronic disease-infected people: .....(persons)

- No. of occupational disease-infected people: .....(persons)

6. Locality requirements and recommendations on the project

For the local government *Date: dd/mm/yy*

Surveyor

Annex – I: Evidence of Consultation during Preparation of ESMF

1. Ngoi La 2 reservoir sub-project, Tuyen Quang province.

Relevant organisations consultant at Tuyen Quang province

Field survey of Ngoi La 2 subproject

2. Ban reservoir sub-project, Phu Tho province.

Relevant organisations consultant at Phu Tho Province

Ban Reservoir acessing road survey.

3. Dai Thang sub-project, Hoa Binh province.

Relevant organisations consultant at Hoa Binh Province.

Spillway survey.

Relevant organisations consultant at Dong trieur-Quang Ninh

Khe Che reservoir field survey

5. Dong Be sub-project, Thanh Hóa province.

Relevant organisations consultant at Trieu Son district -Thanh Hoa province

Dong Be reservoir filed survey

6. Khe Sân Sub-project, Nghe An province.

Relevant organisations consultant at PPMU-Nghe An province.

Khe San Reservoir field survey

7. Khe Gang sub-project, Nghe An province.

Relevant organisations consultant at PPMU-Nghe An province.

Khe Gang Reservoir field survey

8. Phu Vinh sub-project, Quang Binh province.

Relevant organisations consultant at PPMU-Quang Binh province

Phu Vinh reservoir field survey

9. Dap Lang sub-project, Quang Ngai province

Relevant organisations consultant at PPMU Quang Ngai province

Dap Lang reservoir field survey

10. Thach Ban sub-project, Binh Dinh province.

Relevant organisations consultant at PPMU Binh Dinh province.

Thach Ban reservoir field survey.

11. River Quao sub-project, Binh Thuan province

Vice director of Binh Thuan DARD give a discussion about the sub-project potential impacts

River Quao reservoir field survey

12. Da Teh sub-project, Lam Dong.