

**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)**

July, 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 through 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 Central Project Management Unit (CPMU), 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 Report (DSR), 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 DSR will be part of the bidding 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. The general objective of DRSIP is 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 will support multipurpose dams under the auspices of the Vietnam's Ministry of Agriculture and Rural Development (MARD). These dams are mainly intended for the irrigation purposes. However, some dams are used for multipurpose e.g. irrigation, water supply etc. 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 identified for 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 3 components:

Component 1: Dam safety rehabilitation (US\$405 of which IDA US\$375 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\$40 of which IDA US\$35 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 of which IDA US\$10 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) Central Project Management Unit (CPMU); (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.

Locations

DRSIP will be implemented in 34 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

Law on Environmental Protection (No.55/2014/QH13) dated June 23, 2014 and Decree on Environmental Protection Planning, Strategic Environmental Assessment, Environmental Impact Assessment and Environmental Protection Plans (No. 18/2015/ND-CP) dated February 14, 2015 are key legal frameworks for environmental management in Vietnam. Law on Environmental Protection (LEP) provides statutory provisions on environmental protection activities; measures and resources used for the purpose of environmental protection; rights, powers, duties and obligations of regulatory bodies, agencies, organizations, households and individuals who are tasked with the environmental protection task. LEP is applicable to regulatory bodies, public agencies, organizations, family households and individuals within the territory of the Socialist Republic of Vietnam, including mainland, islands, territorial waters and airspace. LEP is on regulating strategic environmental assessment, environmental impact assessment and environmental protection commitment. 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' or 'C' 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 habitats 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. The investment will cover existing dams that are under the auspices of the Vietnam's Ministry of Agriculture and Rural Development (MARD). These dams are expected to be used mainly for irrigation purposes. However, there may be multipurpose dams to be funded that, apart from irrigation, have other uses such as water supply and hydroelectric power generation. 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 subproject-related development sites, catchment areas, sources of water, receiving channels flow, 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 from dam safety point of view; and (iii) Physical rehabilitation of dam including change in reservoir height and dam size from safety point of view.

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 repair and upgrade, new bridge over the spillway construction, stilling basin, spillway crest repair; (iii) new drainage layouts at the toe downstream slopes construction or repair; (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

<i>Structural/Design issues</i>	<i>Proposed works</i>
1. Inappropriate design or spillway damaged	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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

<i>Structural/Design issues</i>	<i>Proposed works</i>
3. Broken Dam due to Overtopping	<ul style="list-style-type: none"> - 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: (i) acquisition of new lands and right of way; (ii) clearance for construction site (tree cutting and trimming, leveling ground); (iii) 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 may be 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. The technical screening will look at potential impacts of the subproject in order to determine the environmental category of the investment, the focus and scope of the assessment, the policies triggered and additional 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 subproject 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) identify the World Bank safeguard policies triggered; (ii) classify subprojects into A, B, or C categories; 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 screening will also briefly describe 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. In addition, the screening will also check the possibility of Unexploded Ordnance (UXO) and any environmental legacy issue. Depending on the results of the screening exercise, the safeguard instruments will be decided.

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 required.

Impact Assessment

The purpose of impact assessment is to give the environment and social issues due importance in the decision making process by clearly evaluating the environmental and social consequences of the proposed study before action is taken. Early identification and characterization of critical environmental and social impacts allows the public and the government to form a view about the environmental and social acceptability of a proposed development project and what conditions should apply to mitigate or minimize those risks and impacts. The scope of the ESIA 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 key steps of impact assessment are: planning, scoping, impact assessment and consultation. The impact assessment will clarify: (i) how will the particular subproject activity give rise to an impact? (ii) how likely is it that an impact will occur? (iii) what will be the consequence of each impact? and (iv) what will be the spatial and temporal extent of each impact? The assessment of impacts largely depends on the extent and duration of change, the number of people or size of the resource affected and their sensitivity to the change. Potential impacts can be both negative and positive (beneficial), and the methodology defined below will be applied to define both beneficial and adverse potential impacts.

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 will prepare (before commencement of construction work) specific Environmental and Occupational Health and Safety Plan (CEOHSP) based on the construction-related measures identified in the ESMP as well as the relevant national standards and criteria and standard practice in construction site management, including good housekeeping, construction waste management, provision of PPE, provision of adequate sanitation facilities at camp sites, warning signs, barriers and fences for hazardous areas.

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. Provincial People’s Committee have to take responsibility to approve Environmental Impact Assessment of subprojects. Provincial Project Management Unit is responsible for hiring a consultant who develops Environmental and Social Impact Assessment report for each subproject. The adequate qualified experts develop ESIA report for the subsequent year subprojects. 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, CPMU will hire the services of the International Qualified Environment and Social (E&S) Consultant Firm for review and clearance of subproject ESIA's, supervision and monitoring of ESIA's 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.

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 Independent third party monitoring will be selected by CPO and implementation cost is included in budget of World Bank (Component 3- Monitoring and Management support). The Figure - E-8.1 shows the implementation arrangement.

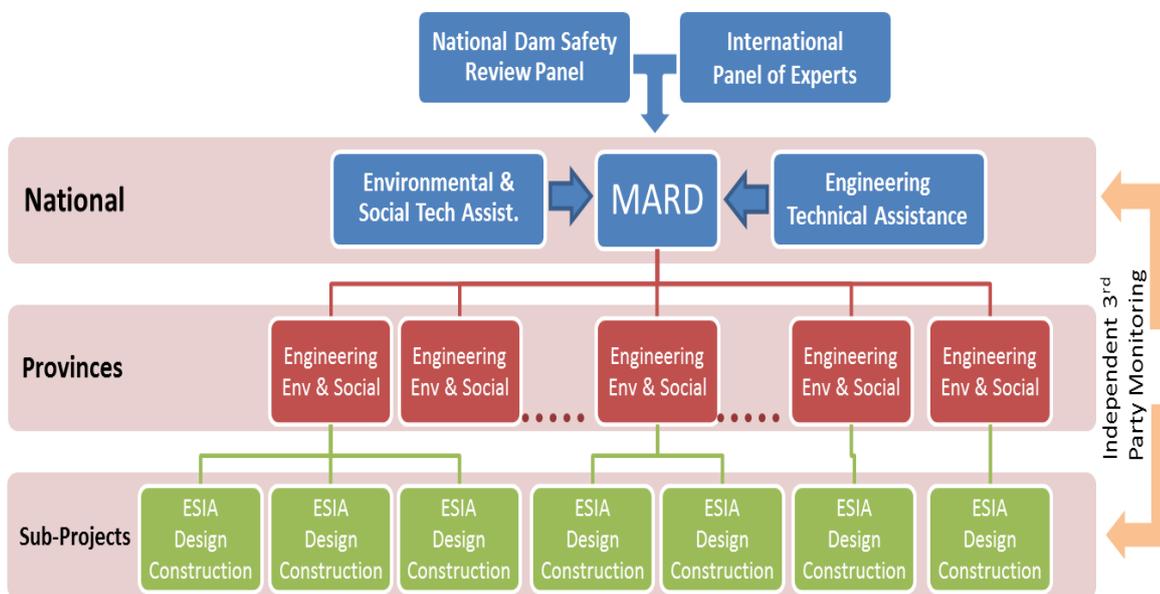


Figure - E8.1: Project Implementation Arrangement

ESIA Preparation, Review, Disclosure and Approval: The Provincial/Regional E&S Consulting Firm will be responsible for environmental and social screening and preparation of the ESIA following the guidelines mentioned in the ESMF. Consultation is the essential part of the ESIA preparation. Once the Draft Final ESMF has been submitted by the Provincial/Regional E&S Firm, the report will be first reviewed by PPMU with field cross-checking. PPMU then submit the Draft Final ESMF to CPMU for further review and clearance to proceed. On behalf of the CPMU, the International E&S Firm will review the screening report, ESIA and relevant plans in detail. The International E&S firm will check the relevant information, impact assessment and robustness of the mitigation and monitoring plan. Field verification will be required in the process. Based on the recommendation of the International E&S Consultant, CPMU will inform the PPMU for processing the government clearance. During the review process, both PPMU and CPMU can ask further detailed information and analysis and the report needs to be updated. ESIA's including other relevant plans of subproject prepared during project implementation will be disclosed locally before approval of these subprojects. These documents will be posted in the official website MARD and Provincial level 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 of subproject will be disclosed in the Infoshop of the World Bank.

PPMU will submit the Draft Final ESIA Report to the Provincial People's Committee (PPC). Considering the nature of the subproject, the Provincial People's Committee (PPC) shall assess and approve ESIA reports PPC shall arrange to verify the report on environmental social impact assessment in respect of investment projects within their territories. The assessment of ESIA report shall be conducted by the EIA report assessment council established by the Heads of the EIA report assessment authority. Deadlines for assessment of ESIA report is within 30 working days from the date on which the satisfactory application is received. PPMU will have to comply requests specified in the approval of their report on EIA. For any change, the project owner must send their explanation to PPC.

The World Bank will review the ESIA's of all category 'A' subprojects and also the ESIA of first subproject (irrespective of category) of each province. However, this process will be reviewed time to time and once the capacity has been built with the support of the E&S consultant, the World Bank will randomly review some ESIA's.

Bid Document and Contractor's Plan: After the approval of the ESIA, PPMU is responsible to ensure that ESMP and Bid Specification have been included in the Bidding Document. The cost for the environmental and social management needs to be allocated for the subproject contract. CPMU will confirm that the bidding document has been properly included the ESMP and bidding specification and adequate budget has been allocated. The winning contractor/bidder will prepare Contractor Environment and Occupational Health and Safety Plan (CEOHSP) taking into consideration of the subproject ESMP, the bidding document requirements and explain the construction schedule, material, equipment and manpower requirement and plan for mitigating site specific issues. This plan will be reviewed by E&S consultant firm both at Provincial level and Central level. The plan will be approved by CPMU with the recommendation by Central level E&S firm.

Implementation, Supervision and Monitoring: The contractor is responsible for implementation of ESMP and CEOHSP of the subproject. The Environmental, Health and Safety Manager (EHSM) will play the key role in managing the environmental and social management of the subproject. The contractor will have to follow all environmental mitigation and management measures as defined in the technical specification, ESMP and CEOHSP. The contractor has to ensure that a comprehensive Health and Safety Program in place for the workers and also nearby community during the construction period. Prior to monsoon season during construction, the contractor will ensure that all temporary or permanent drainages are free from construction related debris.

The contractor will self-monitor the mitigation measures and prepare monthly report for submission to PPMU. The provincial E&S consultant will review the monthly report. Both Provincial E&S consultant and PPMU will review the regular implementation of the mitigation and monitoring plan. In addition, the provincial E&S consultant will prepare the quarterly monitoring report and provide recommendation to further strengthen the implementation of the mitigation and monitoring plan. Non-compliance by contractor will be reported by E&S consultant and PPMU will impose penalty for any noncompliance of agreed action plan. PPMU will submit a quarterly safeguard progress report of implementation of mitigation and monitoring plan in the province to CPMU within 10 days after end of quarter.

On behalf of CPMU, the International E&S firm will monitor the implementation of mitigation and monitoring plan of each subproject at least once in each quarter. They will also prepare their on monitoring report 15 days after end of quarter. It will include the key steps, outputs and results of the environmental management actions taken for all investments throughout the project cycle. The International E&S firm will review and comment on the provincial quarterly progress report.

Completion Certificate and Reporting: PPMU will have to notify PPC and the rehabilitated dam will be commenced only after PPC (approval authority of EIA) has inspected and certified the completion of environmental protection works. PPMU will prepare a completion report for environmental protection work and within 15 days of receiving the report, PPC must examine and issue the certificate of completion of environmental work.

The PPC shall send a report on 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. MARD shall send reports on assessment and approval for EIA report, 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 15.

PPMU and the Provincial E&S firm will continue to continue to monitor the operation and carryout the parameter testing as agreed in the Monitoring Plan for the first year of operation. After first year, PPMU will continue to monitoring by own officials. CPMU will also periodically monitor the operation phase issues. According to the Decree on Environmental Protection Planning, Strategic Environmental Assessment, Environmental Impact Assessment and Environmental Protection Plans (No. 18/2015/ND-CP) dated February 14, 2015, the inspection of environment protection works serving the operation phase of the subproject shall be carried out by an Inspectorate which is established by the Head of PPC (Ref. Article 17 of Decree). Based on the field visit, the International E&S firm will prepare a six-month report on safeguard for subprojects under implementation phase. CPMU will review the report and send to the World Bank before the implementation support mission.

Monitoring during Operation Phase: PPMU and the Provincial E&S firm will continue to continue to monitor the operation and carryout the parameter testing as agreed in the Monitoring Plan for the first year of operation. After first year, PPMU will continue to monitoring by own officials. CPMU will also periodically monitor the operation phase issues. According to the Decree on Environmental Protection Planning, Strategic Environmental Assessment, Environmental Impact Assessment and Environmental Protection Plans (No. 18/2015/ND-CP) dated February 14, 2015, the inspection of environment protection works serving the operation phase of the subproject shall be carried out by an Inspectorate which is established by the Head of PPC (Ref. Article 17 of Decree). Based on the field visit, the International E&S firm will prepare a six-month report on safeguard for subprojects under implementation phase. CPMU will review the report and send to the World Bank before the implementation support mission.

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. The International E&S firm will lead the capacity building process. With CPMU coordination, they will organize the capacity building training for PPMU and Provincial level E&S consultant. Similarly, PPMU and Provincial E&S Consultant will organize orientation program for the contractors. The winning contractor is responsible for carrying out the training of workers to ensure proper occupational health and safety, better housekeeping and effective environmental management. The IPM training will also be organized according to subproject plan.

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 is US\$70.2 million. The World Bank will contribute US\$12.8 million and rest will be allocated by the Government. 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 and most important is based 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.

During the preparation stage, a consultation was held with the relevant stakeholders. Rehabilitation and safety of the dams have been identified as one of the key development priorities. None of the participant noted any significant, long-term impacts from the proposed project activities. Most of the impacts they identified are local and temporary. Preparation has been benefited with the consultations held at field level for the preparation of the 12 subprojects. Extension consultations were held locally with the relevant stakeholders. The findings of 12 ESIA's are reflected in the respective ESIA. These consultations provided valuable information for the ESIA's preparation as well as developing the ESMF. The draft ESMF and the twelve (12) subproject ESIA's with Vietnamese version has been disclosed in Vietnamese at the Vietnam Development Information Center in Hanoi, as well as through the MARD website on May 29, 2015 and the Bank's Infoshop on May 29, 2015 for public comments. The hard copies of the document have also been made available in provincial level DARD offices. Similarly, the subproject ESIA will be disclosed.

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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
CEOHSP	Contractors Environmental and Occupational Health and Safety Plan
COD	Chemical Oxygen Demand
CPC	Commune People's Committee
CPMU	Central Project Management Unit
CPO	Central Project Organization of MARD
CRES	Centre for Natural Resources and Environment
CSC	Construction Supervising Consultant
CSEP	Contract 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
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 ₂ S	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
°C	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
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	Monodioxide 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
EMPF	Ethnic Minority Policy Framework
EPC	Environment Protection Commitment
EPP	Emergency Preparedness Plans

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 regions¹: 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;

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.

- (c) Determines capacity building needed to successfully implement the provisions of the ESMF;
- (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 ESIA's, consultation meeting was carried out during the preparation of the ESMF.

1.4 Principles of ESMF

Due to the nature of proposed interventions under the project and potential environmental impacts, the project falls under “Category A” as per the World Bank Operation Policy 4.01, which requires proper environmental and social impact assessment and implementation of environmental management plan. The Government law and decree also requires the environmental impact assessment of subprojects. Therefore, the ESMF is prepared based on the following principles that can ensure proper environmental and social planning and management of subproject activities.

- The Ministry of Agriculture and Rural Development (MARD) is responsible for the compliance with national policies, regulations and World Bank Operational Policies and Guidelines, as mentioned in this ESMF report. The ESMF will serve as the basis for ensuring the compliance of subproject planning, implementation and monitoring.
- Central Project Management Unit (CPMU) to be established under MARD will ensure the quality of the subproject level environmental and social assessment and implementation of management plans by hiring International Environment and Social (E&S) service provider (International Firm).
- On behalf of the CPMU, the E&S Service provider will confirm that environmental and social assessment addresses all potential environmental and social direct and indirect impacts of the sub-projects throughout its life: pre-construction, construction and operation stages and mitigation measures have been taken to mitigate negative consequences and enhance positive impacts.
- On behalf of the CPMU, the E&S Service provide will also ensure proper implementation of the environmental and social management plan (ESMP) and carryout regular supervision and monitoring. Quarterly report will be provided on quality and compliance issues.
- Each Provincial Project Management Unit (PPMU) is responsible for subproject environmental and social impact assessment (ESIA) by hiring qualified national E&S consulting firm. The firm will also be assigned to supervise and monitor the implementation of environmental and social management plan (ESMP).
- Each PPMU is responsible for obtaining required government clearance from Provincial People’s Committee (PPC) or any other related agencies as per the national law.
- CPMU will be responsible for collecting required World Bank clearance for subproject. CPMU will also be responsible for quarterly reporting on safeguard measures in agreed format to the World Bank.
- The project will not support any dam rehabilitation and associated work within any national park, wildlife and world heritage sites, restricted or disputed lands.
- The physical intervention of the project (Component 1) will only include the improvement of the physical safety of dams under the auspices of MARD. These dams are mainly irrigation dams. However, some are also used for multipurpose such as water supply and hydroelectric power. Structural measures include the physical rehabilitation and upgrading safety work of existing dams and appurtenant structures such as widening and increasing the height of dam (from safety perspective),

reshaping of slopes, strengthening, widening and treatment of spillways, grouting for seepage control, structure stabilization, replacement of hydro-mechanical works and safety monitoring instrumentations.

- The ESMF will also be applicable to Component-2 (Dam Safety Management and Planning). The improvements in hydrological network and information systems and establishment of hydro-meteorological stations within the catchment will go through the screening process, which will determine the appropriate instrument for further assessment and management.
- The technical studies to be carried out under Component-2 will also address the environmental and social issues. For example, River Basin Assessment study will include basin level cumulative impact assessment and develop a protocol for ecological monitoring at basin level.
-
- Each PPMU will be responsible to ensure appropriate consultations with the stakeholders including community and affected people.
- PPMU will ensure disclosure of subproject ESIA² in their website and hardcopies to be available to the offices and project sites.
- CPMU will ensure disclosure of all subprojects ESIA's in their website. The English and Vietnamese version of ESIA will be disclosed in the Vietnamese Development Information Center (VDIC) in Hanoi and the English version will be disclosed in the Infoshop of the World Bank.
- Each subproject will have Dam Safety Report (DSR) as per Dam Safety Framework (DSF) and it will be integrated with the engineering design of dam. DSR will not be included in ESMP.
- Both CPMU and PPMUs will regularly supervise the implementation of the ESMP.
- The winning contractor winning contractor/bidder will prepare Contractor Environment and Occupational Health and Safety Plan (CEOHSP) taking into consideration of the subproject ESMP, the bidding document requirements and explain the construction schedule, material, equipment and manpower requirement and plan for mitigating site specific issues. This plan needs to be reviewed and cleared by E&S consultant firm both at Provincial level and Central level.
- The Contractor will strictly follow CEOHSP and bidding document requirements including ESMP.
- In addition to E&S Consultant's supervision and monitoring, both CPMU and PPMUs will supervise the implementation of the ESMP.
- PPMU and CPMU can impose penalty to the contractor for any non-compliance of any management plan.
- PPMU and CPMU will ensure the requirement of Dam Safety Plan (DMP), Resettlement Action Plan (RAP) and Ethnic Minority Development Plan (EMDP) in accordance to Dam Safety Framework (DSF), the Resettlement Policy Framework (RPF) and the Ethnic Minorities Policy Frameworks (EMPF) respectively.

² Limited ESIA for Category B subproject.

1.5 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 investment will cover existing dams that are under the auspices of the Vietnam's Ministry of Agriculture and Rural Development (MARD). These dams are expected to be used mainly for irrigation purposes. However, there may be multipurpose dams to be funded that, apart from irrigation, have other uses such as water supply and hydroelectric power generation. The project will consist of the following components:

Component 1: Dam safety rehabilitation (US\$405m of which IDA US\$375m) - This component will improve dam safety of prioritized dams under the Ministry of Agriculture and Rural Development (MARD) through physical rehabilitation of existing infrastructure. These public financed dams are designed for irrigation purposes and few are also used as multi purposes including source of drinking water to local communities. This component includes support to: (i) Detailed engineering design, safeguards instruments, supervision and quality control of rehabilitation works and safeguard compliance for prioritized dams and associated infrastructure; (ii) structural rehabilitation, including civil and hydro-mechanical works, and installation of instrumentation and safety monitoring system equipment; (iii) preparation of Operation and Maintenance Plans and Emergency Preparedness Plans; and (iv) adoption of standardized safety checklist for community-managed dams.

A primary screening of dams has been carried out by MARD. The majority of those dams identified during preparation are classified as small, earth embankment dams, with 65% being less than 15m in height and with a storage capacity of less than 3 Mm³. The majority of the dams for which data exists were constructed more than 15years ago, with 50% constructed between 1970 and 1990.

Analysis of structural risk of dams is one of the key criteria for dam selection and four common potential failure modes have been prioritized: (i) overtopping due to insufficient spillway capacity, (ii) external erosion by inadequate surface protection, (iii) piping/excessive seepage due to insufficient seepage control, and (iv) movement/deformation by slope instability, uneven settlement, etc. Key parameters, such as the level of seepage, cracks, sliding, etc. to measure such structural damages / risks have been incorporated into the principles.

Component 2: Dam safety management and planning (US\$40m of which IDA US\$35m) - This component will improve the planning and operational framework for dam management to safeguard the people and socio-economic infrastructure within downstream communities. This component is technical assistance in nature and will finance several studies, capacity building initiative and improvement of hydrological network and information systems at both basin and scheme levels. This includes a number of non-structural measures that will consolidate the overall framework proposed under the project for integration and implementation of the Government's Dam Safety Program. Many of the activities to be supported under this component are to be implemented in cooperation with the parallel

initiative supported by the Government of New Zealand under the “Dam and Downstream Community Safety Initiative” in the Ca River basin.

Regulatory and institutional support would assist the Government in implementation of the revisions proposed to Decree 72 and the supporting guidelines, instructions and regulations for implementation. A series of activities would be supported under this component to help draft the subsidiary instruments required under the Decree 72 including implementation instructions, guidelines and sanction mechanisms, enhance the coordination mechanisms and governance structures, as well as implementation of the regulatory provisions.

The Vu Gia-Thu Bon and Ca river basins have been proposed as pilots for implementation of a basin approach to operational dam safety. These were primarily selected after a quick review of the 14 river basins in Vietnam. River Basin Assessment study will include basin level cumulative impact assessment and develop a protocol for ecological monitoring at basin level.

Improvements in the hydrological observation network and information systems at both basin and scheme levels would be supported. The lack of monitoring equipment at the dam structure and upstream are considered major impediment, both to the safe operation of the dam and also to take preventative action to warn downstream communities. The existing hydro meteorological monitoring networks in upstream catchments are typically very limited and the forecasting capacity of MoNRE does not have the resolution required for smaller catchments. There are often parallel monitoring systems owned and operated among MoNRE, MARD, MoIT and some private dam owners. Only 18 irrigation reservoirs are installed with (semi) automatic measuring equipment, and monitoring is normally manual. Data management is typically very fragmented with each dam owners separately contracting data analysis and forecasting services in the rainy season and dam levels and operation are not communicated automatically to the relevant agencies.

Support will be provided to extending the network, through the provision and installation of observatory equipment. This would include onsite instrumentation as well as hydro-meteorological stations within the catchment. This is to be integrated within the national standards and aligned with the ongoing support under the VN-Managing Natural Hazards Project supported by the Bank. Within the pilot basins, support would be provided to establishing shared data management systems and analyses to provide decision support systems for Government Agencies and dam operators.

Improved flow monitoring and integrated basin wide forecasting, within the national monitoring system, is anticipated to help improve the safety of dam operations and downstream communities. Improving the operations of a relatively small number of targeted large dams with gated spillways could have a significant impact given the large reservoir capacities. The use of reservoir capacity for active flood control with the aid of hydrological and meteorological monitoring and flood forecasting is to be considered on a basin scale. Such improvements in flow monitoring and regulation operations could enhance the safety of smaller, un-gated irrigation dams and the integration of hydropower dams with improved safety, power production and financial gains.

A series of technical studies will be supported as part of the non-structural measures aimed at establishing a more effective national dam safety monitoring, operation and maintenance system. This would also include technical specifications and safety standards to ensure

compliance with internationally-accepted levels. This includes emergency preparedness plans, dam break analyses, downstream flood mapping and benchmarking, along with strategic technical studies regarding dams planning, investigation, design, construction, operation and maintenance, dam safety auditing, etc. One of the subjects could be national hydrological assessment, including the review of overall hydro-meteorological monitoring data and broad estimate of large floods. The exercise will be used to provide preliminary estimates or rough checks of spillway design flow volume for rehabilitation design of each dam.

The project will provide supplementary support to enhance the quality and performance of the national dam database. This is currently being supported by the IDA-financed Managing Natural Hazards Project. The aim of the additional support would be to further detail the safety information and flow of information pertaining to all small-size dams managed by local communities. Completing the database on dams would eventually help establish a national dam safety database which is crucial for the management of safety in the long-term operations.

Capacity enhancement, community awareness and improved education around dam safety would be supported through a series of Knowledge Products, Trainings and Exchanges. Specific products would include the production of national guidelines, manuals, and standards, etc., coupled with specific training events to develop a strong cadre of professionals in dam safety. Training would include training of trainers, as well as individual opportunities, with a focus on dam operators and managers, along with local communities. This would be facilitated through Knowledge Exchanges between professionals and communities within and between basins, provinces, and nationally, as well as international events.

Component 3: Project management support (US\$15m of which IDA US\$10m) - 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) Central Project Management Unit (CPMU) 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.

2.2 Coverage of the Project

DRSIP will be implemented in 34 provinces in the North, Central and Highland regions (Figure – 2.1). The lists of the 34 provinces along with general ecological and socioeconomic conditions of the regions are briefly presented in Table-2.1. There are over 400 dams/reservoirs are proposed to be funded by project, almost are irrigation reservoirs, just some of which are multi-purposes reservoirs (supply water and irrigation). Among 12 first year sub-projects, there are 2 multi-purpose reservoirs (irrigation, water supply) and 10 irrigation reservoirs. 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.

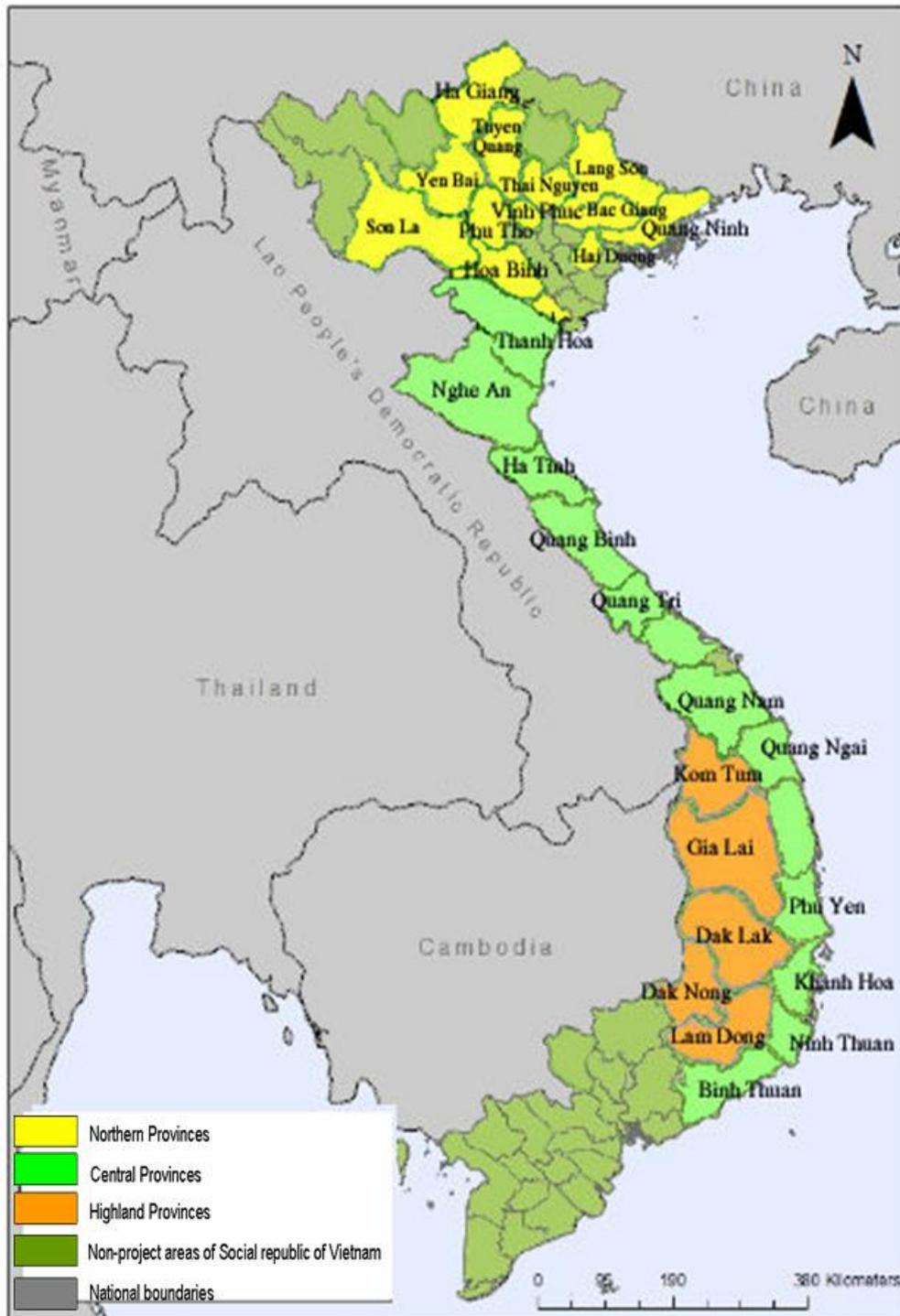


Figure -2.1: Provinces to be covered by the DRSIP
Table - 2. 1: Ecological and Socioeconomic Profile of Project Areas

<i>Zone/ Region</i>	<i>Ecological and Socioeconomic Profile</i>	<i>Provinces</i>
North	The general topography is characterized by mountainous terrain with narrow valleys and alluvial soil offering better	1. Ha Giang 2. Tuyen Quang

<i>Zone/ Region</i>	<i>Ecological and Socioeconomic Profile</i>	<i>Provinces</i>
	<p>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 Tonkin. Apart from having the typical 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.</p> <p>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 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, sustainable poverty reduction program was successfully implemented and gained significant 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).</p>	<ol style="list-style-type: none"> 3. Yen Bai 4. Phu Tho 5. Quang Ninh 6. Hoa Binh 7. Son La 8. Bac Giang 9. Hai Duong 10. Ninh Binh 11. Vinh Phuc 12. Lao Cai 13. Thai Nguyen 14. Bac Kan 15. Lang Son
Central	<p>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 China Sea. Along the coastline are small plains. Between sloping mountainsides are narrow and deep valleys.</p>	<ol style="list-style-type: none"> 1. Thanh Hoa 2. Nghe An 3. Ha Tinh 4. Quang Binh 5. Quang Tri 6. Hue

Zone/ Region	Ecological and Socioeconomic Profile	Provinces
	<p><i>Central region</i> 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.</p> <p><i>Central and South Central</i> stretches from Quang Ngai province, Quang Ngai, Phu Yen, Khanh Hoa, Binh Dinh in climates divided into two seasons: dry and rainy season. Dry season begins in January and ends in August. However, during this dry period in May and June, generally heavy and intensive rain fall caused high flooding levels to the areas.</p> <p>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 in September and ends 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.</p>	<ol style="list-style-type: none"> 7. Quang Ngai 8. Quang Nam 9. Binh Dinh 10. Khanh Hoa 11. Phu Yen 12. Ninh Thuan 13. Binh Thuan
Central Highlands	<p>Within the southern portion of Vietnam is a plateau known as the central highlands approximately 51,800km² 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</p>	<ol style="list-style-type: none"> 1. Gia Lai 2. Dak Lak 3. Dak Nong 4. Lam Dong 5. Kon Tum 6. Tay Ninh

<i>Zone/ Region</i>	<i>Ecological and Socioeconomic Profile</i>	<i>Provinces</i>
	<p>land.</p> <p>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°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.</p> <p>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 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.</p>	

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 Project 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. A High Level Working Group (HLWG) would be established at the central level to coordinate the policy and strategic issues, provide overall guidance and assist in coordination. The HLWG will include the three Ministries and will be chaired by the Deputy Prime Minister, or his representative. The implementation arrangements are further intended to be integrated within the national systems to provide the foundations for a framework that will extend beyond the project implementation period. These mechanisms are further expected to help enhance coordination between the various Government agencies.

A Central Project Management Unit (CPMU) would be established under MARD and would provide coordination support to all the three participating Ministries. The CPMU will be responsible for overseeing procurement, financial management, safeguards management, project monitoring and overall administration. 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 Project Management Unit (PPMU) mostly within Department of Agriculture and Rural Development (DARD) would be the responsible for subproject planning, designing and implementation. Provincial People's Committees have to take responsibility to approve Environmental Impact Assessment of subprojects. Provincial Project Management Unit is responsible for hiring a consultant who develops Environmental and Social Impact Assessment report for each subproject. The PPMUs ensure to hire adequate qualified experts to develop ESIA report for the subsequent year subprojects on time.

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.

The project will also appoint an Independent Third Party Monitor to carry out regular, independent evaluations, supported through the development and application of innovative, state-of-the art technologies to enhance citizen voice and stakeholder engagement during project implementation. The evaluations 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. One of the key responsibility of the Third Party Monitor will also evaluate compliance with the ESMF, applicable various safeguard instruments, including Environmental and Social Management Plan (ESMP), Environmental Codes of Practice etc.

CHAPTER III. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORKS

3.1 Country's Environmental and Social Safeguards Policies and Legislations

This chapter provides the brief of the relevant environmental and social policies of the GoV and the World Bank. Annex-I includes the detailed description and discussion.

3.1.1 Environment

Law on Environmental Protection (No.55/2014/QH13) dated June 23, 2014 and Decree on Environmental Protection Planning, Strategic Environmental Assessment, Environmental Impact Assessment and Environmental Protection Plans (No. 18/2015/ND-CP) dated February 14, 2015 are key legal frameworks for environmental management in Vietnam. Law on Environmental Protection (LEP) provides statutory provisions on environmental protection activities; measures and resources used for the purpose of environmental protection; rights, powers, duties and obligations of regulatory bodies, agencies, organizations, households and individuals who are tasked with the environmental protection task. LEP is applicable to regulatory bodies, public agencies, organizations, family households and individuals within the territory of the Socialist Republic of Vietnam, including mainland, islands, territorial waters and airspace. LEP is on regulating strategic environmental assessment, environmental impact assessment and environmental protection commitment. According to Article 10, chapter II of LEP, the responsibility for preparing the planning for environmental protection are as following:

- 1) The Ministry of Natural Resources and Environment shall prepare the national-level planning for environmental protection.
- 2) People's Committees of centrally-governed cities and provinces (hereinafter referred to as provincial People's Committee) shall take charge of formulating processes or preparing the local planning for environmental protection.

Furthermore, the law also indicated to consultation on, inspection and approval of the planning for environmental protection (Article 11, chapter II) as well as the list of entities subject to strategic environmental assessment in appendix I and II of the Decree No. 18/2015/ND-CP dated February 14, 2015 of the Government:

- 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.
- 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.

Inspection and approval of the planning for environmental protection shall be required as follows:

- 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.
- 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.

Ministries, ministerial level agencies and Government bodies shall have the responsibility to establish the council or organize the selection of review service organizations to review environmental impact assessment reports of the projects within their competence of decisions and approvals, except inter-sector and inter-provincial projects

Provincial level People's Committees shall have the responsibility to establish the council or organize the selection of review service organizations to review environmental impact assessment reports of the projects that take place within their territories and subject to their competence of decision and approval and that of the People's Councils of the same level.

Management: Unit for Industrial Parks, Export Processing Zones and Hi-tech Zones: Provincial people's committee can authorize the Management Unit for Industrial Parks, Export Processing Zones and Hi-tech Zones as regulated in Decree 29/2008/ND-CP dated 14/03/2008 by the Government on industrial parks, export processing zones and economic zones.

The Section 3 of Chapter II of LEP describes the requirements of Environmental Impact Assessment. Owners of projects regulated in Clause 1 Article 18 of this Law shall carry out, on his own, or hire an advisory organization to carry out the environmental impact assessment and take statutory responsibility for the conclusive result after carrying out such assessment. The environment impact assessment must be performed in the preparatory stage of the project. The conclusive result yielded after carrying out the environment impact assessment shall be expressed in the form of the report on environmental impact assessment. Expenses incurred from the formulation and inspection of the report on environmental impact assessment, and included in total investment budget shall be covered by the project owner.

According to Article 21 of LEP, the consultation to be required in the process of environmental impact assessment is aimed at completing the report on environmental impact assessment. It emphasis that consultation helps minimize the negative impacts on the environment and human beings and ensure the sustainable development of the project. Project owners are obliged to consult with regulatory agencies, organizations and communities that are directly affected by the project.

The Article 22 of LEP describes the scope of EIA reporting. It will include: (i) origin of the project, project owners, and the competent authority's approval of the project, method of the environmental impact assessment; (ii) evaluation of technological choice, work items and any activity relating to the project which can cause bad effects on the environment; (iii) assessment of current status of natural and socio-economic environment carried out at areas where the project is located, adjacent areas and demonstration of the suitability of the selected project site; (iv) assessment and forecast of waste sources, and the impact of the project on the environment and community health; (v) assessment, forecast and determination

of measures for managing the risks of the project posed to the environment and community health; (vi) waste disposal measures; (vii) measures for minimizing the impact of the project on the environment and community health; (viii) consultation result; (ix) environmental management and supervision programs; (x) budget estimate for the construction of environmental protection facilities and measures to be taken to minimize the environmental impact; and (xi) alternatives to the application of measures for the environment protection.

The Article 23 of LEP defines the authority to verify the report on EIA. The Ministry of Natural Resources and Environment shall arrange to verify the report on environmental impact assessment in respect of the following projects: (a) Projects subject to the decision on investment intentions made by the National Assembly, Government and the Prime Minister; (b) Interdisciplinary or inter-provincial projects stipulated at Points b and c Clause 1 Article 18 in this Law, exclusive of those classified as the secret projects in the field of national defence and security; and (c) Projects verified by the Government's authorized entities. The Ministries and quasi-ministerial agencies shall inspect the report on environmental impact assessment in respect of projects that shall be permitted under their decision and approval, but are not specified in regulations mentioned at Points b and c Clause 1 of this Article. The Ministry of National Defence and the Ministry of Public Security shall arrange to verify the report on environmental impact assessment in respect of projects that shall be permitted under their decision and approval, and those classified as the secret projects in the field of national defence and security. Provincial People's Committees shall arrange to verify the report on environmental impact assessment in respect of investment projects within their territories that are not regulated at Clause 1, 2 and 3 of this Article.

The Article 26 of LEP describes the responsibility assumed by the project owner after being granted the approval of their report on the environmental impact assessment. These include – Clause 1: comply with the requests specified in the approval of their report on environmental impact assessment. Clause 2: where any change in the project size, capacity and technology applied in the project execution is blamed for the negative impact on the environment in comparison with the alternatives given in the approved report on environmental impact assessment, but is not too serious to make another report as stipulated at Point c Clause 1 Article 20 of this Law, the project owner must send their explanation to the agency who grants the approval of the report on environmental impact assessment, and the project shall be commenced only after obtaining the permission from such agency.

The Article 27 of LEP explains the responsibility assumed by the project owner before bringing the project into operation. These include - Clause 1: apply measures for the environmental protection under the decision on the approval of their report on environmental impact assessment; and Clause 2: notify the agency who grants the approval of the report on environmental impact assessment of the developmental process of environmental protection works functioning as an ancillary part of major projects that can cause bad impacts on the environment in accordance with the Governmental regulations. These projects will be commenced only after the agency in charge of the approval of the report on environmental impact assessment has inspected and certified the completion of environmental protection works.

The Article 28 of LEP mentions the responsibility of the agency in charge of approving the report on the environmental impact assessment. These include – Clause 1: Bear the statutory responsibility for their conclusive result and decision on the approval of the report on environmental impact assessment. Clause 2: Within a period of 15 days as from the date on

which the project owner's report on the completion of environmental protection works under the regulations specified in Clause 2 Article 27 of this Law, the agency in charge of approving the report on environmental impact assessment must examine and issue the certificate of completion of environmental protection works. Where an analysis of complicated environmental criteria is required, the time span for the issuance of the certificate of completion of environmental protection works can be extended for less than 30 days.

The Article 13 of the Decree (No. 18/2015/ND-CP) explains the requirement of the pertaining EIA agencies. Clause 1: the project owner or the advisory organization conducting EIA must meet all requirements – (a) there are staff members in charge of EIA meeting requirements prescribed in Clause 2 of this Article; (b) there is specialist staff members related to the project obtaining at least Bachelor's degrees; and (c) there are laboratories, inspection and calibration devices eligible for performing measurement, sampling, processing and analysis of environmental samples serving the EIA of the project; if there is not any laboratory with decent equipment for inspection and calibration, it is required to have a contract with a unit capable of carrying out inspection and calibration. Clause 2: the staff members in charge of EIA must obtain at least Bachelor's degrees and Certificate in EIA consultancy and Clause 3: the Ministry of Natural Resources and Environment shall manage the training and issuance of Certificates in consultancy of EIA.

In addition, the following Articles are important and since these are relatively new, details have been provided in the Annex.

Article 14: the authorities for different scales of EIA report approval with deadlines

Article 15: re-compilation of EIA reports

Article 16: responsibility of project owners pertaining to the approved EIA reports

Article 17: inspection and confirmation of environmental protection works serving the operation phase of the projects

Article 21: Reporting

3.1.2 Dam safety regulations

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 m³ (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.

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 organize 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 100,000m³ 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).

3.1.3 Land acquisition

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; valueate 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.

3.1.4 Indigenous/Ethnic minority people

Viet Nam has a large number of policies and programs specifically designed to assist ethnic minorities' development. The Government of Viet Nam (GOV) has paid much attention to the welfare of ethnic minority groups. There is a ministerial-level government body, the Committee for Ethnic Minority and Mountainous Area Affairs (CEMA), which is in charge of management functions for ethnic minorities and mountainous areas. A country profile of Viet Nam published by the International Work Group for Indigenous Affairs (IWGIA) reports that:

“Indigenous peoples are full citizens of the Vietnamese state and enjoy constitutionally guaranteed rights to their languages and cultural traditions....On the legislative level, the “Council on Ethnic Minorities” has the mandate to advise the National Assembly on ethnic minority issues and to supervise and control the implementation of the government’s ethnic minority policies and development programs in ethnic minority areas.”

The document also reports that since the 1960s, a number of policies and programs have been designed specifically for ethnic minorities, but these are mainly aimed at integrating them into mainstream society rather than enabling them to strengthen their own institutions. Regarding land issues, it reports that “it is important to highlight that the present legislation in Viet Nam allows for obtaining use right certificates for land and forest and that in 2004 the National Assembly passed a new land law which, most relevant for indigenous peoples, now includes the category of ”communal land”. By introducing the concept of communal land, the new law provides for the possibility of communities to apply for certificates over communal land.

3.2 Implications of National Policies and Regulations on the Proposed Project

Based on the analysis of the national legal framework, the project will have to fulfil the following minimum requirement and process:

- PPMU or the consulting firm conducting EIA must have staff members in charge of EIA must obtain at least Bachelor’s degrees and Certificate in EIA consultancy. They will also have or arrange adequate laboratory facility for performing measurement, sampling, processing and analysis of environmental samples serving the EIA (Ref. Article 13 of Decree).
- Considering the nature of the subproject, the Provincial People’s Committee (PPC) shall assess and approve EIA reports (Ref. Article 14 of Decree). PPC shall arrange to

verify the report on environmental impact assessment in respect of investment projects within their territories (Ref. Article 23 of LEP).

- The assessment of EIA report shall be conducted by the EIA report assessment council established by the Heads of the EIA report assessment authority with at least 07 members. Members of EIA report assessment council shall consist of 01 President, 01 Vice President where necessary, 01 Secretary member, 02 Opponent members and other members, which at least 30 percent of the Assessment council members having at least 06 years' experience in the EIA field (Ref. Article 14 of Decree).
- Deadlines for assessment of EIA report is within 30 working days from the date on which the satisfactory application is received (Ref. Article 14 of Decree).
- PPMU will have to comply requests specified in the approval of their report on EIA. For any change, the project owner must send their explanation to PPC (Ref. Article 26 of LEP).
- PPMU will have to notify PPC and the rehabilitated dam will be commenced only after the agency in charge of the approval of the report on environmental impact assessment has inspected and certified the completion of environmental protection works (Ref. Article 27 of LEP).
- PPMU will prepare a completion report for environmental protection work and within 15 days of receiving the report, PPC must examine and issue the certificate of completion of environmental work (Ref. Article 28 of LEP).
- The inspection of environment protection works serving the operation phase of the subproject shall be carried out by an Inspectorate which is established by the Head of PPC (Ref. Article 17 of Decree).
- The PPC shall send a report on 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 (Ref. Article 21 of Decree).
- MARD shall send reports on assessment and approval for EIA report, 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 (Ref. Article 21 of Decree).

3.3 World Bank Safeguard Policies

The objective of safeguard 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/EXTSAFEPO L/0,,menuPK:584441~pagePK:64168427~piPK:64168435~theSitePK:584435,00.html>.

3.4 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' or 'C' 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 habitats 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 has been 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 Report (DSR) in addition to the ESMP.

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

For proper environmental and social assessment, it is important that a sub-project is clearly defined. The requirement of information will depend of the type and scope of the subproject. This section provides guidance on the key information to be collected for properly describe the subproject. Only the relevant information will be collected.

(1) Name of sub-project :

Name of the sub-project with other relevant information like district, province and region

(2) Brief description of sub-project :

- ***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.
- Describe the characteristics of the catchment area (major river sources, immediate water sources, minimum, average and peak flow of the sources, ecological flow requirement, diversion weir and channel etc.)
- Flooding (annual peak flood), erosion and sedimentation issues.
- Current condition 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.
- Describe the receiving water channel of the spillway (highlight characteristics- types receiving channels- natural stream or manmade, distance with natural stream, whether dry-up, estimated volumetric flow when the spillway is not discharging, estimated volumetric flow rate (estimate) when spillway is discharging, maximum capacity of receiving channels, chances of overflow 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:***
 - o Location with starting and ending points; type, length, width and existing operational issues.
 - o Proposed interventions, such as repairing, upgrading, widening etc. Specify the dimensions and quantity where possible.
- ***Other facilities:***
 - o The management house and other existing facilities, if any, such as administration building available at the site.
 - o Any other ancillary Items
- ***Photographs:***
 - o Some photographs should be added to visually present the current condition of the subproject.

(3) Location map of sub-project :

Attach location map showing the important features including river system, possible borrow pits, quarries, access road, key important environmental and social infrastructures.

(4) Layout of the sub-project :

Attach layout map of the sub-project components.

(5) Brief description of sub-project site :

Indicate the information on present land use, the irrigation command areas, the downstream features, high flood levels for last 30 years and Important Environmental Features³ (IEFs) adjacent the site).

(6) Key construction related issues of sub-project :

Describe briefly the key construction related issues like partial release of water from reservoir before construction, downstream flooding issue, drainage, possible sources borrow pits and quarries etc.

(7) Estimated cost of sub-project :

Mention the estimated cost of the key components in both USD and VND.

(8) Schedule of implementation :

- (a) Sub-project duration (months):
- (b) Tentative start date :
- (c) Tentative completion date :

(9) Potential benefit from sub-project :

³human settlements, educational institutions, health care, pond, canal, river, utility infrastructure , park, green area etc.

Briefly describe the potential benefit of the subproject including estimated number of people benefited and areas to be covered under irrigation.

4.2 Subproject Baselines

It is very important to adequately define the “baseline conditions” against which environmental and social impacts of a particular sub-project would be subsequently evaluated. Baseline conditions of subprojects can be collected based on literature review of recent earlier reports and data collected from different secondary sources. Additional information and data may also be necessary and can be collected through sampling, interview and observations in the field. Baseline information presented in this sub-section should cover at least the following features:

- ***Physical Environment:*** Geology, topography, drainage pattern, soil condition, climate (rainfall and average temperature), dry and rainy season, surface water hydrology including flooding time of the year, flood hazard potential, flow of water, erosion and sedimentation issues; only relevant environmental quality: receiving water quality – both surface and ground water, noise level, ambient air quality.
- ***Biological environment:*** Ecology of the reservoir and receiving (aquaculture, fishing activities and tourism activities; aquatic flora, fauna species, biodiversity values the rare or endangered species), 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.
- ***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. 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.
- ***Physical Cultural Properties and other major infrastructure in the subproject area:*** Cultural/historical/religious sites, tourist destinations, any other sites with archaeological value. In addition, brief information on existing major infrastructure and public services including road and other transportation, power and water supply, drainage, sanitation, waste management, education and health care facilities etc.
- ***Ethnic minorities:*** Briefly describe the ethnic minorities in the subproject influence areas (World Bank policy OP 4.10). This section will be linked with the Ethnic Minority Development Framework (EMDF) and Ethnic Minority Development Plan (EMDP).

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) project footprint area: 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 houses 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 just around the construction site; (ii) impact area: 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 Urgency for Dam Rehabilitation and Safety Improvement

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 cost-effective and sustainable development and would result in significant water-safe strategies.

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 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

<i>Sl. #</i>	<i>Incident</i>	<i>Triggering Factor</i>	<i>Impact on environment, society</i>
1	Water over dam	<ul style="list-style-type: none"> - Unusual flood an storm occurs; water level in reservoir is higher than dam capacity designed - Spillway damaged or inappropriate design 	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Unusual floods occurred, or dam failure 	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Inappropriate design or repair - Irregular maintenance or limitation of budget 	<ul style="list-style-type: none"> - Reduced the yield of products, dramatically - Water lost due to uncontrollable the outflow or seepage - Impacted to domestic water supply - Operation difficulty

<i>Sl. #</i>	<i>Incident</i>	<i>Triggering Factor</i>	<i>Impact on environment, society</i>
4	Dam failure imminent	<ul style="list-style-type: none"> - Extreme seepage at dam foundation and embankment dam occurred - Termite caved - Wrong operation 	<ul style="list-style-type: none"> - People have to evacuate - Have to spend more budget, more people have to response the issue

5.2 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.

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.

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.

Certain criteria need to be evaluated to properly understand the alternative options and their relative advantages and disadvantages. Table 5.3 provides some evaluation criteria to be considered during carrying out the alternative analysis.

Using similar format (Table 5.2 and 5.3), 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.

Table 5. 2: Format for Dam Rehabilitation Alternative Analysis

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

Table 5.3: Evaluation criteria to be considered during carrying out the alternative analysis

Main Criteria	Sub Criteria
Technical Aspects	<ul style="list-style-type: none"> • Robustness • Constructability • Degree of protection • Sedimentation and erosion • Maintenance requirements • History of performance etc.
Financial Aspects	<ul style="list-style-type: none"> • Construction cost and • Maintenance cost
Environmental Aspects	<ul style="list-style-type: none"> • Subproject footprints • Material requirements • Impact on water flow • Impact on reservoir ecology • Impact on receiving channel ecology • Impact on water and air • Other construction related works • Occupational health and safety etc.
Social Aspects	<ul style="list-style-type: none"> • Land acquisition • Resettlement • Ethnic Minority • Impacts on navigation • Impacts on livelihood • Risk of diseases • Other Socioeconomic impacts

CHAPTER VI. POTENTIAL IMPACTS AND GENERAL MITIGATION MEASURES

6.1 Assessment of First year Subprojects

Twelve priority dams from 11 Provinces have been identified to be included in the first year of implementation. All of these are earth embankment dams under the authority of the Provincial Departments for Agricultural and Rural Development. The dams meet the eligibility criteria and are situated in provinces with established PPMUs that have sufficient capacity to start implementation immediately. Of these, seven can be classified as large dams, with six having a height of >15m and one between 10-15m with a storage of >3Mm³. The average storage capacity of the 12 dams identified is 11Mm³, with maximum 73Mm³ and minimum of 0.5Mm³. The Table 6.1 provides the list of the first year subprojects.

Table 6.1: List of the First Year Sub-Projects

<i>No.</i>	<i>Dam</i>	<i>District</i>	<i>Province</i>	<i>Region</i>
1	Ngoi La 2	Yen Son	Tuyen Quang	Northern
2	Ho Ban	Cam Khe	Phu Tho	Northern
3	Dai Thang	Lac Thuy	Hoa Binh	Northern
4	Khe Che	Dong Trieu	Quang Ninh	Northern
5	Dong Be	Nhu Thanh	Thanh Hoa	Central
6	Khe Gang	Quynh Luu	Nghe An	Central
7	Khe San	Quynh Luu	Nghe An	Central
8	Phu Vinh	Dong Hoi	Quang Binh	Central
9	Dap Lang	Nghia Hanh	Quang Ngai	Central
10	Thach Ban	Phu Cat	Binh Dinh	Central
11	Song Quao	Ham Thuan Bac	Binh Thuan	Central
12	Da Teh	Da Huoi	Lam Dong	High land

All rehabilitation/upgrade works will be intended to improve dam safety by repairing damage and correcting design defects and deficiencies (Table - 6.2), strengthening and reinforcing existing structures. Based on the first year sub-project results, about 7 sub-project will increase the height of dam (min: 0.5m, max 2.2m in height), 9 sub-projects will extend the crest of dam (min 1.m, max 7m in width) and 6 subprojects will repair the spillway by increasing the width (by min 7m and max 30m.) But all the mentioned sub-projects are not increase the reservoir capacity, only for strengthening the dams and ensuring flooding control in rainy season.

**Table 6. 2: Current physical safety problems associated with dams components
(On the basis of 12 first year sub-projects)**

Component	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

Based on the assessment of the twelve (12) subprojects, Table 6.3 provides the structural/design issues and proposed repair/upgrading works. 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 repair 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.

These activities may include: (i) acquisition of new lands and right of way; (ii) clearance for construction site (tree cutting and trimming, leveling ground); (iii) 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. The detailed information of the first year priority dams has been provided in Annex-A.

Table 6.3: Structural/design issues and proposed repair/upgrading works

Structural/ Design issues	Proposed works
1. Inappropriate design or spillway damaged	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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.

6.3 General Impact and Mitigation Measures based on 1st Year Subprojects

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.

Benefit of the Project – The 12 first year subprojects will directly benefit 47,042 households and 206,722 people by providing additional safety against dam failure and allowing irrigation water. Out of these people, 9.09% are ethnic minority. Table 6.4 provides the breakdown as per subprojects.

**Table 6. 4: Beneficiary Household
(On the basis of the 12 first year sub-projects)**

<i>Subproject/ Province</i>	<i>Household</i>	<i>Number of people</i>	<i>% Ethnic Minority</i>
1. Ngoi La 2, Tuyen Quang province	2,198	7,194	0
2. Ban, Phu Tho province	1,280	5,663	0
3. Dai Thang, Hoa Binh province	354	1,420	70.1
4. Khe Che, Quang Ninh province	15,305	52,149	2.59
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 Dinh province	355	1,460	0
11. Quao, Binh Thuan province	26,690	106,422	5.9
12. Da Teh reservoir, Lam Dong province	1,614	6,606	8.4
Total	56,537	239,181	9.67

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

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 sections described the generalized impact and are the anticipated social and environmental issues. In addition, guidelines provided in Annex-D on mitigation measures and Annex-E describes the bid specifications-general construction management and contractors' responsibilities (Environmental Code of Practice-ECOP).

6.3.1 Social Issues

Involuntary loss of lands, crops, structures and homes:

Impacts: 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.

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. 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.

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.

Mitigations: 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. 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 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.

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

Related to moving the graves or tombs - there is grave relocation plan. All costs of excavation, relocation and reburial will be reimbursed in cash to the affected family. Graves will need to be exhumed and relocated in culturally sensitive and appropriate ways.

Ethnic minorities could be marginalized:

Impacts: 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 may affect these groups differently compared to the mainstream population. Several affected households may 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, EDMP as per RPF and EDMF 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. According to RAP and EDMP, training and support programs will be implemented 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. Additional mitigation measures may be required to reduce the impact to a low category.

Women's concerns and needs

Impacts: 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 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.

Mitigations: The women concern, needs, priority and safety will be assessed separately. Proper training and facilities have to be ensured so that the livelihood, regular domestic work

and privacy of women will not be affected due to the construction related work. A separate gender action plan will be prepared based on the assessment.

Interruption in irrigation and/or domestic water supply

Impacts: Water supply interruption is likely during construction. This effect occurs due to spillway and outlet works constructions or repairing. 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.

Mitigations: The construction period will selected such a way that it really less impact on the irrigation system. The third crop is not normally related to irrigation water. However, site specific assessment will be carried out as per RPF and compensation will be ensured to the affected people.

Impact to tourism

Impacts: Some of irrigation dams are operating in multi-functional and 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).

Mitigations: The construction program will be designed in such a way that it has less impact during the construction period. All the construction related materials will be managed little far away to create less disturbance. The debris and waste material will be carefully managed. The landscape of the area can be further improved in consultation with local communities and authorities. In addition, RAP will address the compensation of livelihood related to tourism.

Impact to local traffic condition

Impacts: During sub-project implementation, rapid the numbers of transportation vehicles and workers in 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

Mitigations: 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 their access road.

6.3.2 Environmental Issues

Changes in the original landscape

Impacts: There will likely be changes in the original landscape in the construction area and in the borrow 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 using 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. 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.

Mitigations: The efforts will be made to minimum disturbances to the original landscape. The borrow pit and quarries can be filled-up carefully with the construction related debris and the area can be developed to return to its original landscape. 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 re-contoured 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.

Increase sedimentation during construction

Impacts: 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. Removal of vegetation

and earthmoving activity will likely increase sedimentation of the receiving streams. This is expected to be temporary.

Mitigation: The can be minimized by better construction practice and careful assessment of the site location. If required temporary protection measures will be included to reduce the erosion and sedimentation. 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. The slopes shall be stabilized and covered with rip-rap or other materials as necessary. In addition, the vegetation cover should be planted in the region during construction period where the soil has the capacity to support the plantation and at locations where meteorological conditions support quick vegetative growth. On side slopes in hills, immediately after cutting is completed and debris is removed, vegetative growth has to be initiated by planting fast growing species of grass. In regions of intensive rainfall, locations of steep slopes, regions of high soil erosion potential and regions of short growing seasons, erosion control matting should be provided. In post construction stage, all the exposed slopes shall preferably be covered with vegetation using grasses, bushes etc. Locally available species possessing the properties of (i) good growth (ii) dense ground cover and (iii) deep root shall be used for stabilization.

Loss of natural vegetation

Impacts: 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.

Mitigations: The location of the camp site, storage etc. will be selected to create less impact on the natural vegetation. Tree felling, if unavoidable, shall be done only after compensatory plantation of at least three saplings for every tree cut has been planned. The species shall be identified in consultation with officials of authorities/local community, giving due importance to local flora. It is recommended to plant mixed species in case of both avenue or cluster plantation. The plantation strategy shall suggest the planting of fruit bearing trees and other suitable trees.

Change in stream flow patterns and water quality

Impacts: Repairing 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. Before the construction work commences, water in a reservoir will be gradually released and the reservoir water will be maintained in safer level for construction. However, this may impact on temporary environmental flow, hydraulic pattern and aquatic ecology. On the other hand, generating solid waste, debris from constructing areas and camping site may block water flow and cause contamination into water body. But these impacts are most likely to be localized and temporary and close monitoring and better construction management practices can improve the situation.

Mitigations: 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.

Improper disposal of solid and liquid waste including excreta generate from sites will pollute the water quality and proper prevention measure should be taken. Wastewater disposal, sanitation/latrines may have positive cumulative effects on human health, but if not improperly implemented may affect ground and surface and ground water quality; the contractor should give proper attention on it during construction stage. Measures should be taken to protect water bodies from sediment loads by silt screen or bubble curtains or other barriers.

Impact to natural habitats and ecosystems

Impacts: The release of the water from reservoir and construction related activities will disturb the aquatic and terrestrial ecosystem. The activities may lead temporary alternation 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). Another significant impact is the presence of worker camps. Some sensitive species could be affected 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.

Mitigations: Contractor in consultation with concerned authority and local community shall prepare a schedule of construction with in the natural habitat. Due consideration shall be given to the time of migration, time of crossing, breeding habits and any other special phenomena taking place in the area for the concerned flora or fauna. Collection of any kind of construction material from within the natural habitat shall be strictly prohibited. In addition, disposal of construction waste within the natural habitat shall be strictly prohibited. Compensatory tree plantation within the project area shall be done.

Further to above action, training and education programs shall be implemented to increase awareness about the importance of natural habitats and ecosystem 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.

Borrow pit – Opening of new borrow pit will cause negative impact on the landscape, affect existing natural drainage pattern, increase erosion potentials when the existing vegetation cover is replaced with barren soils, cuts and fills, slopes are created. Landslides and sedimentation risks may also be increased in the borrow pit area. Discharges from borrow pits, 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. These impacts can be managed by applying appropriate mitigation measures

Disposal site – is located in existing ponds or low – lying field. Land for disposal site is temporarily acquired, after construction time it will be returned for continuous cultivation. Waste to be dumped at disposal site includes construction waste, unused soil and rock and domestic waste of workers. Thus, if the foundation and surround areas of disposal site are not compacted carefully, there will cause ground water pollution and obstruct drainage for surrounding areas. After finishing construction, cultivation will not be continued if organic soil layer is not be returned. These impacts can be overcome by implementing fully disposal regulations.

Construction waste- Construction process will generate amount of waste including soil, rock, cement bag, residual material etc. Inappropriate arrangement of storage area will obstruct traffic; waste will cause sedimentation in reservoir, obstruct flow and cause environmental pollution if they are not collected and treated timely. These impacts can be mitigated if applying well waste management regulations in construction.

Noise and air quality issues

Impacts: 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. During the construction phase, dust will be generated by material transportation, clearing, grading, excavation, levelling, blasting, truck hauling, stockpiling, waste disposal, road development. In addition, the emission is also expected from construction machineries and transportation vehicles, especially during dry season. Noise will be produced by vehicular movement, excavation machineries, concrete mixing and other construction activities. It contributes an inconvenience condition to the people living around the sites and to the workers. The impacts are likely to be moderate. But these impacts are most likely to be reduced by applying an appropriate mitigation measures.

Mitigations (Noise): 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.

Mitigations (Air Quality): 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.

Paving of the main access road to dam site and to the borrow pit, quarry the disposal areas can be considered if it appears a feasible and cost-effective option. 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.

Local Residents and Worker's Safety, Housekeeping and sanitation at the construction site

Impacts: 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. The population living close to the construction and borrow pit sites will be exposed to a number of temporary risks such as safety hazards associated with the construction activities and vehicular movement, exposure to dust, noise, pollution, infectious diseases, and various hazards, including potential conflict with 'outsiders' to the program influence area about the employment and income. The influx and accommodation of a large work force will result in increased concerns for the health and safety of local population. 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.

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 insecticides and used oil can contaminate surface and groundwater.

Mitigations: *The contractor should ensure* proper safety/warning signs are to be installed by the contractor to inform the public of potential health and safety hazard situations during the construction phase in the vicinity of the project. The construction site shall be regularly cleaned of all debris and scrap materials for the safety of public and workers. The PPE shall be ensured and practiced for the workers. The E&S Consultant and PPMU shall carry out regular inspections in order to ensure that all the measures are being undertaken as per plan.

The contractor 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. Further details have been provided in Annex-D.

Possible spread of communicable diseases

Impacts: 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. – 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. The additional work force in the construction site may cause spreading of communicable and sexually transmitted diseases such as HIV/AIDS. 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.

Mitigations: Awareness and training program for local community and workers to be implemented by the contractor. 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.

Increase in agriculture command area and possible use of fertilizers and pesticides

Impacts: 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. However, the intervention will benefit more areas to be under agricultural command areas. This may result increase use of pesticide and fertilizer.

Mitigations: The PPMU will plan and implement Integrated Pest Management (IPM) as per the Annex-H of this ESMF.

Loss/Alteration of culturally significant areas (if any)

Impacts: Damage or destruction of site contents and newly discovered sites may result from construction and transportation related activities. During clearing activities, there is also the potential of discovering unknown archaeological, historical or cultural site as well.

Mitigations: 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. Chapter XII provides guidelines on physical cultural properties management including ‘Chance Find Procedures’.

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.

Unexploded Ordnance (UXO)

Impacts: One of the ongoing consequences of the War of the 1960s and 1970s is unexploded ordnance (UXO). UXO is uncovered throughout Viet Nam and there are casualties from accidents involving these materials. Mortar shells, aerial bombs, and other unexploded ordnance may all be found within the Project Area. Some de-mining has occurred at shallow depths, however virtually none has occurred in non-productive land or at depths greater than 2 m. 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. Unexploded Ordnance (UXO) may be concerned for some subprojects.

Mitigations: The safe procedures would include: contact responsible agencies and complete the clearance before conducting construction activities. The management of UXO will be carried out as per the government guidance (Please see Annex-L). The feasibility study should address the necessary investigation. In those cases, subprojects will be required to provide a UXO 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.

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 and safety improvement subprojects shall undergo screening, assessment, review, and clearance process before execution of the physical activities. The project will use a structured approach to environmental and social management to allow the project development process, follow the hierarchy of avoidance, minimization, compensation/mitigation for negative impacts and enhancement of positive impacts where practically feasible and advantageous. 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.

7.2 Environmental and Social Screening

Key step in subproject preparation is environmental and social screening. This screening is essential to quickly assess potential environmental and social impacts of the subproject interventions. The screening identifies the consequence of the proposed subprojects in broader sense without having very much detailed investigation. Critical issues are also identified through the screening which needs detailed investigation during the impact assessment. Based on the extent of environmental and social impact obtained from the screening result, the decision for further environment and social impact assessment will be taken. The 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.

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

7.2.2 Technical Screening (Determination of Category and Instrument 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) identify the World Bank safeguard policies triggered; (ii) classify subprojects into A, B, or C categories; 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 subproject (and also major components) will be screened using the format presented in Table-B.2 and Table B.3 (Annex-B). The screening format will also briefly describe 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. In addition, the screening will also check the possibility of Unexploded Ordnance (UXO) and any environmental legacy issue as per form B4.

The screening also provides brief descriptions of 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.

In brief, depending on the results of the screening exercise, following documents will be required at subproject level:

- Full Environmental and Social Impact Assessment (ESIA)/Partial ESIA/ESMP
- Resettlement Action Plan (RAP)
- Ethnic Minority Development Plan (EMDP)⁴
- Gender Action Plan, including Gender Monitoring Plan.
- Due Diligence report for Social Legacy Issues
- Public Health Intervention Plan
- Public Consultation, Participation and Communication Plan
- Community Development Plan⁵

In addition, all dam rehabilitation sub-projects shall adopt the Chance Find Procedure and the Grievance Redress Procedure and attached the duly signed documents as part of the Sub-project proposal package.

⁴ 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 consult with the Bank in case of doubt.

⁵ It 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.

7.3 Impact Assessment

The purpose of impact assessment is to give the environment and social issues due importance in the decision making process by clearly evaluating the environmental and social consequences of the proposed study before action is taken. Early identification and characterization of critical environmental and social impacts allows the public and the government to form a view about the environmental and social acceptability of a proposed development project and what conditions should apply to mitigate or minimize those risks and impacts. In the preparation phase, the ESIA shall achieve the following objectives:

- To establish the environmental baseline in the study area, and to identify any significant environmental issue;
- To assess these impacts and provide for measures to address the adverse impacts by the provision of the requisite avoidance, mitigation and compensation measures;
- To integrate the environmental issues in the project planning and design;
- To develop appropriate management plans for implementing, monitoring and reporting of the environmental mitigation and enhancement measures suggested.

The scope of the ESIA 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.

7.3.1 Impact Assessment Process

The environmental assessment will be conducted using major stages as shown in the following diagram.

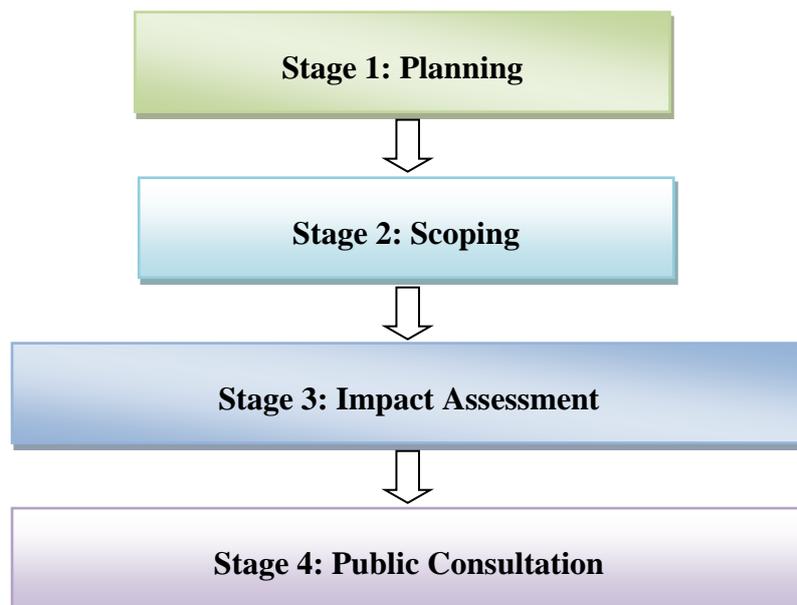


Figure 7.1: Impact Assessment Process

Stage 1: Planning

Soon after the completion of the screening and commencement of planning and design process, based on desk study, reconnaissance survey and experience of earlier projects, detailed methodology and schedule should be prepared for the effective and timely execution of ESIA.

Desk Study: To collect the secondary information and checking out the methodology for carrying out the ESIA study and fixing of responsibilities of the ESIA team members for preparing a complete ESIA.

Reconnaissance survey: To collect the first hand information about the project area and develop a perspective of the entire team and revise the methodology and work program.

Important Points:

- ***Focus on the main issues:*** It is important that the ESIA does not try to cover too many topics in too much detail. Effective scoping can save both time and money by focusing the ESIA studies on the key issues identified in the screening and also review the impacts identified in Chapter VI.
- ***ESIA requires the formation of a multidisciplinary team and the leadership of a strong ESIA Team Leader:*** The range of effects considered in the ESIA requires the skills of technical experts to be employed on an assessment team. The team to be led by a Team Leader. It is important to involve the right professional (e.g., environmental specialist, engineer, ecologist, sociologist, communication specialist etc.) in the ESIA team.
- **Make maximum use of existing information before engaging expensive field studies.**
- **Determination of Project influence Area.** Based on reconnaissance survey and desk study, project influence area will be determined.

Stage 2: Scoping

Scoping will identifies which of the activities has a potential to interact with the environment and social. Scoping will be conducted early in the ESIA process so that a focus on the priority issues (i.e. those that have the greatest potential to affect the natural and/or environment and social issues) can be established for the rest of the ESIA process. Necessary consultation with stakeholders will be made after scoping to incorporate any unattended issues. Key elements/inputs to the scoping exercise will be as follows:

- Gathering and reviewing existing environmental and social baseline data (see chapter IV for details)
- Identifying project stakeholders; including PAPs, Government and non-government agencies (utilities) etc.
- Gathering existing information sources and local knowledge;
- Informing stakeholders of the project and its objectives and get input on the ESIA;

- Identifying the key environmental and social concerns (community and scientific) related to a subproject and the relative importance of issues;
- Defining/preparing the ESIA work program, including a plan for public and stakeholder involvement;
- Defining the range of subproject alternatives to be considered;
- Estimation of raw materials and their sources;
- Obtaining agreement/consensus on the methods and techniques to be used in ESIA studies and document preparation; and
- Finalizing the spatial and temporal boundaries for the ESIA studies.

The following issues will be addressed through scoping, but will not be limited to.

- To improve the quality of ESIA information by focusing scientific efforts and ESIA analysis on truly significant issues;
- To ensure environmental and social concerns identified and incorporated early in the project planning process, at the same time as cost and design factors are considered;
- Reducing the likelihood of overlooking important environmental and social issues; and
- Thinning the chance of prolonged delays and conflicts later in the ESIA process by engaging stakeholders in a constructive participatory process early in the ESIA process.

Stage 3: Impact Assessment

The process of ESIA study is briefly described below.

- Analysis of the subproject design and components: All the components of the subproject and design specifications will be analyzed to get insight of the subproject interventions. This will guide detail environmental and social baseline survey and particular investigations (Also follow the baseline information requirement in Chapter IV).
- Data collection on environmental and social baseline: Environmental and social baseline condition of the proposed subproject to be collected through field visits, surveys and intensive consultation with local people. Intensive consultation with the stakeholders should be carried out for the baseline condition to obtain their perceptions on the proposed interventions and the possible impacts.
- Major Field investigations: At this stage, detailed field survey (social and environmental) will be carried out to obtain information on the possible impact of the interventions on the environmental and social parameter.
- Alternative Analysis: Carryout the subproject alternative analysis following the guidance in Chapter V.
- Assessment of Environmental and social Impacts: The impacts of the proposed subproject on the environmental and social components will be identified through consultation with experts and local community. The impacts will be analyzed and

quantified in order to identify the major impacts. For true impacts prediction following questionnaire will be attempted to answer:

- How will the particular subproject activity give rise to an impact?
- How likely is it that an impact will occur?
- What will be the consequence of each impact?
- What will be the spatial and temporal extent of each impact?

The impact assessment of the subproject should address the following key areas:

- **Assessment of environmental conditions of reservoirs/downstream and past liabilities:** Assess the current environmental conditions of the reservoir and downstream channels. This should include the minimum e-flow requirement, water quality degradation, anthropogenic sources, aquatic weeds, reservoir siltation, downstream erosion etc. Also assess the past liabilities on environmental and social aspects and identify the need for restoration.
- **Impacts on the freshwater environment:** Assess the environmental Impacts of the proposed subproject on the freshwater environment (including impoundment), including (but not limited to) water quality, fish and fish habitat within the environmental assessment boundaries. The impact of project activities on freshwater quality and the benthic environment will be assessed. Predict the environmental effect of any potential deterioration/improvement in water quality on freshwater environment.
- **Impacts on species at risk (flora & fauna):** Assess the environmental Impacts of the proposed project on species considered to be at risk under national, provincial and regional classification systems (i.e., endangered, threatened, species of special conservation status, and rare species) or Red list. Include consideration of any species at risk (flora and fauna) known to occur within the zones of influence of the proposed project.
- **Impacts on terrestrial and wetland environments:** Assess the potential environmental Impacts of the proposed subproject on terrestrial and wetland environments. Predict the potential Impacts on wetland resulting from any deterioration/improvement in water quality.
- **Impacts on air quality and climate:** Assess the environmental Impacts of the proposed project on air quality. The generation of wind-borne dust from the proposed subproject must be considered (including the need (if any) for dust monitoring). Potential project emissions that will contribute to the atmospheric load of Greenhouse Gas (GHG) emissions must be assessed. Also, the potential loss or enhancement of carbon dioxide sinks will be discussed. A discussion of any anticipated impacts of the proposed subproject on the local climate must be included.
- **Impacts of noise on community and workers:** Assess the potential environmental Impacts of noise on nearby communities and workers from dam site preparation, road improvement, transport of vehicles and machineries, resources from borrow pit and quarry, excavation, drilling, levelling and concrete batch mixing etc.

- **Impacts on traffic patterns/road infrastructure:** Assess the potential environmental Impacts of the proposed subproject on traffic. This assessment must take into consideration existing and any predicted changes to traffic patterns/flows and road safety, including a prediction with respect to current/future road infrastructure and use.
- **Impacts on infrastructure and physical cultural properties:** The Impacts of the proposed subproject on existing (and planned) infrastructure in the vicinity of the dam, including water supply conduits, drainage works, pipelines, landfills, and other public infrastructures must be examined. This includes the potential for leakage/spillage or mobilization of hazardous materials. The impact on physical cultural properties (see Chapter XII for guidance) should be assessed during construction and operation period.
- **Impacts on land and resource used by ethnic minorities:** Assess the Impacts of the proposed subproject on the current use of lands and resources for traditional purposes by ethnic minorities.
- **Impacts on raw material sources and decommissioning of ancillary facilities:** Assess impact on quarries, borrow pits, disposal sites, deficient decommissioning of ancillary facilities, uncollected construction materials etc.
- **Other social & economic impacts:** Assess the livelihood impacts of the subproject especially during the construction period. The social and economic benefits and impacts potentially resulting from the proposed subproject must be predicted. Evaluate the environmental and social Impacts of the proposed subproject on land use, including resource harvesting (i.e., within the defined environmental assessment boundaries of the project), and how any change in flood risk could affect land use.
- **Aesthetic/potential visual impacts of the proposed subproject:** This must include identification of features recognized by the local public as being aesthetically preferred, and consideration of professional input related to aesthetics and landscape architecture.

The assessment of impacts largely depends on the extent and duration of change, the number of people or size of the resource affected and their sensitivity to the change. Potential impacts can be both negative and positive (beneficial), and the methodology defined below will be applied to define both beneficial and adverse potential impacts.

The criteria for determining significance are generally specific for each environmental and social aspect but generally the magnitude of each potential impact is defined along with the sensitivity of the receptor. Generic criteria for defining magnitude and sensitivity can be used for the subproject assessment are summarized below.

Magnitude of Impacts: The assessment of magnitude shall be undertaken in two steps. Firstly the key issues associated with the Program are categorized as beneficial or adverse. Secondly, potential impacts shall be categorized as major, medium, minor or negligible based on consideration of the parameters such as:

- Duration of the potential impact;

- Spatial extent of the potential impact;
- Reversibility;
- Likelihood; and
- Legal standards and established professional criteria.

The magnitude of potential impacts of the subproject shall be identified according to the categories outlined in Table 7.1.

Table 7.1: Parameters for Determining Magnitude

Parameter	Major	Medium	Minor	Negligible/Nil
Duration of potential impact	Long term (more than 15 years)	Medium Term Lifespan of the subproject (5 to 15 years)	Less than subproject lifespan	Temporary with no detectable potential impact
Spatial extent of the potential impact	Widespread far beyond subproject boundaries	Beyond immediate subproject components, site boundaries or local area	Within subproject boundary	Specific location within subproject component or site boundaries with no detectable potential impact
Reversibility of potential impacts	Potential impact is effectively permanent, requiring considerable intervention to return to baseline	Baseline requires a year or so with some interventions to return to baseline	Baseline returns naturally or with limited intervention within a few months	Baseline remains constant
Legal standards and established professional criteria	Breaches national standards and or international guidelines/obligations	Complies with limits given in national standards but breaches international lender guidelines in one or more parameters	Meets minimum national standard limits or international guidelines	Not applicable
Likelihood of potential impacts occurring	Occurs under typical operating or construction conditions (Certain)	Occurs under worst case (negative impact) or best case (positive impact) operating conditions (Likely)	Occurs under abnormal, exceptional or emergency conditions (occasional)	Unlikely to occur

Sensitivity: The sensitivity of a receptor shall be determined based on review of the population (including proximity/numbers/vulnerability) and presence of features on the site or the surrounding area. Criteria for determining receptor sensitivity of the Subproject’s potential impacts are outlined in Table 7.2.

Table 7.2: Criteria for Determining Sensitivity

Sensitivity Determination	Definition
Very Severe	Vulnerable receptor with little or no capacity to absorb proposed changes or minimal opportunities for mitigation.
Severe	Vulnerable receptor with little or no capacity to absorb proposed changes or limited opportunities for mitigation.
Mild	Vulnerable receptor with some capacity to absorb proposed changes or moderate opportunities for mitigation
Low / Negligible	Vulnerable receptor with good capacity to absorb proposed changes or/and good opportunities for mitigation

Assigning Significance: Following the assessment of magnitude, the quality and sensitivity of the receiving environment receptor shall be determined and the significance of each potential impact established using the potential impact significance matrix shown in Table 7.3.

Table 7.3: Assessment of Potential Impact Significance

Magnitude of Potential impact	Sensitivity of Receptors			
	Very Severe	Severe	Mild	Low / Negligible
Major	Critical	High	Moderate	Negligible
Medium	High	High	Moderate	Negligible
Minor	Moderate	Moderate	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Stage 4: 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 PPMU 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 PPMU and its consultant capable of responding to questions/comments, appropriately.

7.4 Management Measures

7.4.1 Development of Site Specific Environmental and Social Mitigation Measures

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 (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. 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.

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 specific Contractor Environment and Occupational Health and Safety Plan (CEOHSP) taking into consideration of the subproject ESMP, the bidding document requirements and explain the construction schedule, material, equipment and manpower requirement and plan for mitigating site specific issues. The plan will also include 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. This plan has been reviewed and CEOHSP has to be approved before starting construction. The CEOHSP 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 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.

7.4.2 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:

The monitoring plan will be based on the impact identified and mitigation measures identified. It is important that the E&S consultant prepare a checklist to monitor the implementation of the mitigation plan for both construction and operation phase. Table 7.4 - 7.8 provides some sample construction related monitoring check-lists that would be used by the E&S Consultant and PPMU to verify the mitigation measures taken by the contractor. The contractor performance will be assessed by the monitoring check-list. The PPMU can also enforce penalty for noncompliance of environmental management activities.

Table 7.4: Monitoring Checklist for Air Quality

<i>Potential Impact Source</i>	<i>Mitigation Objective</i>	<i>Mitigation Checklist (Check the following items)</i>
Material transport	Minimization of dust during transport of construction material	<ul style="list-style-type: none"> • Water sprayed prior transportation of rock, sand and other dust producing material? • Trucks covered with tarps? • Only approved transport routes are in use?
Material storage	Minimization of dust during storage of construction material.	<ul style="list-style-type: none"> • Location of stockpiles of materials sited in sheltered areas away from sensitive areas? • Covered with tarps if required?

<i>Potential Impact Source</i>	<i>Mitigation Objective</i>	<i>Mitigation Checklist (Check the following items)</i>
Emissions from construction equipment	Avoidance of excessive emissions due to poorly maintained equipment.	<ul style="list-style-type: none"> • Specification of equipment as agreed in plan? • Regular maintenance of equipment and vehicle? • Any visible emissions from equipment and vehicles?
On-site burning	Avoidance of smoke and gases which may constitute a nuisance.	<ul style="list-style-type: none"> • Random checking on on-site burning in populated areas? • Double check with community?
Dust generating operations	Avoidance of dust generating operations during periods of high wind	<ul style="list-style-type: none"> • In periods of high winds, any dust generating operations within 200 meters of sensitive sites given the direction of the prevailing wind?

Table 7.5: Monitoring Checklist for Water Quality and Quantity

<i>Potential Impact Source</i>	<i>Mitigation Objective</i>	<i>Mitigation Checklist (Check the following items)</i>
Uncontrolled runoff during construction work	Avoidance of inadequately planned runoff due to development of staging areas, labor camps, etc.	<ul style="list-style-type: none"> • Runoff from during construction works managed in a controlled manner? • Temporary septic tank for residential labor camp?
Disruption of Irrigation	Avoidance of interruptions to irrigation flows due to project works.	<ul style="list-style-type: none"> • Interruption of irrigation systems due to subproject works? • Any alternative sources developed as warranted due to temporary interruptions? • Documentary evidence of compensation?
Effects of construction camps & staging areas	Avoidance of inappropriate wastewater disposal and runoff.	<ul style="list-style-type: none"> • Provisions for the location and design standards for land use, drainage, health facilities, etc., are established as per plan?

Table 7.6: Monitoring Checklist for Soils

<i>Potential Impact Source</i>	<i>Mitigation Objective</i>	<i>Mitigation Checklist (Check the following items)</i>
Inadequate slope stabilization	Minimize soil loss during slope creation and due to erosion and slope failure in the longer-term.	<ul style="list-style-type: none"> • Side slopes standards have been established to reduce erosion potential? • Side slopes covered with rip-rap or other material to prevent soil erosion? • Embankment slopes will be stabilized by re-vegetation with grazing resistant plant species, placement of fiber mats, rip-rap, rock gabions, or other appropriate technologies (where appropriate)?
Uncontrolled runoff from project works & labor camps	Avoid soil due to poorly designed and/or maintained constructor and labor camps.	<ul style="list-style-type: none"> • Runoff controlled by proper siting of camps and staging areas?

Table 7.7: Monitoring Checklist for Noise

<i>Potential Impact Source</i>	<i>Mitigation Objective</i>	<i>Mitigation Checklist (Check the following items)</i>
Construction Machinery	Minimize high noise levels, vibrations at time of occurrence	<ul style="list-style-type: none"> • Specification of equipment conforming to agreed standards and directives on noise and vibration? • Use of machinery during restricted time?
Transportation of materials	Minimize high noise levels	<ul style="list-style-type: none"> • Appropriate time of transportation? • Right specifications and regular maintenance of vehicles?
Paving and other rehabilitation activities.	Minimize high noise levels and times of occurrence.	<ul style="list-style-type: none"> • Following restrictive construction hours in sensitive areas? • Use of noise barriers (if planned earlier)? • Public notification of construction activities and timing of activities generating significant noise and vibration levels?

Table 7.8: Monitoring Checklist for Occupational Health and Safety

<i>Potential Impact Source</i>	<i>Mitigation Objective</i>	<i>Mitigation Checklist (Check the following items)</i>
Construction work	Minimize accidental risk	<ul style="list-style-type: none"> • Availability of PPE at project sites? • Use of PPE by the workers? • First aid box at construction site?
Camps conditions	Provide basic services and reduce changes of disease and surrounding pollution	<ul style="list-style-type: none"> • Reliable source of drinking water? • Adequate toilet and washing facilities? • Adequate drainage and temporary septic tank facilities? • Sufficient lighting facilities? • Routine health checking? • Awareness program on communicable disease including HIV/AIDS
Material and equipment transport	Improve traffic safety	<ul style="list-style-type: none"> • Appropriate signs in place? • Flag-men in critical areas for traffic management?

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 -7.9 provides the format to be used developing monitoring plan of specific environmental and parameters during construction and operation phases.

Table 7. 9: 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				
<i>1</i>	<i>Air</i>				
	Checking the trend and quantifying the impacts caused by activities in daily lives and construction	Dust PM10, PM 2.5	measure at the transportation roads, especially in sections passing residential areas	During the high activity or at the peak of construction phase,	QCVN 05:2009/ BTNMT QCVN 06:2009/ BTNMT Responsibility: PPMU through National E&S consultant
<i>2</i>	<i>Surface water</i>				
	Monitoring the water quality.	pH, DO, BOD ₅ , NH ₄ ⁺ , TSS, coliform, turbidity (NTU)	Field survey and analysis in the laboratory	2 times/year	QCVN 08:2008/ BTNMT – follows Column B1 criteria Responsibility: PPMU through National E&S consultant
II	O&M phase				
<i>1</i>	<i>Surface water</i>				
	Monitoring the water quality in the reservoir.	pH, DO, BOD ₅ , NH ₄ ⁺ , TSS, turbidity (NTU)	Field measure Analysis in the laboratory	Generally 2 times in the first year	QCVN 08:2008/ BTNMT follows Column B1 criteria Responsibility: PPMU through National E&S consultant
	Ecological parameter	Aquatic species (if any) to be identified during assessment	Field monitoring and interview local people	Generally 2 times in the first year	Responsibility: PPMU through National E&S consultant

7.4.3 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 CPMU) 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 include 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.

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.

MARD has been designated as the Project Owner. A Central Project Management Unit (CPMU) will be established by appraisal under MARD 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 Environment and Resettlement Division of MARD will be responsible for effective and timely implementation of safeguard activities. MARD will 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 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 ESMP implementation. Information regarding the safeguard measures and performance should be periodically disclosed to the public.

8.1.2 International Environmental and Social (E&S) Technical Assistance Firm

The CPMU will be supported in implementation of the overall project by an Engineering Technical Assistance and an Environmental and Social (E&S) Technical Assistance Firm. These will be international 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. The E&S Technical Assistance Firm will carry out mainly 3 types of activities. These are: (i) assist CPMU for review and clearance of subproject ESIA's, supervision and monitoring of ESIA's and other plans, prepare quarterly and annual reports on implementation of ESMF, RPF and EMDF; (ii) build capacities in the CPMU and provincial level PPMU with regards to environmental and social assessments relevant to the sub-projects; and (iii) carryout basin level cumulative impact assessment link to the Component 2- Dam Safety Management and Planning.

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 detailed scopes of the E&S firm have been provided in the Annex-G (G.1).

8.1.3 Independent Third Party Monitoring

The CPO will hire the services of 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 and Social Management Plans/Environmental Codes of Practice, Resettlement Policy Framework/Resettlement Action Plans, Ethnic Minority Development Plans, and Gender Action Plans among others. The objective and scope of the independent third party monitoring firm has been provided in Annex-G (G.2). In addition, the objective, indicators and methodology of the Independent Monitoring-Social has been provided in Annex-G (G.3).

8.1.4 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.

8.1.5 Provincial Level Project Implementation

The provincial implementation will be carried out mostly with the 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 receive guidance from the CPMU, the Engineering Technical Assistance and the Environmental and Social Service Provider. The project implementation arrangement has been briefly shown in Figure 8.1.

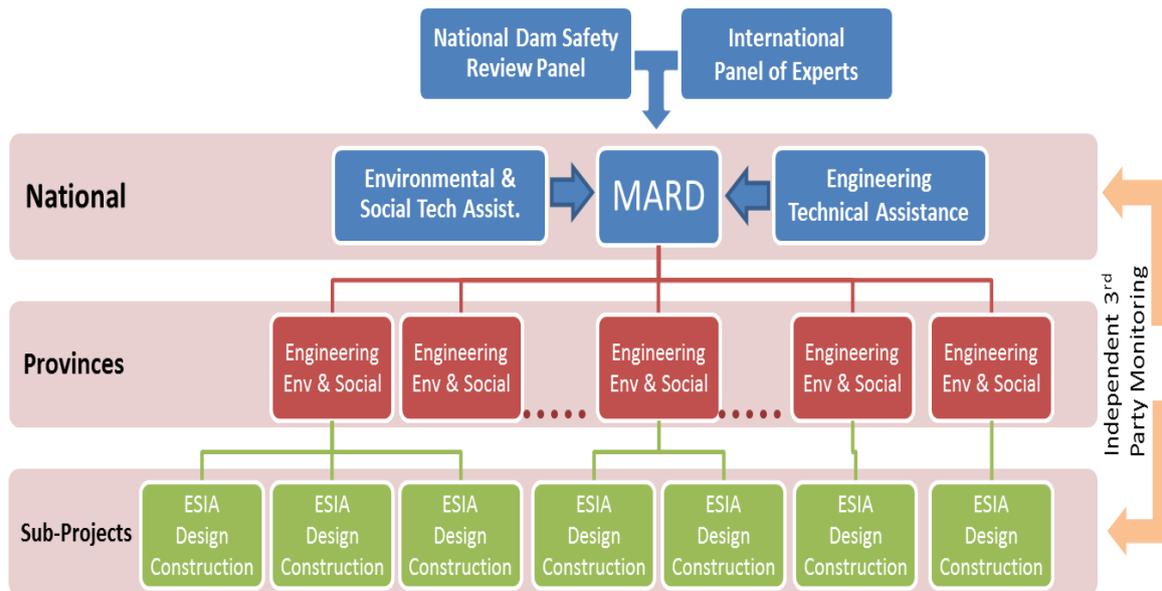


Figure 8. 1: Project Implementation Arrangement

8.1.6 Provincial Level Environmental and Social Firm

Each PPMU will hire the national level Environmental and Social (E&S) Technical Assistance Firm for carry out the ESIA, prepare EMSP, RAP, EMDP and other relevant plans, supervision of safeguard performance of contractor on a regular basis. Since this budget will be provided from provincial budget, each PPMU will hire separately the services of E&S Technical Assistance Firm. All the hired firm will go through the orientation program to understand the requirement of the project on ESIA. Provincial E&S Firm will carry out, but not limited to, the following tasks:

- Carryout the environmental and social screening and ESIA.
- Prepare the ESMP, RAP, EMDP and other relevant plan as per requirement of ESMF and based on the assessment of the subproject.
- 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 ESIA 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.

8.1.7 Contractor

The contractor will recruit an Environmental, Health and Safety Manager (EHSM), who will be responsible for all planning and implementation of safeguard measures to be carried out by the contractor, including preparation of the specific Contractor Environment and Occupational Health and Safety Plan (CEOHSP) 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 CEOHEP in compliance with the ESMP and 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 CEOHEP.
- Support the PPMU and E&S firms in conducting regular and periodic monitoring of safeguard performance of construction contractors.

8.1.8 Provincial People's Committee

According to the Decree on Environmental Protection Planning, Strategic Environmental Assessment, Environmental Impact Assessment and Environmental Protection Plans (No. 18/2015/ND-CP) dated February 14, 2015, the Provincial People's Committees (PPC) shall have the responsibility to establish the council or organize the selection of review service organizations to review environmental impact assessment reports of the projects that take place within their territories and subject to their competence of decision and approval and that of the People's Councils of the same level. Considering the nature of the subproject, the PPC shall assess and approve EIA reports (Ref. Article 14 of Decree). PPC shall arrange to verify the report on environmental impact assessment in respect of investment projects within their territories (Ref. Article 23 of LEP). The PPC shall send a report on 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 (Ref. Article 21 of Decree).

8.2 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.

8.3 ESIA Preparation, Review, Disclosure and Approval

ESIA Preparation:

Project Owner will be overall responsible for the ESIA preparation. On behalf of project owner, the Provincial/Regional E&S Consulting Firm will be assigned for environmental and social screening and preparation of the ESIA following the guidelines mentioned in the ESMF. Consultation is the essential part of the ESIA preparation.

Internal Review:

Once the Draft Final ESMF has been submitted by the Provincial/Regional E&S Firm, the report will be first reviewed by PPMU with field cross-checking.

PPMU then submit the Draft Final ESIA to CPMU for further review and clearance to proceed. On behalf of the CPMU, the International E&S Firm will review the screening report, ESIA and relevant plans in detail. The International E&S firm will check the relevant information, impact assessment and robustness of the mitigation and monitoring plan. Field verification will be required in the process. Based on the recommendation of the International E&S Consultant, CPMU will notify the PPMU for processing the government clearance.

During the review process, both PPMU and CPMU can ask further detailed information and analysis and the report needs to be updated.

Disclosure:

ESIAs including other relevant plans of subproject prepared during project implementation will be disclosed locally before approval of these subprojects. These documents will be posted in the official website MARD and Provincial level 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 of category 'A' subproject will be disclosed in the Infoshop of the World Bank.

Government Approval Process:

PPMU will submit the Draft Final ESIA Report to the Provincial People's Committee (PPC). Considering the nature of the subproject, the Provincial People's Committee (PPC) shall assess and approve ESIA reports PPC shall arrange to verify the report on environmental social impact assessment in respect of investment projects within their territories. The assessment of ESIA report shall be conducted by the EIA report assessment council established by the Heads of the EIA report assessment authority with at least 07 members. Members of EIA report assessment council shall consist of 01 President, 01 Vice President where necessary, 01 Secretary member, 02 Opponent members and other members, which at least 30 percent of the Assessment council members having at least 06 years' experience in the EIA field. Deadlines for assessment of ESIA report is within 30 working days from the date on which the satisfactory application is received. PPMU will have to comply requests specified in the approval of their report on EIA. For any change, the project owner must send their explanation to PPC.

World Bank Review and Clearance:

The World Bank will review the ESIA's of all category 'A' subprojects and also the ESIA of first subproject (irrespective of category) of each province. However, this process will be reviewed time to time and once the capacity has been built with the support of the E&S consultant, the World Bank will randomly review some ESIA's.

8.4 Integrating EMSP and Bid Specification in Bidding Process

After the approval of the ESIA, PPMU is responsible to ensure that ESMP and Bid Specification have been included in the Bidding Document. The cost for the environmental and social management needs to be allocated for the subproject contract. CPMU will confirm that the bidding document has been properly included the ESMP and bidding specification and adequate budget has been allocated.

8.5 Contractor's Environment and Occupational Health & Safety Plan (CHOHSP)

As mentioned earlier, the winning contractor/bidder will prepare Contractor Environment and Occupational Health and Safety Plan (CEOHSP) taking into consideration of the subproject ESMP, the bidding document requirements and explain the construction schedule, material, equipment and manpower requirement and plan for mitigating site specific issues. This plan will be reviewed by E&S consultant firm both at Provincial level and Central level. The plan will be approved by CPMU with the recommendation by Central level E&S firm.

8.6 Implementation of ESMP and CEOHSP, Supervision and Reporting

The contractor is responsible for implementation of ESMP and CEOHSP of the subproject. The Environmental, Health and Safety Manager (EHSM) will play the key role in managing the environmental and social management of the subproject. The contractor will have to follow all environmental mitigation and management measures as defined in the technical specification, ESMP and CEOHSP. The contractor has to ensure that a comprehensive Health and Safety Program in place for the workers and also nearby community during the

construction period. Prior to monsoon season during construction, the contractor will ensure that all temporary or permanent drainages are free from construction related debris.

The contractor will self-monitor the mitigation measures and prepare monthly report for submission to PPMU. On behalf of PPMU, the provincial E&S consultant will review the monthly report. Both Provincial E&S consultant and PPMU will review the regular implementation of the mitigation and monitoring plan. In addition, the provincial E&S consultant will prepare the quarterly monitoring report and provide recommendation to further strengthen the implementation of the mitigation and monitoring plan. Non-compliance by contractor will be reported by E&S consultant and PPMU will impose penalty for any noncompliance of agreed action plan. PPMU will submit a quarterly safeguard progress report of implementation of mitigation and monitoring plan in the province to PMU within 10 days after end of quarter.

On behalf of CPMU, the International E&S firm will monitor the implementation of mitigation and monitoring plan of each subproject at least once in each quarter. They will also prepare their on monitoring report 15 days after end of quarter. It will include the key steps, outputs and results of the environmental management actions taken for all investments throughout the project cycle. The International E&S firm will review and comment on the provincial quarterly progress report.

During the usual investment supervision activities, the CPMU will check with local environmental authorities to determine if the project implementation is meeting all specified ESMF, ESIA and ESMP requirements. They will also perform supervision site visits to the various stages of investments construction to confirm the ESMP and CEOHSP are 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 CPMU will include an environmental section in every report prepared for the World Bank. As appropriate, the section will discuss details of any environmental and 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.

8.7 Completion Certificate and Reporting

PPMU will have to notify PPC and the rehabilitated dam will be commenced only after PPC (approval authority of EIA) has inspected and certified the completion of environmental protection works.

PPMU will prepare a completion report for environmental protection work and within 15 days of receiving the report, PPC must examine and issue the certificate of completion of environmental work.

The PPC shall send a report on 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.

MARD shall send reports on assessment and approval for EIA report, 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 15.

8.8 Monitoring during Operation Phase

PPMU and the Provincial E&S firm will continue to continue to monitor the operation and carryout the parameter testing as agreed in the Monitoring Plan for the first year of operation. After first year, PPMU will continue to monitoring by own officials. CPMU will also periodically monitor the operation phase issues.

According to the Decree on Environmental Protection Planning, Strategic Environmental Assessment, Environmental Impact Assessment and Environmental Protection Plans (No. 18/2015/ND-CP) dated February 14, 2015, the inspection of environment protection works serving the operation phase of the subproject shall be carried out by an Inspectorate which is established by the Head of PPC (Ref. Article 17 of Decree).

Based on the field visit, the International E&S firm will prepare a six-month report on safeguard for subprojects under operation phase. CPMU will review the report and send to the World Bank before the implementation support mission.

8.9 Summary of Process

The Table 8.1 summaries the process and key responsibility related to the project environmental and social assessment, clearance, implementation, monitoring and report.

Table 8.1: Summary of the Safeguards Process

<i>Subproject Stage</i>	<i>Safeguard Activities</i>	<i>Responsibilities</i>
Identification and field verification	Environmental and Social Screening using the DRSIP Sub-project Screening Form and determination of required instruments (e.g. full ESIA, partial ESIA or ESMP, RAP, EMDP etc.)	PPMU and the Local Dam Management Unit (technical support from National E&S Firm)
Confirmation	Review of screening results and confirmation of required safeguard instruments	CPMU (technical support from International E&S Firm)
Preparation of subproject proposal package (i.e. Feasibility Study/Detailed Engineering/Program of Work preparation)	Consultation with local communities	PPMU and the Local Dam Management Unit (technical support from National E&S Firm)
	Dam safety assessment and preparation of dam safety report or dam safety inspection report	PPMU and the Local Dam Management Unit (technical support from engineering firm)
	Environmental and Social Impact Assessment (ESIA) and/or ESMP	PPMU and the Local Dam Management Unit (technical support from National E&S Firm)
	Preparation of requirements from the RPF and EMPF (e.g., RAP, EMDP)	PPMU and the Local Dam Management Unit (technical support from National E&S Firm)
Internal review and clearance	Review of subproject proposal package and issuance of safeguards clearance	CPMU (technical support from International E&S Firm)
	Review of subproject engineering design	PPMU, National Dam Safety Review Panel, and DRSIP international Panel of Experts
	Disclosure of safeguards instruments. At the instance of CPO during the internal review, all subproject safeguards documents (i.e. ESIA/ESMP, EMDP, RAP) shall be disclosed in Vietnamese and English Language at a government website.	PPMU for disclosure at provincial level CPMU for disclosure at national level
Clearance as per National Regulatory Framework	Considering the scope of the subproject, all subproject ESIA will be cleared by Provincial People's Committee (PPC)	Submission: PPMU Clearance: PPC
World Bank Review and approval	All <u>Category A</u> subprojects and the <u>first subproject to be procured by each Province</u> shall be submitted to the World Bank for review and issuance of "No Objection".	Submission: CPMU Review and Clearance: World Bank
Procurement Stage (Preparation of Bidding documents; Bidding; Award of Contracts.)	ESMP and Bid Specification have been included in the Bidding Document. The cost for the environmental and social management needs to be allocated for the subproject contract.	PPMU Confirmation by CPMU
	Setting up of a Grievance Redress Mechanism for the subproject.	PPMU Confirmation by CPMU and also formation in central level.
	Start of the implementation of RAP and EMDP, if any, is required.	DARD-PPMU and local administrative agencies

<i>Subproject Stage</i>	<i>Safeguard Activities</i>	<i>Responsibilities</i>
Construction (Issuance of Notice to Proceed to winning bidder, construction)	Preparation of CEOHSP - Winning contractors shall prepare their own Environmental and Occupation Health and Safety Plan (CEOHSP) as a requirement for the issuance of Notice to Proceed construction by PMU	Doc Preparation: Contractor; Endorsement: PPMU (technical support from National E&S Firm) Review and approval: CPMU (technical support from International E&S Firm) Implementation of Plans: Contractors
	Monitoring for compliance with the measures in the ESIA/ESMP, CEOHSP, RAP and EMDP and of selected environmental quality parameters	Daily Site Monitoring: Construction Supervision Consultant and Self-monitoring of Contractor Regular monitoring: PPMU (technical support from National E&S Firm) ;
	Periodic Monitoring	CPMU (technical support from International E&S Firm)
	Independent Monitoring in terms of subproject compliance with the ESMF, RPF, EMPF, DSF, ESMP, RAP and EMDP.	Third Party Monitoring Firm hired by CPMU
	Ex-post review and site inspection by World Bank Implementation Support Missions of selected subprojects.	World Bank
Reporting	Monthly progress report and self-monitoring report	Contractor
	Provincial level quarterly monitoring report	PPMU (technical support from National E&S Firm)
	Central level quarterly monitoring report	CPMU (technical support from International E&S Firm)
	Annual Reporting to MoNRE on assessment and approval for EIA report, inspection and approval for environment protection works	Provincial level: PPC National Level: MARD
Completion	Issuance of Certificate of Completion or any document as basis for final contractor payment shall require clearance from any outstanding environmental and social liabilities as per contract.	PPMU (report to PPC) PPC: inspection and certification of completion of environmental works
Operation	Monitoring during operation phase	PPMU Six-monthly monitoring: CPMU

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.

During the ESMF preparation, the overall capacity at central level and provincial level has been reviewed. There are few officials who have professional training and affiliation with safeguard operation. In order to ensure proper ESIA preparation, implementation and supervision, additional consultant support required both at provincial and central level during the project implementation phase. However, MARD will also support in developing its staff capacity on environmental and social issues utilizing the project technical assistance provision.

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 and social management purposes within institutions, in particular at the local levels. Staffs from other departments are usually assigned duties related to environmental and social management. As a result, sufficient knowledge on environmental and social 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 and social 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 organization capacity

With the experiences over 20 years, CPO at MARD 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 (WB3, WB5 and WB7) related to the reservoir and dam safety are under implementation.

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.

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, CPO, CPMU, PPMU 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:

<i>No</i>	<i>Contents</i>	<i>Subjects</i>
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

During the implementation, further capacity development need assessment will be carried out and the capacity building program will be redesigned according to the need and targeted improvement in project implementation.

In summary, the International E&S firm will lead the capacity building process. With CPMU coordination, they will organize the capacity building training for PPMU and Provincial level E&S consultant. Similarly, PPMU and Provincial E&S Consultant will organize orientation program for the contractors. The winning contractor is responsible for carrying out the training of workers to ensure proper occupational health and safety, better housekeeping and effective environmental management. The IPM training will also be organized according to subproject plan.

CHAPTER X. ESMF IMPLEMENTATION BUDGET

In order to successfully implement the environmental and social management activities, adequate budget should be ensured. Both the Government and the World Bank will co-finance the environmental and social management budget. The total estimated budget for environmental and social management is US\$35.6 million. The World Bank will contribute US\$20.6 million and rest will be allocated by the Government. The allocations of budget are as follows:

Summary of total estimation cost shows in Table 10.1.

Table 10. 1: Summary of total costs and budget estimation

	Category	Implementation cost		Finance resources	
		VND (Bill.)	US\$ (Mill.)	WB	Counterpart
1	Environmental impact mitigation measures implementation	359.2	17.1	x	
2	Environmental and social safety monitoring plans	32.9	1.5	x	
3	Capacity building	6.61	0.3	x	
4	Gender action plan	15.35	0.7	x	
5	Ethnic Minority Development Plan	21.93	1.0	x	
6	Compensation and resettlement	328.95	15		x
	Total	764.94	35.6		

The budget allocation and requirement will be implemented during the project implementation and the adjustment may be needed based on the field requirements.

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 CPO 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. The adopted procedure will be included in the Sub-project document package that will be submitted to the relevant organizations for review and clearance.

11.2 Approach for the Project

Grievance mechanisms will be an important part of the project requirements related to community engagement by clients under the Policy and Performance Standards on Social and Environmental Sustainability. MARD will establish a grievance mechanism to receive and facilitate resolution of the affected communities' concerns and complaints about the environmental and social performance. The grievance mechanism will 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 will 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. Grievance mechanism requirements in relation to affected communities are explicitly stated with regard to security personnel, land acquisition and adverse impacts on indigenous peoples.

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 will offer MARD 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

The project grievance mechanism is 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.

The project grievance mechanism is designed with participation of all affected groups. It is based 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 MARD 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.

The grievance mechanism also gives MARD 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, CPMU will cooperate with the District Resettlement Committee to participate in and consult on settling complaints.

Personnel: The Environmental and Resettlement staff assigned by CPMU 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 CPMU.

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 the 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 CPMU 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 ESIA preparation as well as developing the ESMF.

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 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	-	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - 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

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 organization 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 plan are very important, the reason is promotion of the person in local to involve the project activities, such as supply food, part-time job and services
- Have to hire the third environmental and social consultant to monitor the compliance of the construction contractor 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. ESMP is locally disclosed at the sites and in the Vietnam Development Information Centre of the World Bank in Hanoi

The report of ESIA, 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 organizations, People's Committee of provinces. ESIA, RAP, DRS, EDMP 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, ESIA 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

<i>Sub-Project</i>	<i>Location (province)</i>	<i>Height of dam (m)</i>	<i>The investment items</i>
Repairing and improving the safety of Khe Che reservoir, Dong Trieu District	Quang Ninh	12.5	<ul style="list-style-type: none"> • Concrete dam surface with 658m in length 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 • Hard nose the access and management road with 140m in length, 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	<ul style="list-style-type: none"> • Treat water seepage by using jet grouting technique to embankment with length is 556m, keep original 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 length • Reinforce access and management road by concrete with length is of 1.885m.
Repairing and improving the safety of Ban reservoir, Cam Khe district	Phu Tho	11	<ul style="list-style-type: none"> • 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 length is of

			<p>6,5m, 10m in width,, remain the spillway crest is of 31,5m;</p> <ul style="list-style-type: none"> • 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 108m²; • 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	<ul style="list-style-type: none"> • 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 length 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 length is 110m • Construct a new management house with total of the building is 50m²; • 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	<ul style="list-style-type: none"> • 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 with total areas of the building is of 60m².
Repairing and improving the safety of Khe Gang reservoir , Quynh Luu District	Nghe An	12,5	<ul style="list-style-type: none"> • 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

			<p>of 49m, tube type D800</p> <ul style="list-style-type: none"> • Construct a new of new management house with an area of 55m²; • Concrete the access and management road with length is of 303,4m.
Repairing and improving the safety of Khe San reservoir , District Quỳnh Lư	Nghe An	14,5	<ul style="list-style-type: none"> • 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 80m² at downstream of dam, 150m to right abutment of dam.
Repairing and improving the safety of Phu Vinh reservoir, Dong Hoi city	Quang Binh	27,6	<ul style="list-style-type: none"> • 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 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; with 599m in length
Repairing and improving the safety of Dap Lang reservoir, Nghia Hanh	Quang Ngai	13,1	<ul style="list-style-type: none"> • 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

District			<p>seepage by using Jet grouting technique;</p> <ul style="list-style-type: none"> • 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 42m².
Repairing and improving the safety of Thach Ban reservoir, Phu Cat District	Binh Dinh	12,1	<ul style="list-style-type: none"> • Upgrade, repair the main dam with the length is of 897m remain the crest of dam crest with 52,5m , extend and reinforce by concrete the surface of dam from 4m to 5,8m; Reinforced upstream slope by slabs concrete, plant grass on downstream slope • Reinforce and repair the spillway, construct a new section of the spillway crest with length is 5m and spillway with length is 11,10m. Leveling the spillway crest from 50,6m to 50,8m. • Construct a new outlet works with the length is of 60m by steel tube type D600 • Concrete access and management road with the length is of 845m.
Repairing and improving the safety of Da Teh Reservoir, Da Teh District	Lam Dong	27,3	<ul style="list-style-type: none"> • 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, construct a new parapet wall up to 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 150m²; • Reinforce the access and management road by concrete, the road 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 length is 150m) and auxiliary dam 3 (with length is 325m); Construct a new spillway no.2 by concrete, the spillway crest is of 84m elevation; Repair and upgrade access and management road no.1, 2, 3, 4, 5 with total length 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 outlet works at the North of reservoir
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Table - A.2: Beneficiary Household in the First Year Sub-Projects

<i>Subproject/ Province</i>	<i>Household</i>	<i>Number of people</i>	<i>% Ethnic Minority</i>	<i>Ethnic minority people</i>
1. Ngoi La 2, Tuyen Quang province	2,198	7,194	0	Kinh
2. Ban, Phu Tho province	1,280	5,663	0	Kinh
3. Dai Thang, Hoa Binh province	354	1,420	70.1	Kinh, Muong
4. Khe Che, Quang Ninh province	15,305	52,149	2.59	Kinh, Tay, Thai, Hmong, Dao, San Chay, San Du, Thoi, Son Chay, Son Dou, Muong, Hoa, Nung, Giay, Lao, Kho Me.
5. Dong Be, Thanh Hoa province	4,178	18,800	24.17	Kinh, Muong, Thai, Tay, Tho.
6. Khe San, Nghe An province	1,800	8,990	0	Kinh
7. Khe Gang, Nghe An province	1,890	9,072	0	Kinh
8. Phu Vinh, Quang Binh province	4,600	27,600	0	Kinh
9. Dap Lang, Quang Ngai province	346	1,651	0	Kinh
10. Thach Ban, Binh Dinh province	355	1,460	0	Kinh
11. Quao, Binh Thuan province	26,690	106,422	5.9	Kinh, Gialay, Khome, Tay
12. Da Teh, Lam Dong province	1,614	6,606	8.35	Kinh, Chau Ma, Tay, Nung
Total	57,132	247,027	9.67	

Table - A.3: Local Infrastructure Protected by the First Year Sub-Projects Implementation

<i>Sub-project/ province</i>	<i>Protect construction</i>						
	<i>Road (km)</i>	<i>Canal (km)</i>	<i>School</i>	<i>Medical Centre</i>	<i>Office</i>	<i>Water supply</i>	<i>Power supply</i>
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

<i>Sub-project/province</i>	<i>Protection</i>					
	<i>Agricultural cultivation (ha)</i>	<i>Forest land (ha)</i>	<i>Aquatic cultural (ha)</i>	<i>Fruit/industry plants</i>	<i>Forest fire reduction</i>	<i>Others</i>
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 Binh	1,041	0	80	0	0	0
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)

<i>Sub-project</i>	<i>Province</i>	<i>AH</i>	<i>Reallocation/ resettlement HH/person</i>	<i>Displacement s/ resettlement HH/person Indig./ethnic</i>	<i>permanent land acquisition (m²)</i>	<i>Temporary land acquisition (m²)</i>	<i>Affected Resident areas (m2)</i>	<i>Affected Agri.land (m2)</i>	<i>Grave relocation</i>	<i>Affected Infrast.</i>
1. Ngoi La 2	Tuyen Quang	12	01/04	0	22,100	2,000	300	0	0	77 m ² concrete house
2. Ho Ban	Phu Tho	15	0	0	15,000	11,000	0	15,000	0	0
3. Dai Thang	Hoa Binh	257	1/4	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	1	0	0	0	4,000	0	0	0	0
5. Dong Be	Thanh Hoa	13	0	0	0	10,815	0	4,910	0	0
6. Khe San,	Nghe An	03	1/4	0	14,200	10,000	2,000	0	0	70 m ² (house?) +15 m ² (house)
7. Khe Gang	Nghe An	01	0	0	5,000	10,000	0	0	0	0
8. Phu Vinh	Quang Binh	24	0	0	67,805	0	0	0	0	0
9. Dap Lang	Quang Ngai	284	0	0	13,778	39,875	0	13,778	0	0
10. Thach Ban	Binh Dinh	357	0	0	1,611	0	0	76,500	0	46 m ² non-concreted house
11. Song Quao	Binh Thuan	18	10/39	0	164,332	0	2,332	162,000	0	298m ² house (IV)+ 154m ² non-concreted construction house
12. Da Teh	Lam Dong	0	0	0	0	10,000	0	0	0	0

<i>Sub-project</i>	<i>Province</i>	<i>AH</i>	<i>Reallocation/ resettlement HH/person</i>	<i>Displacement s/ resettlement HH/person Indig./ethnic</i>	<i>permanent land acquisition (m²)</i>	<i>Temporary land acquisition (m²)</i>	<i>Affected Resident areas (m2)</i>	<i>Affected Agri.land (m2)</i>	<i>Grave relocation</i>	<i>Affected Infrast.</i>
Total		985	13/51	0	319,761	102,128	2,332	291,561	0	

Table- A.6-Summaries 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, Dai Thang, Thach Ban, Dap Lang, Song Quao, Ngoi La 2, Ho Ban, Phu Vinh.	- 31.9 ha	- Pre-construction (Site clearance) - Construction
2	Temporally land acquisition	Khe Gang, Khe San, Dong Be, Dai Thang, Dap Lang, Khe Che, Ngoi La 2, Ho Ban, Da Teh	- 10.2 ha	- Pre-construction (Site clearance) - Construction
3	Relocation of households	Ngoi La 2, Dai Thang, Khe San and Song Quao	- 13 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	Dai Thang, Dap Lang and Thach Ban	- 175 ha of arable land - 865 AHHs	- 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 clearance) - Construction - Camping site
8	Separation or fragmentation of habitats of flora and fauna	Khe Gang; Dong Be; Ho Ban	- Fauna: 30 species - Flora: 25 species	- Construction
9	Removal of vegetation cover or cutting down of	Khe Gang; Khe San; Dong Be		- Pre-construction (Site Clearance)

	trees			
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 during construction phase	Khe Gang, Khe San, Ngoi La 2, Ho Ban, Phu Vinh, Da Teh		- Construction (digging and leveling, transporting materials)

19	Construction that could cause disturbance to the transportation, traffic routes	Dong Be, Khe Che, Song Quao,		<ul style="list-style-type: none"> - Pre-construction (gathering materials) - Construction
20	Risk to landslide spillway areas	Khe Che		<ul style="list-style-type: none"> - Operation
21	Use of explosive	Song Quao, Ho Ban, Phu Vinh		<ul style="list-style-type: none"> - Pre-construction (Site Clearance, land mines clearance) - Construction (construction the spillway no.2)
22	Use of hazardous chemicals	Ho Ban, Da Teh, Phu Vinh		<ul style="list-style-type: none"> - Pre-construction (Site clearance) - Construction

DRSIP Environmental and Social Management Framework

Annex- B: Environmental and Social Screening Form

Subproject Name	
Brief description of Repair/Upgrading Works	
Subproject Location	
Subproject Proponent	
Estimated Investment	
Start/Completion Date	

B.1: Eligibility Screening

Screening Questions	Yes/No	Remarks, (If yes?)
1. Would the proposed repair and upgrading works lead to an increase in the reservoir's design storage capacity?		If yes, sub-project is not eligible for funding.
2. Would the subproject use land of natural parks, wildlife sanctuary, land of national historical-cultural monument, world heritage site, critical natural habitat, protected area of natural habitat, and would lead to significant loss or conversion of that habitat, natural forest, natural park or reserve?		If yes, the sub-project is not eligible for funding.
3. Would the propose repair and upgrading work 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?		If yes, then the sub-project is not eligible for funding.
4. Would there any territorial dispute between two or more countries in the subproject and its ancillary aspects and related activities?		If yes, then the subproject is not eligible for funding.

B.2: World Bank Policies Triggered

Questions	Yes/No	If Yes WB Policy triggered	Requirements
1. Would the subproject likely to have adverse environmental and social impacts Please provide brief description: _____ -----		<i>OP 4.01 Environmen t Assessment</i>	Addressed in ESIA

Questions	Yes/ No	If Yes WB Policy triggered	Requirements
2. Would the subproject adversely impact physical cultural resources? ⁶ Please refer to item 3 of Table A for ineligible impacts. Provide brief description of the impacts: _____ _____		<i>OP 4.11 Physical Cultural Resources</i>	Addressed in ESIA (ESIA with PCR Management Plan and/or Chance Find Procedures)
3. Would the subproject involve any conversion or degradation of non-critical natural habitats? Please refer to item 2 of Table A for ineligible impacts. Provide brief description of likely impacts: _____ _____		<i>OP 4.04 Natural Habitats</i>	ESIA must include assessment of the natural habitat, the impacts of the SP, and mitigation measure.
4. Is the dam/reservoir to be repaired/upgraded a large dam as defined under OP 4.37 (i.e. has a maximum crest height of 15 m or higher, Or has reservoir storage capacity of 3 million cubic meters or more)?		<i>OP 4.37 Dam Safety is triggered for all DRSIP subprojects</i>	If Yes: SP is subject to Panel of Experts Review; Must submit Dam Safety Plan, including Emergency Response Plan. If No: SP must submit Dam Safety Plan including Emergency Response Plan
5. Would the proposed repair/upgrading works involve procurement or use of chemical pesticides (such as for control of termites, either directly through the project funding, or through government counterpart funding)?		<i>OP4.09 Pest Manage- ment</i>	Prepare a Pest Management Plan
6. Would the proposed dam repair and upgrading works indirectly result to long term increase in pesticide use in the irrigation service area?		<i>OP 4.09 Pest Manage- ment</i>	Include as part of the mitigation measure in the ESMP, the introduction/promotion of the IPM approach by CPMU and PPMU in the irrigation service area.
7. Does the sub-project involve involuntary land acquisition, loss of assets or access to assets, or loss of income sources or means of livelihood? Please provide brief description: _____		<i>OP 4.12 Involuntary Resettlement</i>	Resettlement Action Plan (RAP) following the DRSIP Resettlement Policy Framework.

⁶ Examples of physical cultural resources are archaeological or historical sites, including historic urban areas, religious monuments, structures and/or cemeteries particularly sites recognized by the government.

Questions	Yes/ No	If Yes WB Policy triggered	Requirements
<p>8. Are there any ethnic minority communities present in the sub project area and are likely to be affected by the proposed sub-project negatively or positively? Please provide brief description:</p> <p>_____</p>		<i>OP 4.10 Indigenous People</i>	Ethnic Minority Development Plan/Indigenous Peoples Plan based on the DRSIP EMDF.
<p>9. Would the proposed repair and upgrading works have the potential to have impacts on the health and quality of forests or the rights and welfare of people and their level of dependence upon or interaction with forests; or aims to bring about changes in the management, protection or utilization of natural forests or plantations? Please provide brief description:</p> <p>_____</p>		<i>OP4.36 Forestry</i>	The ESIA must include assessment of impact on forest and forest-dependent peoples and mitigation measures following the requirements in OP 4.36.
<p>11. Would the subproject and its ancillary aspects and related activities, including detailed design and engineering studies, involve the use or potential pollution of, or be located in international waterways⁷?</p>		<i>OP7.50 Projects on International Waterways</i>	Notification (or exceptions) This is for record, no action required at subproject level.

⁷ International waterways include any river, canal, lake or similar body of water that forms a boundary between or any river or surface water that flows through two or more states.

B.3: Determination of Environmental Category under OP 4.01

Criterion Question	Yes/ No	OP4.01 EA Category	Requirement
1. Would the subproject impacts likely to have significant adverse environmental impacts that are sensitive ⁸ , diverse or unprecedented? ⁹ Please provide brief description: _____		Category A	Full Environmental and Social Impact Assessment (ESIA)
2. Do the impacts affect an area broader than the sites or facilities subject to physical works and are the significant adverse environmental impacts irreversible? Please provide brief description: _____		Category A	Full ESIA
3. Would the proposed subproject likely to have minimal or no adverse environmental impacts? ¹⁰ Please provide brief justification: _____		Category C	No action needed beyond screening
4. Is the subproject neither a Category A nor Category C as defined above? ¹¹ Please provide brief justification: _____		Category B	Prepare a Limited ESIA or ESMP (ESMP for low risk category B subproject)
5. Are the project impacts likely to have significant adverse social impacts that are sensitive, diverse or unprecedented ¹² ? Please provide brief description: _____		Category A	Full ESIA

⁸ Sensitive (i.e., a potential impact is considered sensitive if it may be irreversible - e.g., lead to loss of a major natural habitat, or raise issues covered by OP 4.04, Natural Habitats; OP 4.36, Forests; OP 4.10, Indigenous Peoples; OP 4.11, Physical Cultural Resources; or OP 4.12, Involuntary Resettlement; or in the case of OP 4.09, when a project includes the manufacture, use, or disposal of environmentally significant quantities of pest control products);

⁹ Examples of projects where the impacts are likely to have significant adverse environmental impacts that are sensitive, diverse or unprecedented are large scale infrastructure such as construction of new roads, railways, power plants, major urban development, water treatment, waste water treatment plants and solid waste collection and disposal etc.

¹⁰ Examples of projects likely to have minimal or no adverse environmental impacts are supply of goods and services, technical assistance, simple repair of damaged structures etc.,

¹¹ Projects that do not fall either within OP 4.01 as a Category A or Category C can be considered as Category B. Examples of category B sub-projects include small scale *in-situ* reconstruction of infrastructure projects such as road rehabilitation and rural water supply and sanitation, small schools, rural health clinics etc.

¹² Generally, sub projects with significant resettlement-related impacts should be categorized as A. Application of judgment is necessary in assessing the potential significance of resettlement-related impacts, which vary in scope and scale from sub project to sub project. Subprojects that would require physical relocation of residents or businesses, as well as sub projects that would cause any individuals to lose more than 10 percent of their productive land area, often are categorized as A. Scale may also be a factor, even when the significance of impacts is relatively minor. Sub projects affecting whole communities or relatively large numbers of persons (for

B.4: Additional Screening

Criterion Question	Yes/ No	Requirement
1. Would the subproject subject to areas of Unexploded Ordnance (UXO)?		If yes, UXO clearance will be required and the national guidance to be followed (Annex-L)
2. Would the propose repair and upgrading work lead to water quality degradation in reservoir and rivers and streams at downstream area?		If yes, show the location, impact level of impacts. Explain why these impacts are significant or insignificant
3. Would the propose repair and upgrading work cause sedimentation, erosion in reservoir and downstream area due to impacts of construction activities, change of flow pattern due to extending of emergency spillway ?		If yes, show the location, impact level of impacts. Explain why these impacts are significant or insignificant
4. Does the subproject have any environmental legacy issue (issues in past time creating significant environment degradation and ecological impact) as regards the following?		If yes, detailed study will be required during impact assessment under ESIA
(a) water quality issues of the reservoir and the receiving water body?		Baseline characterization of the reservoir shall include sampling/measurement for the relevant water quality parameter and a description/analysis of the possible cause of pollution and a recommendation for mitigation.
(b) siltation/sedimentation of the reservoir and/or receiving water body?		Baseline characterization of the reservoir and the receiving water body shall include measurements/sample analyses for TSS, and description of the sources of siltation.
(c) ecological issues such as disappearance of migrating fish species		The ESIA shall include a detailed description of the issue and recommend further studies if needed.
(c) previous burrow pits and quarries?		The ESIA should include detailed discussion on the issue supported by actual assessment of the affected site and should recommend measures to address the issue.
(d) previous spoil disposal sites?		The ESIA should include detailed description of the issue supported by data from actual survey of the affected site and a recommendation for mitigation.
(e) previous construction sites/facilities		The ESIA should include detailed description of the issue supported by actual survey of the affected areas and recommend measures.

example, more than 1,000 in total) may warrant categorization as A, especially for projects in which implementation capacity is likely to be weak. Sub projects that would require relocation of Indigenous Peoples, that would restrict their access to traditional lands or resources, or that would seek to impose changes to Indigenous Peoples' traditional institutions, are always likely to be categorized as A.

5. Does the subproject have any outstanding (legacy) social issues?		If yes, a detailed description of the issues should be included in the baseline conditions and corresponding mitigation measures included in the subproject design and execution.
6. Is the dam also being used for other purposes aside from irrigation?? Describe _____		If yes, detailed assessment needs to be carried out under ESIA on the impacts on different users of dam

Screened by: _____

Screening Results Summary

_____ **The sub-project is not eligible for funding under DRSIP. State the reasons (write the main reason for rejection):**

_____ **The sub-project is eligible for funding and is required to undertake/prepare the following safeguards instruments/documents (Check those that apply).**

- _____ **Full Environmental and Social Impact Assessment (ESIA) which must include, among others, the specific issues identified in the above checklists. Note that all ESIA's must include a detailed assessment of the hydrology and the aquatic flora and fauna of the reservoir, its water source, and the receiving water bodies.**

- ___ **Environmental and Social Management Plan (ESMP). Note that all ESMP must include a brief description of the hydrology of the hydrology and the aquatic flora and fauna of the reservoir, its main water sources and the receiving water bodies.**
- ___ **Contractors Environmental and Occupational Health and Safety Plan (CEOHSP)**
- ___ **Resettlement Action Plan (RAP)**
- ___ **Ethnic Minority Development Plan (EMDP) following DRSIP EMDF**
- ___ **Adoption of Chance Find Procedure**
- ___ **Adoption of Grievance Redress Procedure**
- ___ **Adoption of Unexploded Ordnance Procedure**

Screening Validated by:

Name/Designation: _____ **Date:** _____

B.5 Social Screening

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:

- RAP: Screening if there is any land acquisition impact. If yes, prepare RAP.
- RAP: Screening if there is any temporary impact for the water user downstream due to water cut during subproject rehabilitation, or any other impact that affected people's income generation activities/livelihood. If yes, prepare RAP.

EMDP: Screening for presence of Ethnic Minority Peoples in the subproject area/area of influence (as confirmed by respective ESIA). If EM are present in subproject area, conduct a social assessment of the subproject in relation to subproject interventions.

- LEGACY ISSUE: Screening of social legacy issues – as per guidance below (in this Annex).
- PROCESS FRAMEWORK: During project implementation, new subprojects to be proposed will be screened to check if such new subprojects involve involuntary restriction of access (of local peoples) to legally designated parks, and/or protected areas. When this is the case, during the design and implementation of the subproject, consultation with potentially affected peoples have to be done to examine the nature of the restrictions, and identify the type of measures required to mitigate such adverse impacts. On the basis for the consultation, a *Process Framework* (as a safeguards instrument) has to be prepared. Process Framework will provide the details on the process of how Access restrictions are determined during subproject implementation. On the basis of consultation with AHs, a plan of action detailing restrictions and mitigation measures will be defined for implementation, monitoring and evaluation. The Bank will review and accept the subproject *Process Framework* prior to subproject implementation. As per Bank's OP 4.12, the process framework should have the following key elements:
 - Eligibility Criteria for Compensation Measures;
 - Livelihoods restoration,
 - Conflict resolution,
 - Monitoring and evaluation, and,
 - Budget and timeline,
- SOCIAL ASSESSMENT: As part of the ESIA, PPMUs have to conduct a social assessment of the subproject, covering both potential positive and negative impact of the proposed subprojects, and proposed mitigations measures. Social assessment will have a *GENDER ANALYSIS* (including gender action plan, and monitoring plan).

GUIDANCE NOTE ON

SCREENING OF SOCIAL LEGACY ISSUES AND

CONDUCTING DUE DILIGENCE FOR RESETTLEMENT

ALREADY COMPLETED UNDER THE ORIGINAL CONSTRUCTION

OF DAMS/RESERVOIR

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

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.

Step 1. Identify the year when the land acquisition and resettlement was completed for the original construction of the proposed subproject.

Step 2. Determine the scope of the due diligence (DD) review by following one of the following paths.

- **PATH 1:** If the resettlement process was recently completed, (**less than two years before the World Bank became involved – as determined by date when the Identification Mission started**), 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. **Proceed to Step 3.**
- **PATH 2:** 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. **Proceed to Step 3.**

- **PAHT 3:** 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.**

Step 3. Conduct the DD review and submit the DD report to Bank for review. If needed, revise and re-submit to conclude the DD review.

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.

METHODS FOR DUE DILIGENCE REVIEW

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

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.

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.

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.

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.

An illustrative Action Plan.

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	World Bank	Supervision over achievement of	MM/ DD/YY

No	Activity	Responsibility	Actions (Depending on identified issues)	Target completion date
	Bank's supervision	staff/ Consultant	OP 4.12 policy	

Annex- C. Guidance for ESIA Preparation

The subproject 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. Potential Social and Environmental Impacts
6. Alternative analysis
7. Public Information and Information Disclosure
8. Environmental and Social Management Plan

Annexes

Reference Documents

Design of the subproject

Map of the subproject location

Filled Environmental 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, and

Below provides 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. [Please follow the information required to describe the subproject as per Chapter IV).

Ancillary Items

In addition to the requirement mentioned in Chapter IV, 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.1 – 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,)			
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 III in the main part of this ESMF documentation

4. Baseline Conditions

Please follow the guidance for baseline data collection requirement in Chapter IV.

In addition, Table C.2 provides some additional guidance to collect existing conditions in the subproject area.

Table C.2: Specific Existing conditions in subproject area

<i>Sl. No.</i>	<i>Specific Item</i>	<i>Requirements</i>
1	Downstream area of the spillway	<ul style="list-style-type: none"> • drainage pattern • flooding, erosion and sedimentation issues in the surrounding area in history
2	Borrow pits and quarries, if any Disposal site(s)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 ESMP: history of the dam construction and reservoir operations, negative impacts, actions undertaken and pending for mitigation etc.

5. 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 VII and VI as reference for impacts assessment)

6. Alternative Analysis:

(Use V of the ESMF as reference for discussions about alternative analysis of subprojects)

7. Public Consultation and Information Disclosure

Public Consultation

Information Disclosure Plan

See the guidance given in Section C of this Annex (Also Chapter VII)

8. Environmental and Social Management Plan (ESMP)

See the guidance in Section C.2 of this Annex

9. Mitigation Measures

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 and Annex-D should be used as reference). However, the mitigation plan must be site specific i.e., to address the impact identified for subproject. 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.

10. 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. Please see the guidance in Chapter VII and VIII for monitoring.

In addition, Table C.3 suggest a sample compliance monitoring plan, which should be taken consideration. In addition, Table C.4 provide a Table for cost estimation for environmental and social monitoring.

Table C.3: 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 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				

Table C.7: Budget of ESMP implementation

	Item	Budget	
		Construction phase	Operation
	Mitigation measures		
	Independent Monitoring		
	IMP training		
	Capacity Building		
	TOTAL		

C.2 Guidance for Public consultation and 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 summarising 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

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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Use safety signs in the cross-section or diversion - Need to consult to local authorities before site clearance taking place. - Plan the traffic movement considering the priorities like school, office and prayer timing. - Prepare a Traffic management plan (if needed) to manage the rapid density of vehicle transportation and road realignment. Avoid transporting via vulnerable areas such as school, hospital or market. - Install night illuminating system if necessary - Install traffic instructions and warning boards. -
4. Health Impacts on Construction Workers/Camps	<ul style="list-style-type: none"> - 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 (please see also Annex E)

Issue/ Negative impact	Mitigation Measure
5. Risks of unexploded ordnances	<p>It impacts to many subjects, hence:</p> <ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Compensation plan needed due to household economic lost - Use local labour miximize 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: <ul style="list-style-type: none"> - 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 levelling - 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: <ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Management of catchment 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: <ul style="list-style-type: none"> - Reduce the impact to aquatic creatures - Limit land occupational to site clearance - Use chemical to clear site is not allowed - 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>I. Social Impacts</i>	
1. Impact on traffic condition in project area	<ul style="list-style-type: none"> - 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 supply	The impacts are assessed at high level and the mitigation measures should follows: <ul style="list-style-type: none"> - A construction plan needed, and it concerns to less water use period

Issue/impacts	Mitigation measures
	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<p>Some reservoirs have tourism activities and inland water way transportation, the mitigation measures must be applied as follows:</p> <ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Compensate the damage follows to project policies - Employing the local labor to work in the project
6. Potential conflict beteen workers and local residents	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<p>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:</p> <ul style="list-style-type: none"> - 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 local authorities

Issue/impacts	Mitigation measures
11. Impact on gender	<ul style="list-style-type: none"> - Compensation plan needed due to household economic lost - Use local labor maximize to increase household incomes, specially women in the local involves to the works of the sub-project
12. Impact on social unions	<ul style="list-style-type: none"> - 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, CPMU, construction contractors and supervision contractor in order to receive and process information on time
13. Impact of public services.	<ul style="list-style-type: none"> - 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	<p>Due to excavation operation and waste generation by workers and waste by workers. Contractor have to implement a mitigation measures are as follows:</p> <ul style="list-style-type: none"> - Minimize the solid or rocks falling to reservoir - Use local labor force in manual labor 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 effects on water quality
2. Emission gases, dust polluting air	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - All vehicles must have a "<i>certificate of inspection standards of quality, technical safety and environmental protection</i>" consistent with Decision No. 35/2005/QD-BGTVT to avoid excessive noise from inappropriate maintenance machines

Issue/impacts	Mitigation measures
	<ul style="list-style-type: none"> - 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	<p>Earth works; camp building and construction of items will change the landscape of construction area and increase erosion progress. Contractor should follow:</p> <ul style="list-style-type: none"> - 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 levelling - Contractor will clear away and remove all materials and rubbish and temporary works after complete work
5. Reservoir sedimentation	<ul style="list-style-type: none"> - Management of catchment 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	<ul style="list-style-type: none"> - Construction time must in dry season - Speed up construction progress
7. Impact on habitats of plants and animals	<ul style="list-style-type: none"> - 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 of 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	<p>After completing the work, the contractor have to clean and remove all materials, rubbish and temporary works out of the site</p>
9. The negative impact of the demolition phase construction	<ul style="list-style-type: none"> - The disposal areas, land mines, workers' camping site, materials storage areas, and other area used to build 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

<i>Issues/ negative impacts</i>	<i>Mitigation measures</i>
1. Sedimentation	<p>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:</p> <ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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
3. Domestic waste impacts to water quality	<ul style="list-style-type: none"> - The households, service and tourist agency responsible to manage domestic wastes. Waste treatment plant response to treat wastes to meet QCVN
4. Negative impacts due to extending spillway	<ul style="list-style-type: none"> - 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
5. Impacts due to unexpected releasing water	<ul style="list-style-type: none"> - 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.
6. Involve risk related to safety of dams	<ul style="list-style-type: none"> - 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 circuit, 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

<i>Problems/ incidents</i>	<i>Mitigation Measures</i>
1. UXO risks	<ul style="list-style-type: none"> - If identified at the feasibility stage, include the clause in the ESMP. 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 (as applicable) before undertaking site clearance and/or construction.
2. Fire and explosion risks and short circuit	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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)

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 ESMP, 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.

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

In a mountainous region, such as the Trung Son area, the project must include measures to reduce or halt erosion and landslide problems. This might include the installation of erosion control structures, protective re-vegetation and reforestation, slope stabilization, etc.

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.

Night time Construction Noise Mitigation

Although in general, night time 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 night time 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 night time 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 night time 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 night time 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 night time 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 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.

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.

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.

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.

E-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.

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 these 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.

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.

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 CPMU 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 Son	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
Son 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	Đình Hoa Safe Security Area		8,728	HE
	3	Tam Đảo	1986	36,883	NP
Tuyen Quang	1	Cham Chu	2001	15,902	BC
	2	Na Hang		22,402	BC
	3	Tam Đảo	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

G-1: International Environment and Social (E&S) Consultants

The CPMU 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:

- Assist CPMU for review and clearance of subproject ESIA's, supervision and monitoring of ESIA's and other plans, prepare quarterly and annual reports on implementation of ESMF, RPF and EMDF
- Build capacities in the CPMU 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 ESIA's

- i) Review the subproject ESIA's 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 ESIA's for approval to CPMU
- 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 ESIA's.

Capacity Building

- i) Develop training materials and provide TOT training to PPMU and Provincial level E&S consultant on the project environmental management requirements within the first three months of mobilization
- ii) 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)

- iii) Prepare and pre-announce a schedule of program for each quarter in consultation with CPMU and communicate to PPMU and relevant consultants; and
- iv) Conduct workshops/seminars for Project staff in CPMU 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

G-2: Environmental and Social Monitoring under Independent Third Party Monitoring

The CPMU 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 carry out independently performance evaluation 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 CPMU; the monitoring reports are recorded and evaluated (by PPMU and CPMU), 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.

G-3: Objective, Indicators and Methodology for Independent Third Party Monitoring-Social

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 CPMU 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 CPMU. CPMUs 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.

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 CPMU/PPMU in implementing IPM programs including ensuring 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 CPMU 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 CPMU 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. CPMU 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.

- CPMU:

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 lime, 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°C.

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.

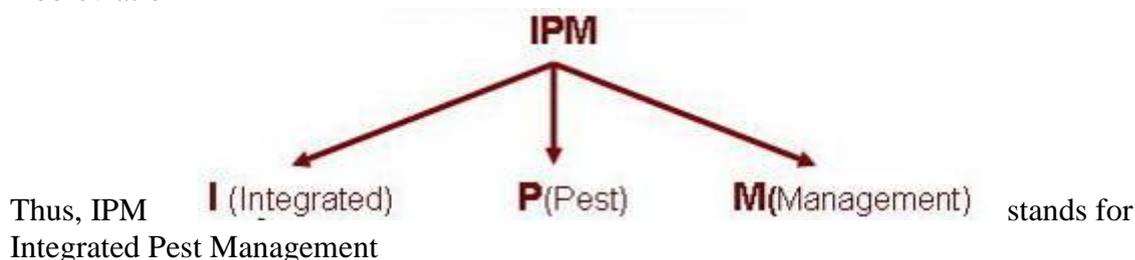
Integrated Pest Management for Rice Crops

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



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

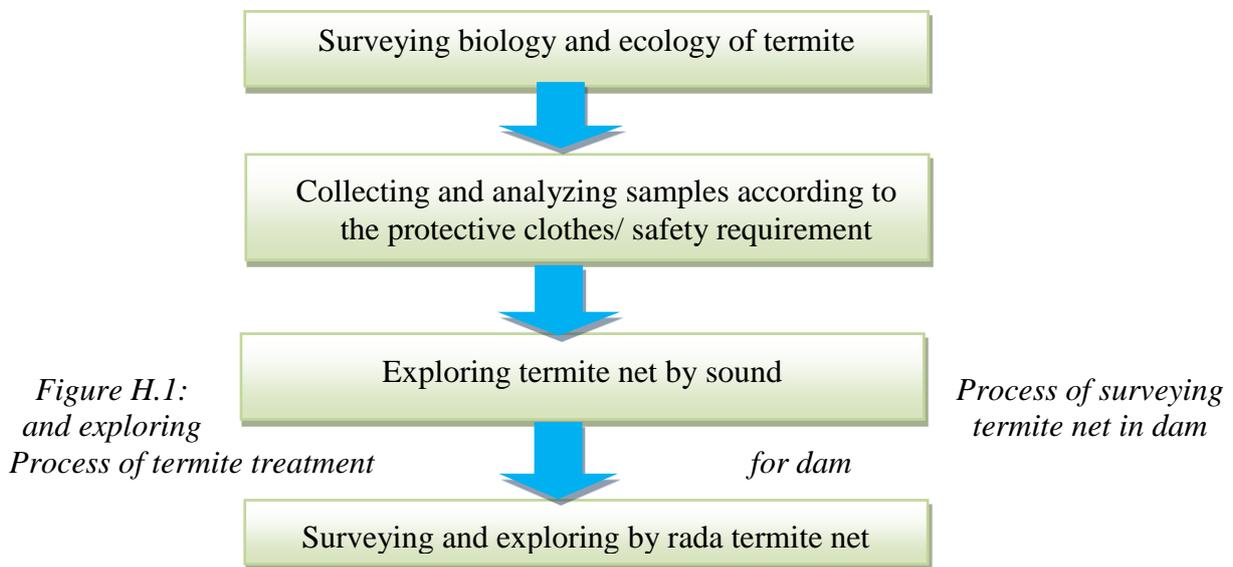
- based on economic thresholds...
- Create habitat for natural enemies after planting by intercropping, planting legumes on bunds, disintegrator for lurking natural enemies...
- Application of cultivation techniques facilitate reasonable development natural enemies.

(ii) Priority use drugs Biological Plant Protection

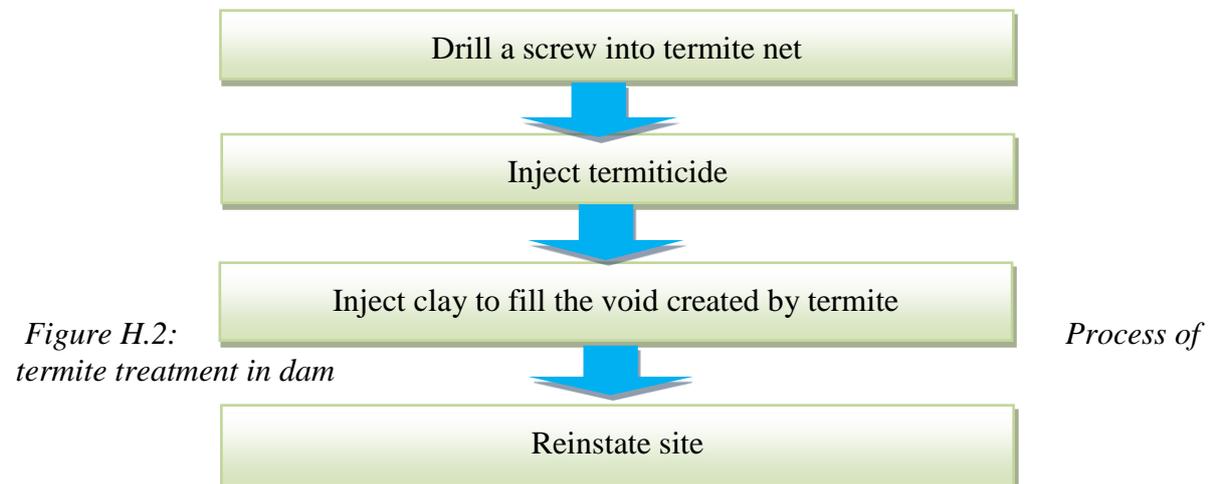
The medicines is effective only biological pest control, non-toxic to beneficial organisms, safe to human health and the environment

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



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:



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)

Annex –I: Policy, legal and Administrative Frameworks.

Country's Environmental and Social Safeguards Policies and Legislations

Environment

Law on Environmental Protection (No.55/2014/QH13) dated June 23, 2014 and Decree on Environmental Protection Planning, Strategic Environmental Assessment, Environmental Impact Assessment and Environmental Protection Plans (No. 18/2015/ND-CP) dated February 14, 2015 are key legal frameworks for environmental management in Vietnam. Law on Environmental Protection (LEP) provides statutory provisions on environmental protection activities; measures and resources used for the purpose of environmental protection; rights, powers, duties and obligations of regulatory bodies, agencies, organizations, households and individuals who are tasked with the environmental protection task. LEP is applicable to regulatory bodies, public agencies, organizations, family households and individuals within the territory of the Socialist Republic of Vietnam, including mainland, islands, territorial waters and airspace. LEP is on regulating strategic environmental assessment, environmental impact assessment and environmental protection commitment. According to Article 10, chapter II of LEP, the responsibility for preparing the planning for environmental protection are as following:

- 3) The Ministry of Natural Resources and Environment shall prepare the national-level planning for environmental protection.
- 4) People's Committees of centrally-governed cities and provinces (hereinafter referred to as provincial People's Committee) shall take charge of formulating processes or preparing the local planning for environmental protection.

Furthermore, the law also indicated to consultation on, inspection and approval of the planning for environmental protection (Article 11, chapter II) as well as the list of entities subject to strategic environmental assessment in appendix I and II of the Decree No. 18/2015/ND-CP dated February 14, 2015 of the Government:

- o 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.
- o 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.

Inspection and approval of the planning for environmental protection shall be required as follows:

- o 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.

- 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.

Ministries, ministerial level agencies and Government bodies shall have the responsibility to establish the council or organize the selection of review service organizations to review environmental impact assessment reports of the projects within their competence of decisions and approvals, except inter-sector and inter-provincial projects

Provincial level People's Committees shall have the responsibility to establish the council or organize the selection of review service organizations to review environmental impact assessment reports of the projects that take place within their territories and subject to their competence of decision and approval and that of the People's Councils of the same level.

Management: Unit for Industrial Parks, Export Processing Zones and Hi-tech Zones: Provincial people's committee can authorize the Management Unit for Industrial Parks, Export Processing Zones and Hi-tech Zones as regulated in Decree 29/2008/ND-CP dated 14/03/2008 by the Government on industrial parks, export processing zones and economic zones.

The Section 3 of Chapter II of LEP describes the requirements of Environmental Impact Assessment. Owners of projects regulated in Clause 1 Article 18 of this Law shall carry out, on his own, or hire an advisory organization to carry out the environmental impact assessment and take statutory responsibility for the conclusive result after carrying out such assessment. The environment impact assessment must be performed in the preparatory stage of the project. The conclusive result yielded after carrying out the environment impact assessment shall be expressed in the form of the report on environmental impact assessment. Expenses incurred from the formulation and inspection of the report on environmental impact assessment, and included in total investment budget shall be covered by the project owner.

According to Article 21 of LEP, the consultation to be required in the process of environmental impact assessment is aimed at completing the report on environmental impact assessment. It emphasis that consultation helps minimize the negative impacts on the environment and human beings and ensure the sustainable development of the project. Project owners are obliged to consult with regulatory agencies, organizations and communities that are directly affected by the project.

The Article 22 of LEP describes the scope of EIA reporting. It will include: (i) origin of the project, project owners, and the competent authority's approval of the project, method of the environmental impact assessment; (ii) evaluation of technological choice, work items and any activity relating to the project which can cause bad effects on the environment; (iii) assessment of current status of natural and socio-economic environment carried out at areas where the project is located, adjacent areas and demonstration of the suitability of the selected project site; (iv) assessment and forecast of waste sources, and the impact of the project on the environment and community health; (v) assessment, forecast and determination of measures for managing the risks of the project posed to the environment and community health; (vi) waste disposal measures; (vii) measures for minimizing the impact of the project on the

environment and community health; (viii) consultation result; (ix) environmental management and supervision programs; (x) budget estimate for the construction of environmental protection facilities and measures to be taken to minimize the environmental impact; and (xi) alternatives to the application of measures for the environment protection.

The Article 23 of LEP defines the authority to verify the report on EIA. The Ministry of Natural Resources and Environment shall arrange to verify the report on environmental impact assessment in respect of the following projects: (a) Projects subject to the decision on investment intentions made by the National Assembly, Government and the Prime Minister; (b) Interdisciplinary or inter-provincial projects stipulated at Points b and c Clause 1 Article 18 in this Law, exclusive of those classified as the secret projects in the field of national defence and security; and (c) Projects verified by the Government's authorized entities. The Ministries and quasi-ministerial agencies shall inspect the report on environmental impact assessment in respect of projects that shall be permitted under their decision and approval, but are not specified in regulations mentioned at Points b and c Clause 1 of this Article. The Ministry of National Defence and the Ministry of Public Security shall arrange to verify the report on environmental impact assessment in respect of projects that shall be permitted under their decision and approval, and those classified as the secret projects in the field of national defence and security. Provincial People's Committees shall arrange to verify the report on environmental impact assessment in respect of investment projects within their territories that are not regulated at Clause 1, 2 and 3 of this Article.

The Article 26 of LEP describes the responsibility assumed by the project owner after being granted the approval of their report on the environmental impact assessment. These include – Clause 1: comply with the requests specified in the approval of their report on environmental impact assessment. Clause 2: where any change in the project size, capacity and technology applied in the project execution is blamed for the negative impact on the environment in comparison with the alternatives given in the approved report on environmental impact assessment, but is not too serious to make another report as stipulated at Point c Clause 1 Article 20 of this Law, the project owner must send their explanation to the agency who grants the approval of the report on environmental impact assessment, and the project shall be commenced only after obtaining the permission from such agency.

The Article 27 of LEP explains the responsibility assumed by the project owner before bringing the project into operation. These include - Clause 1: apply measures for the environmental protection under the decision on the approval of their report on environmental impact assessment; and Clause 2: notify the agency who grants the approval of the report on environmental impact assessment of the developmental process of environmental protection works functioning as an ancillary part of major projects that can cause bad impacts on the environment in accordance with the Governmental regulations. These projects will be commenced only after the agency in charge of the approval of the report on environmental impact assessment has inspected and certified the completion of environmental protection works.

The Article 28 of LEP mentions the responsibility of the agency in charge of approving the report on the environmental impact assessment. These include – Clause 1: Bear the statutory responsibility for their conclusive result and decision on the approval of the report on environmental impact assessment. Clause 2: Within a period of 15 days as from the date on which the project owner's report on the completion of environmental protection works under the regulations specified in Clause 2 Article 27 of this Law, the agency in charge of approving

the report on environmental impact assessment must examine and issue the certificate of completion of environmental protection works. Where an analysis of complicated environmental criteria is required, the time span for the issuance of the certificate of completion of environmental protection works can be extended for less than 30 days.

The Article 13 of the Decree (No. 18/2015/ND-CP) explains the requirement of the pertaining EIA agencies. Clause 1: the project owner or the advisory organization conducting EIA must meet all requirements – (a) there are staff members in charge of EIA meeting requirements prescribed in Clause 2 of this Article; (b) there is specialist staff members related to the project obtaining at least Bachelor’s degrees; and (c) there are laboratories, inspection and calibration devices eligible for performing measurement, sampling, processing and analysis of environmental samples serving the EIA of the project; if there is not any laboratory with decent equipment for inspection and calibration, it is required to have a contract with a unit capable of carrying out inspection and calibration. Clause 2: the staff members in charge of EIA must obtain at least Bachelor’s degrees and Certificate in EIA consultancy and Clause 3: the Ministry of Natural Resources and Environment shall manage the training and issuance of Certificates in consultancy of EIA.

In addition, the following Articles are important.

Article 14: the authorities for different scales of EIA report approval with deadlines

1. The competence of the EIA report assessment authorities:
 - (a) The Ministry of Natural Resources and Environment shall assess and approve the EIA reports on projects prescribed in Appendix III of this Decree, except for projects subject to national defence and security secrets.
 - (b) Ministries, ministerial agencies shall assess and approve the EIA reports on projects under their competence in approval for investment, except for projects in Appendix III of this Decree;
 - (c) The Ministry of National Defence and the Ministry of Public Security shall assess and approve EIA reports on projects subject to national defence and security secrets and projects under their competence in approval for investment, except for projects prescribed in Appendix III of this Decree;
 - (d) The People’s Committee of the province shall assess and approve EIA reports on projects in the province, except for projects prescribed in Point a, b and c of this Clause.
2. Deadlines for assessment of EIA reports:
 - (a) Within 45 working days from the date on which the satisfactory application is received regarding projects under assessment of the Ministry of Natural Resources and Environment;
 - (b) Within 30 working days from the date on which the satisfactory application is received regarding projects not prescribed in Point a of this Clause;
 - (c) By the deadlines prescribed in Point a, b of this Clause, the EIA report assessment authority must notify the project owner in writing of the results of assessment. The period in which the project owner completes the EIA report at the request of EIA report assessment authority shall not be included in the assessment period.

3. The assessment of EIA report shall be conducted by the EIA report assessment council established by the Heads of the EIA report assessment authority with at least 07 members. Members of EIA report assessment council shall consist of 01 President, 01 Vice President where necessary, 01 Secretary member, 02 Opponent members and other members, which at least 30 percent of the Assessment council members having at least 06 years' experience in the EIA field.

4. The EIA report assessment council shall consider the content of EIA report and give their opinions in order for the EIA report assessment authority to consider approving the EIA report. The Ministry of Natural Resources and Environment shall provide guidance on operation of the EIA report assessment council.

5. The assessment of EIA report for prompt response to natural disasters or communicable diseases may be conducted by collecting opinions from relevant organizations or agencies, and skip the approval of EIA report assessment council.

6. The Ministry of Natural Resources and Environment shall guide the People's Committee of the province to authorize the management board of industrial parks to assess the EIA report at the request of the People's Committee of the province and evaluation of competence of every management board of industrial park; guidance on forms of relevant documents related to assessment or approval for EIA.

Article 15: re-compilation of EIA reports

1. If a project whose EIA report is approved has one of following changes during their implementation, its EIA report shall be re-compiled:

- (a) There are changes prescribed in Point a and b Clause 1 of Article 20 of the Law on Environment protection;
- (b) Supplement the portfolios whose size and capacity are equivalent to entities prescribed in Appendix II of this Decree;
- (c) There are changes in size, capacity, technology or other changes that make the environmental protection works unable to solve new environmental problems;
- (d) At the request of the project owner.

2. The project owner may only apply changes prescribed in Point a, b, c and Clause 1 of this Article after the competent agency approves the re-compilation of EIA report.

3. The re-compilation of EIA report, re-assessment and re-approval for EIA report shall comply with regulations in Article 12, Article 13 and Article 14 of this Decree.

Article 16: responsibility of project owners pertaining to the approved EIA reports

1. Adjust the investment project to ensure measures or environment protection works based on the approval for EIA report where necessary.

2. Make a plan for management of environment of project on the basis of program for management and observation of environment suggested in the EIA report and posted at the premises of the People's Committee of the commune where the consultation is taken place

when implementing EIA according to guidance of the Ministry of Natural Resources and Environment.

3. Strictly satisfy requirements prescribed in Article 26 and Article 27 of the Law on Environment protection.
4. Send plans for testing operation of waste treatment works serving the operation phase (every phase or the entire project) before conducting the testing operation to organizations where the consultation is taken place or EIA report-approving authority (hereinafter referred to as approving authority) for at least ten (10) working days. The testing operation shall last up to 06 months; the extension of testing operation period must be approved by the approving authority.
5. File, approve and implement the plan for hydroelectric reservoir cleaning before filling if the project has construction work of storage ponds or reservoirs; the reservoirs shall be filled after the approving authority carries out an inspection and grant a written approval.
6. With regard to cases prescribed in column 4 Appendix II of this Decree, the project owner must send a report on results of environment protection works serving the operation phase on the basis of approved EIA report and approval for amendment (if any) sent to the approving authority for verification and confirmation of finished project before putting the project into official operation. With regard to project of investment having multiple phases, the results of environment protection works serving the operation phase shall be reported according to every phase of the project.
7. Send a report on amendments and only implement amendments related to scope, scale, capacity, production technology, environment protection works and measures of projects after receiving the written approval issued by the approving authority.

Article 17: inspection and confirmation of environmental protection works serving the operation phase of the projects

1. The inspection of environment protection works serving the operation phase of a project shall be carried out by an Inspectorate which is established by the Head of the approving authority or by their authorized agency.
2. Deadlines for issuance of confirmation of finished environment protection works:
 - (a) Within 15 working days from the date on which the report on operation of environment protection works serving the operation phase of the project is received if it is not required to collect samples or analyze environmental parameters for verification;
 - (b) Within 30 working days from the date on which the report on operation of environment protection works serving the operation phase of the project is received if it is required to collect samples or analyze environmental parameters for verification;
3. By the deadlines mentioned in Clause 2 of this Article, the approving authority or authorized agency must issue a confirmation of finished environment protection works

servicing the operation phase of the project; in case the application is rejected, they must provide explanation in writing.

4. The Ministry of Natural Resources and Environment shall provide guidance on reports on operation of environment protection works; organization and operation of the inspectorate; forms of documents on inspection or confirmation of finished environment protection works.

Article 21: Reporting

1. 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.

2. 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.

3. 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 15.

4. The Ministry of Natural Resources and Environment shall provide guidelines for content and forms of reports as prescribed in Clause 1, Clause 2 and Clause 3 of this Article.

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 m³ (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, 20 May 1998); (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 organize 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 100,000m³ 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 Article 48 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”.

Land acquisition by the State and Resettlement policies

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

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; value 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/QĐ-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/QĐ-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/ND-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

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

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, Central Project Management Unit (CPMU) 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.

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 minor¹³, or fewer than 200 people are affected, an abbreviated resettlement plan will be applied. Where impacts on the entire affected population are significant¹⁴, 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;

¹³ 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,

¹⁴ 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: $\geq 20\%$ applied for non-vulnerable groups, and $\geq 10\%$ for vulnerable groups and poor affected households) of their productive assets are lost.

(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.

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 CPMU 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 CPMUs 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 CPMUs 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 CPMU, 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 DC 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 CPMU 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.

Indigenous/Ethnic minority people

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

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 approved 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 DRSIP.

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 provides 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

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.

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 components, 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.

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.

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/EXTSAFEPO L/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:

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.

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.

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.

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.

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.

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.

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.

OP/BP 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.

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.

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.

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.

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.

Annex-J: Socio-Economic Survey Sample

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 establishments: (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 – K: 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 accessing 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.



Annex – L: GoV Circular on UXO Handling

MINISTRY OF DEFENSE

No.: 146/2007/TT-BQP

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

Hanoi, September 11, 2007

CIRCULAR

GUIDING THE IMPLEMENTATION OF DECISION NO. 96/2006/QD-TTg DATED MAY 04, 2006 OF THE PRIME MINISTER ON MANAGEMENT AND IMPLEMENTATION OF BOMB, MINE AND EXPLOSIVE MATERIALS

In furtherance of Decision No. [96/2006/QD-TTg](#) dated May 04, 2006 of the Prime Minister on management and implementation of bomb, mine and explosive materials. After reaching a consensus with the Ministries and sectors concerned, the Ministry of Defense provides the guidance on implementation as follows:

I. GENERAL REGULATION

1. Scope

This Circular provides guidance on implementation of bomb, mine and explosive materials nationwide, construction investment projects using state capital (development investment capital from the state budget, state development investment credit capital, credit capital guaranteed by the state and other state investment capital) and other capital sources; projects (non-project) with foreign involvement and for the purpose of investigation, survey and research related to the existence of bomb, mine and explosive materials after war.

2. Subjects of application.

This Circular applies to the Ministries, sectors, People's Committee of provinces and centrally affiliated cities, investors, project management committees, units, businesses, national social organizations, international organizations, foreign non-governmental organizations and domestic or foreign individuals having activities related to the bomb, mine and explosive materials in the territory of Vietnam.

3. Responsibility for management and implementation organization

3.1. The duties and responsibility of the Ministry of Finance in management and implementation of bomb, mine and explosive material disposal comply with the provisions in Article 1 and 2. The duties and responsibility of the Ministries, sectors, localities and investors comply with the provisions in Article 4 of Decision No. 96/2006/QD-TTg dated May 04, 2006 of the Prime Minister.

3.2. The Ministry of Defense develops and implements the plan for investigation and survey to make a map of bomb, mine and explosive material pollution on a national scale and in detail to communal level. The Ministries, sectors, People's Committee of provinces and cities, towns, districts and communes will coordinate with the investigation and survey force to implement and provide relevant information correctly and objectively to complete the plan. The plan result must make a map of areas still polluted with bombs, mines and explosive material in detail to communal level, assess the level of residual bombs, mines and explosive materials in each area and nationwide in service of the planning of social-economic development of the central and local governments as a basis for consultation and implementation of bomb, mine and explosive material disposal for construction works or projects.

3.3. Due to the particularly dangerous nature, the bomb, mine and explosive material disposal is implemented by the method of assigning tasks to specialized sapper units and qualified military businesses for implementation under the Decision No. 49/2007/QD-TTg dated April 11, 2007 of the Prime Minister on the special cases of appointment of contractors specified at Point dd, Clause 1, Article 101 of the Law on Construction.

3.4. The commander of units performing the bomb, mine and explosive material disposal will take the main responsibility for the result and safety for the projects and works during the construction and operation related to the issues of bomb, mine and explosive material disposal within the scope of assigned tasks.

4. Scope of activities of bomb, mine and explosive material disposal

4.1. As an item in the content of site clearance of an investment project.

4.2. As an independent project only performing a content of bomb, mine and explosive material disposal for the site clearance for general purpose.

4.3. Area, depth and safety corridor of bomb, mine and explosive material disposal for project will comply with Decision No. 95/2003/QĐ-BQP dated August 7, 2003 of the Minister of Defense on issuing the "Technical process of detection and disposal of bombs, mines and explosive materials" (referred to as area of bomb, mine and explosive material disposal).

4.4. The underground bomb, mine and explosive material disposal specified in this Circular is only applied in case of depth up to 15m. In case of over 15 m deep, the separate process and norm issued by the Ministry of Defense will be followed.

5. The regulations and policies on treatment, allowance and subsidy to cadres and soldiers directly involved in tasks of bomb, mine and explosive material disposal will comply with the state current regulations.

II. PROCESS OF IMPLEMENTATION OF BOMB, MINE AND EXPLOSIVE MATERIAL DISPOSAL

1. Stages of implementation

The bomb, mine and explosive material disposal is conducted in accordance with the order of implementation of basic capital construction investment projects defined by the Government including two stages:

- Preparing the estimate of bomb, mine and explosive material disposal during the stage of preparation for investment.
- Implementing the bomb, mine and explosive material disposal during the stage of project implementation.

2. Formulation of estimate of bomb, mine and explosive material disposal during the stage of preparation for investment.

The investor will, based on the area of bomb, mine and explosive material disposal for the project (specified at Point 4.3, Section 4, Part I) and the norm and unit price of bomb, mine and explosive material disposal for 1 ha of area (specified in Annex 01) of this Circular to perform the following:

- Calculation of investment capital (estimate) of item of bomb, mine and explosive material disposal of the project or for an independent project of only bomb, mine and explosive material disposal
- Aggregation of estimated capital into the total investment of project or total investment for an independent project of bomb, mine and explosive material disposal.
- Submission of project for approval.

3. Implementation of bomb, mine and explosive material disposal during the stage of project implementation

The bomb, mine and explosive material disposal during the stage of project implementation is conducted with the following steps:

3.1. Step 1: Preparing the contents of request for bomb, mine and explosive material disposal

After the investment project is approved, the investor prepares the contents of written request for bomb, mine and explosive material disposal, including:

- Project name
- Location
- Investor
- Area of bomb, mine and explosive material disposal
- Capital
- Progress requirement

3.2. Step 2: Sending the written request for bomb, mine and explosive material disposal to the following address:
- For projects with the area of bomb, mine and explosive material disposal smaller or equal to 30 ha, the written request will be sent to the High Command of Military Zone conducting the investment project for settlement.

- For projects with the area of bomb, mine and explosive material disposal smaller or larger than 30 ha, the written request will be sent to the Department of Warfare of the General Staff for settlement.

3.3. Step 3: Assigning tasks to units of bomb, mine and explosive material disposal

- Commander of Military Zone will, based on the request of the investor, pollution degree of bomb, mine and explosive materials at the area of project, decide to assign tasks to a qualified unit or business to conduct the survey and make technical performance plan – estimate and implementation of bomb, mine and explosive material disposal.

- The Head of Department of Warfare / General Staff will, based on investor's request, pollution degree of bomb, mine and explosive material disposal at the project area, deal with the procedures and prepare decision for report to the Ministry of Defense to assign tasks to a qualified unit or business to conduct the survey and make technical performance plan – estimate; assign tasks to the performing unit. For construction projects and works with large area of bomb, mine and explosive material disposal and requirement of urgent progress, two or many units will be assigned to perform the tasks to ensure the progress.

3.4. Step 4. Assessing and approving the technical performance plan – estimate

After making the technical performance plan – estimate of bomb, mine and explosive material disposal, the assigned unit or business will send dossier to:

- Commander of Military Zone to assess and approve the technical performance plan – estimate of projects with area of bomb, mine and explosive material disposal smaller than or equal to 30 ha carried out by units or businesses under its management.

- Commander of sapper to assess and approve the technical performance plan – estimate of projects with area of bomb, mine and explosive material disposal smaller and greater than 30 ha carried out by businesses under the management of Ministry of Defense and make a report to the Ministry of Defense for approval

4. Signing of contract for implementation of bomb, mine and explosive material disposal

Based on the decision on task assignment of the Ministry of Defense or Military Zones, the investor will sign contract with the units and businesses assigned tasks for implementation, payment and finalization.

5. Performance

5.1. After the task performance contract is signed, the unit directly performing tasks must make a performance plan for report to the superior management level for approval.

5.2. The performing unit will notify in writing the bomb, mine and explosive material disposal to the local military agency in the area of project for uniform implementation and management of area.

5.3. When receiving notice, the units and agencies concerned will create conditions for the assigned unit to carry out the bomb, mine and explosive material disposal and destroy bombs, mines and explosive materials conveniently, quickly and ensure the safety and construction progress of the project.

6. Acceptance an handover

After the completion of bomb, mine and explosive material disposal for the project (or each stage), the performing unit will make a report to the investor for organization of acceptance, payment and finalization on the basis of approved technical performance plan – estimate for the investor to receive, protect and put the site into use. The dossier of result of bomb, mine and explosive material disposal is kept with project documents.

7. Inspection and report

The superior management level of the assigned unit will inspect the result of performance quality at the site. For key projects, the Ministry of Defense will assign the Command of sapper to coordinate with competent authorities for inspection organization in case of necessity.

Every quarter, 06 months or one year, the units carrying out the bomb, mine and explosive material disposal will report the result of implementation to the Command of sapper for aggregated report to the Ministry of Defense and the Prime Minister as prescribed.

III. FUND FOR BOMB, MINE AND EXPLOSIVE MATERIAL DISPOSAL

1. For projects using state budget, the compliance with the provisions in Clause 2, Article 3 of Decision No. 96/2006/QĐ-TTg dated May 4, 2006 of the Prime Minister is as follows:

1.1. Expenditure of allowance for the performing force with the fee of 60,000 dong/person/day under the Decision No.122/2007/QĐ-TTg dated July 27, 2007 of the Prime Minister on a number of benefits for servicemen and national defense workers and officials directly carrying out the bomb, mine and explosive material disposal.

1.2. Expenditure of materials, labor and machine shift is based on the estimate norm bomb, mine and explosive material disposal issued together with Decision No. 177/2007/QĐĐ-BQP dated July 30, 2007 of the Minister of Defense.

1.3. The equipment for performance which the army does not have and must leased from outside must be fully and correctly calculated under current regulations.

1.4. Unit price of machine shift based on the quotation of machine shift and equipment used for bomb, mine and explosive material disposal is issued together with Decision No. 177/2005/QĐ-BQP dated November 04, 2005 and No.80/2007/QĐ-BQP dated May 03, 2007 of the Minister of Defense.

1.5. Other expenditures are calculated under current regulations.

1.6. Not calculating the pre-calculated taxable incomes and other taxes (except for leased equipment).

2. For projects using other capital sources

To comply with the provisions in Clause 3, Article 3 of Decision No. 96/2006/QĐ-TTg dated June 04, 2006 of the Prime Minister; the unit price of bomb, mine and explosive material disposal is fully and correctly calculated under current regulations.

3. Method of fund guarantee

The fund guaranteed for bomb, mine and explosive material disposal is taken from the fund of project as an expenditure in the total investment of each project or total investment of independent project of bomb, mine and explosive material disposal. The investor will make a payment or finalize fund directly for units under contract.

IV. WORK OF BOMB, MINE AND EXPLOSIVE MATERIAL DISPOSAL FOR PROJECTS (OR NON-PROJECT) WITH FOREIGN INVOLVEMENT

1. Foreign countries, international organizations, foreign non-governmental organizations, foreign individuals or Vietnamese people living abroad and other organizations and individuals having activities to support the development, humanitarian aid in the field of bomb, mine and explosive material disposal in the territory of Vietnam and meet the requirement of the law and regulations of Vietnam are all given the favorable conditions for implementation.

The aid from foreign countries in the field of bomb, mine and explosive material disposal includes the main forms as follows:

- Aid through programs and projects.
- Non-project aid and support (aid not under the program, project; giving aid in the form of goods, materials, equipment, finance....)

The Ministry of Defense will coordinate with the Ministries, sectors and localities concerned to receive the supporting sources and remedy the consequences of bombs, mines and explosive materials in Vietnam.

2. The receipt of official development assistance (ODA) to remedy the consequences of bombs, mines and explosive materials left over from war will comply with Decree No. [131/2006/ND-CP](#) dated November 09, 2006 of the Prime Minister issuing the Regulation on management and use of ODA.

3. The receipt of aid from the non-governmental organizations (NGO) will comply with Decision No. 64/2001/QD-TTg dated April 26, 2001 of the Prime Minister issuing the Regulation on management and use of aid from the non-governmental organizations (NGO).

4. The participation in the bomb, mine and explosive material disposal as the international duties assigned by the Government on the basis of international agreements in which Vietnam is contracting party.

V. IMPLEMENTATION ORGANIZATION

1. This Circular takes effect 15 days after its publication in the Gazette.

The previous regulations on management and implementation of bomb, mine and explosive material disposal in contradiction with the provisions of Decision No. [96/2006/QD-TTg](#) of the Prime Minister and the guidelines in this Circular are invalidated.

2. For projects with the items of bomb, mine and explosive material disposal approved before the effective date of this Circular but not under the performance, their expenditure estimate will be adjusted according to this Circular. For the projects of bomb, mine and explosive material disposal still not finished, the volume completed (based on the construction diary confirmed by the investor's supervisor) as of May 25, 2006 will be entitled to the expenditure as prescribed before the effective date of the Prime Minister's Decision No. [96/2006/QD-TTg](#); the volume of performance as of May 26, 2006 to the point of time this Circular takes effect will comply with the Official Dispatch No. 5972/BQP dated November 13, 2006 of the Ministry of Defense. The volume of performance after the effective date of this Circular is adjusted under the provisions of this Circular.

3. The Ministries, sectors, People's Committees at all levels and project investors will, based on the provisions in Decision No. [96/2006/QD-TTg](#) of the Prime Minister and the guidelines of this Circular, organize the implementation.

Any difficulty arising during the implementation of this Circular should be promptly reported to the Ministry of Defense for consideration and settlement./.

**FOR THE MINISTER
DEPUTY MINISTER
GENERAL**

Nguyen Khac Nghien

ANNEX 1

UNIT PRICE NORM OF BOMB, MINE AND EXPLOSIVE MATERIAL DISPOSAL TEMPORARILY CALCULATED FOR 1HA FOR ESTIMATE OF TOTAL PROJECT INVESTMENT
(Issued with Circular No [146/2007/TT-BQP](#) dated September 11, 200)

No.	Signal density area	Unit price of bomb, mine and explosive material disposal for 1 ha (Million dong/ha)	
		On ground	In water (<15m)
1	Area 1	19.5	32.7

2	Area 2	26.3	47.7
3	Area 3	33.2	62.4
4	Area 4	40.0	77.6

CLASSIFICATION OF SIGNAL DENSITY AREA

Classification	Name of locality (from district, town or higher)
Area 4	<ul style="list-style-type: none"> - Vietnamese – China border region (≤ 5 km from the border line to our country inland); - Thua Thien – Hue province: Huong Thuy and Phong Dien district
Area 3	<ul style="list-style-type: none"> - Nghe An province: Ky Son, Luong, Nam Dan, Nghi Loc, Hung Nguyen, Vinh City; - Ha Tinh province: all districts and towns except Thach Ha district; - Quang Binh province: all districts except Dong Hoi City; - Thua Thien Hue province: all of the remaining districts and cities.
Area 2	<ul style="list-style-type: none"> - Inner cities: Ha Noi, Hai Phong, Bac Giang, Thai Nguyen, Thanh Hoa; - Nghe An province: All remaining districts and towns; - Ha Tinh province: Thach Ha district; - Quang Binh Province: Dong Hoi City; - Da Nang city: all districts except Ngu Hanh Son district; - Quang Nam province: all districts and towns except Hoi An Town and Tra My District - Quang Ngai province: all districts and towns; - Ninh Thuan province: all districts and towns except Ninh Hai district, - Kon Tum province: all districts and towns; - Dak Lak province: MaDrak, Dak RLap, Krong Bong; Buon Don districts; - Gia Lai Province: Peiku city; IagGrai and Chu Prong districts; - Dong Nai province: Nhon Trach district; - Ho Chi Minh City: Cu Chi, Can Gio districts; - Long An province: all districts except Tan An town, Can Giuoc and Thanh Hoa districts - Binh Thuan province: Tuy Phong, Tanh Linh, Ham Tan districts; - Binh Duong province: Ben Cat district; - Tay Ninh province: Ben Cau, Tan Bien, Tan Chau and Tan Chau districts; - Can Tho city: Chau Thanh, Thot Not districts - Hau Giang province: Vi Thanh town - Tien Giang province: Go Cong, Cho Gao, Chau Thanh districts, My Tho City, Go Cong town. - Soc Trang province: Soc Trang City, My Tu, Long Phu, Ke Sach districts; - Kien Giang province: Chau Thanh district; - Ca Mau province: Ca Mau city, Tran Van Thoi, Ngoc Hien, Dam Doi, Cai Nuoc districts; - Tra Vinh province: Tra Vinh town - Vinh Long province: Mang Thit, Long Ho, Vung Liem districts, Vinh Long town; - Dong Thap province: Sa Dec town; Bac Lieu province: Bac Lieu town.
Area 1	All remaining areas except localities of areas 2, 3 and 4 in the country

ANNEX 2

SURVEY EXPENDITURE ESTIMATE OF BOMB, MINE AND EXPLOSIVE MATERIALS
(Applied to projects and works with area of 30 ha or more)
(Issued together with Circular No. [146/2007/TT-BQP](#) dated September 11, 2007)

No.	Expenditure item	Method of calculation	Result
I	Direct expenditure		
1	Material expenditure	Total material expenditures	VL
2	Labor allowance expenditure	Total labor expenditures	NC
3	Machine expenditure	Total machine expenditures	M
4	Other direct expenditures	1,5% x (VL + NC + M)	TT
	Total of direct expenditures	VL + M + NC + TT	T
II	General expenditures	70% x NC	C
	Total survey estimate cost	T + C	Z
III	Other expenditures	K1 + K2 + K...	K
1	Formulation of plan and report on survey result	5% x Z	K1
2	Temporary accommodation expenditures	5% x Z	K2
3	Assessment and approval expenditures	Prescribed percentage x Z	K3
...	Other expenditures (if any)...	...	K...
	Total estimate value:	Z + K	G

Note: General expenditures and expenditure of formulation of plan and report on survey result and temporary accommodation expenditures will comply with Circular No. [14/2005/TT-BXD](#) dated August 10, 2005 of the Ministry of Construction guiding the estimate and management of construction survey expenditures

ANNEX 3

EXPENDITURE ESTIMATE OF BOMB, MINE AND EXPLOSIVE MATERIAL DISPOSAL
(Issued with Circular No. [146/2007/TT-BQP](#) dated September 11, 2007)

No.	Expenditure item	Method of calculation	Result
I	Direct expenditure		
1	Material expenditure	Total material expenditures	VL
2	Labor allowance expenditure	Total labor expenditures	NC
3	Performance expenditure	Total machine expenditures	M
4	Other direct expenditures	1,5% x (VL + NC + M)	TT
	Total direct expenditures	VL + NC + M + TT	T
II	General expenditures	40% * NC	C
	Total construction estimate cost	T + C	Z
III	Other expenditures	K1 + K2 + K3 + ...	K
1	Expenditures of survey, formulation of technical performance plan - estimate	Prescribed percentage x Z	K1
2	Expenditures of assessment and approval for technical performance plan	Prescribed percentage x Z	K2

3	Camp expenditure	Prescribed percentage x Z	K3
4	Expenditure of performance quality inspection	Prescribed percentage x Z	K4
5	Expenditure of destruction of detected bombs, mines and explosive materials	Prescribed percentage x Z	K5
6	Expenditure of acceptance, payment and finalization	Prescribed percentage x Z	K6
7	Expenditure of project or works management committee (if any)	Prescribed percentage x Z	K7
8	Expenditure of inspection or examination (if any)	Prescribed percentage x Z	K8
...	Expenditurehi...	...	k...
	Total estimate value:	Z + K	G

Note: General expenditure is equal to 40% according to Circular No. [04/2005/TT-BXD](#) dated April 01, 2005 of the Ministry of Construction.