

Environmental Assessment and Review Framework

Project Number: 41456-033
April 2012

MFF 0054-VIE: Water Sector Investment Program – Tranche 2

This environmental assessment and review framework is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature. Your attention is directed to the "terms of use" section of this website.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

Environmental Assessment and Review Framework

RSC-C00751 VIE: Preparing Multi-tranche Financing Facility
Supporting Viet Nam Water Sector

Submitted to

Asian Development Bank,
Viet Nam Resident Mission,
Ha Noi

UPDATED

April 2012

CURRENCY EQUIVALENTS

(April 19, 2012)

<u>Unit</u>	–	Vietnamese Dong (VND)
VND 1.00	=	\$ 0.00005
USD \$1.00	=	20,895 VND

ABBREVIATIONS

ADB:	Asian Development Bank
CSR:	Country Safeguards Review
EARF:	Environmental Assessment and Review Framework
EPC:	Environmental Protection Commitment
DAWACO:	Da Nang Water Supply Company
DoNRE:	Department of Natural Resources & Environment
EA:	Environmental Assessment
EIA:	Environmental Impact Assessment
EMP:	Environmental Management Plan
GoV:	Government of Viet Nam
HCMC:	Ho Chi Minh City
HPWSCO:	Hai Phong Water Supply One Member Company
IPPF:	Indigenous Peoples Planning Framework
IEE:	Initial Environmental Examination
LEP:	Law on Environment Protection
GIS:	Geographic Information System
MFF:	Multitranches Financing Facility
MDG:	Millennium Development Goal
MIS:	Management Information System
MoNRE:	Ministry of Natural Resources & Environment
PC:	Public Consultation
PFR1:	First Periodic Financing Request
PFR2:	Second Periodic Financing Request
PPP:	Public Private Partnerships
PPTA:	Project Preparation Technical Assistance
RF:	Resettlement Framework
POW:	Right-of-Way
RSDD:	Regional Department of Sustainable Development
RSES:	Environment and Safeguards Division
SAWACO:	Sai Gon Water Supply Company
SCADA:	Supervisory Control & Data Acquisition
SEDP:	Socioeconomic Development Plan
TAR:	Technical Assistance Report
HUEWACO:	Hue Water Supply Corporation
WTP:	Water Treatment Plant

Contents

I.	INTRODUCTION	6
A.	Water Sector Support	6
B.	Rationale for MFF	6
1.	Environmental Assessment and Review Framework	7
C.	Overview of Initial Subprojects of the MFF	7
1.	HCMC	7
2.	Hai Phong	8
3.	Quang Tri	8
4.	Thua Thien Hue	8
5.	Da Nang	8
6.	Dak Lak	9
7.	Binh Duong	9
II.	ASSESSMENT OF LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY	9
A.	Overview of GoV EIA	9
B.	Overview of ADB EIA Requirements	10
C.	Lack of Equivalence of ADB and GoV EIA Requirements	11
1.	Timing of EA	11
2.	Screening	11
3.	Scoping	11
4.	Public Consultation	11
5.	Adopting ADB Protocol	12
D.	Assessment of Institutional Capacity	12
III.	ANTICIPATED ENVIRONMENTAL IMPACTS	12
A.	Summary of Major Activities of Water Sector Support	12
1.	Additional Water Supply Activities	13
B.	Environmental Impacts	13
1.	Construction-related Impacts	13
2.	Water Supply Development	14
3.	New or Rehabilitated Raw and Treated Water Mains	15
4.	Water Treatment	15
5.	Distribution Networks	16
IV.	ENVIRONMENTAL ASSESSMENT FOR SUBPROJECTS AND/OR COMPONENTS	16
A.	Approach to Safeguard Development for Future Subprojects	16
1.	Project Screening & Categorization	17
2.	Additional Criteria for Subproject Selection	19
3.	Impact Assessment	20
V.	CONSULTATION, DISCLOSURE, & GRIEVANCE RE-DRESS MECHANISM	21
A.	Public Consultation	21
B.	Information Disclosure	21
C.	Grievance Redress Mechanism	22
VI.	INSTITUTIONAL ARRANGEMENT AND RESPONSIBILITIES	22
A.	Responsibilities	22
1.	Ministry of Planning and Investment	22
2.	Ministry of Finance	22
3.	Water Supply Companies	22
4.	PMU	23
5.	Contractors / CMC	23
6.	ADB (RSDD)	23
B.	Staffing and Budget	23
C.	Capacity Development	24

LIST OF TABLES

Table 1. Common Construction Activities of Water Supply Projects	13
Table 2. Example Assessment Categories of Different Generic Project Types.....	18
Table 3. Staffing and Budget Estimate for Environmental Safeguards per Subproject.....	23
Table 4. Example Environmental Mitigation & Monitoring Reporting	25

APPENDICES

Appendix 1. Rapid Environmental Assessment Checklist for Water Supply	27
Appendix 2. List of Water Supply - Related Projects Requiring a GoV EIA.....	31
Appendix 3. Outline of an ADB IEE or EIA Report.....	33
Appendix 4. Outline of an Environmental Management Plan.....	36
Appendix 5. GoV Legal & Policy Framework for Water Sector Development	37
Appendix 6. Example Report Template for Construction Management Contractors	40
Appendix 7. Example Template for PMU Report for Construction Phase of Subproject	42
Appendix 8. Example Template for Water Supply Company Report on Subproject.....	44

I. INTRODUCTION

A. Water Sector Support

1. The water sector in Viet Nam has achieved significant improvements in water supply to urban and rural areas throughout the country during the last two decades. Between 1990 and 2006 Viet Nam managed to reach 92% of the Millenium Development Goal (MDG) for improved water supply coverage from the level of 52% registered in 1990¹. The detail of the status, challenges, and needs for the water sector in Viet Nam are described in the Water Sector Review². To continue the success with water supply development, and to meet the increasing demands for water of the expanding population and economy of the country the ADB and the government of Viet Nam (GoV) have agreed to develop a series of water supply projects which started in Ho Chi Minh City (HCMC).

2. The water supply support represents a long-term investment that will be combined into a single sector loan that will be financed under a Multi-tranche Financial Facility (MFF). Each city receiving support represents a subproject of the MFF. The initial support for the HCMC subproject corresponds to the first Periodic Funding Request (PFR-1) for the MFF. The subsequent PFR-2 has been assigned to subprojects in the provinces of Hai Phong, Quang Tri, Thua Thien Hue, Da Nang, Dak Lak, and Binh Duong.

3. Key areas of the Viet Nam water sector that the MFF will support are: 1) infrastructure development for improved and expanded potable water supply; and 2) capacity development of the decentralized responsible institutions/agencies for provision of efficient and financially sustainable water supply service. These target areas are directly related to objectives of the current GoV Socioeconomic Development Plan (SEDP 2006-2010) such as: a) provision of essential water supply infrastructure to poor households; b) integration of infrastructure plans into master plans and land use plans; and c) enhancement of cost recovery for infrastructure investments by setting and collecting tariffs and fees. The latter SEDP and MFF objectives directly support the important GoV Decree 117/2007/ND-CP which stipulates the transition of water supply in Viet Nam from a social good to a commercial good that requires water supply tariffs to be set for full cost recovery with reasonable profit, and equitization of the decentralized water supply companies.

B. Rationale for MFF

4. An MFF is one of six special funding modalities³ of the ADB. The MFF gives the ADB flexibility with financing investments within a program context according to the readiness of a constituent project (or subproject) and the long-term (evolving) needs of a borrower⁴. The MFF enables development of long-term partnerships between the ADB and the borrower for physical (e.g., water supply infrastructure) and non physical investments (e.g., thematic) interventions. The partnerships enable subprojects under the MFF to be defined and finalized after the MFF has been approved.

5. An MFF is the proposed financing modality for the water sector investment program because of the need for long-term – 10 year – support of infrastructure development, and institutional reform of Viet Nam water sector. Moreover, the recent and anticipated future

¹ ADB, 2010. Supporting Viet Nam Water Sector, Project Concept Paper.

² GoV, et al. 2009. Viet Nam Water Sector Review.

³ ADB, 2009. Safeguard Policy Statement, Appendix 4.

⁴ ADB, 2010. Multitranchise Financial Facility, Operations Manual Section D14/BP/OP issued May 2010.

requests for water sector support by other interested cities make individual stand alone investment loans impractical and inadequate.

6. Program or sector loans would not provide necessary supervision in view of the new legislative framework for the sector, and similarly assignment of credit lines to financial institutions are premature given the newness of sector legislation for public private partnerships (PPP). Finally, the MFF could be used by the GoV to support a national water fund which could be used to mobilize private sector financing for the sector, and facilitate access to financial support to water companies. Based on the above, the MFF was chosen as the desired financing modality for the investment into the water sector of Viet Nam.

1. Environmental Assessment and Review Framework

7. Unlike single loan projects where the detailed designs of the project are completed before the individual loans are approved, the MFF will be approved by the ADB and GoV before the detailed designs of the different subprojects to be supported of the MFF are finalized. This means that the required ADB environmental and social safeguards for individual subprojects will not be completed until after the MFF is approved.

8. To ensure that required environmental and social safeguards are eventually prepared and implemented for the finalized subprojects, safeguard frameworks are prepared as part of the design of the MFF. The three primary safeguard frameworks that are prepared are for Environment, Resettlement, and Indigenous Peoples. The Environmental Assessment and Review Framework (EARF) for environment is described herein.

9. The EARF will be used by the urban Water Supply Companies (the borrowers) and the ADB to guide the development of environmental safeguards for the future described subprojects of the MFF. The EARF has been developed following the requirements of the SPS (2009)⁵. The resettlement and indigenous peoples frameworks⁶ are described under separate covers.

10. The EARF combines generic potential environmental impacts of water supply projects with potential impacts determined from the Initial Environmental Evaluations (IEE) of the water supply subprojects of PFR-1 & PFR-2 to provide a knowledge base that users can draw from to develop environmental safeguards for the future described subprojects. The EARF provides guidance for the implementation of key safeguard development steps defined by screening & project categorization, impact assessments, management plans, public consultation & disclosure, reporting, and institutional arrangements⁷.

C. Overview of Initial Subprojects of the MFF

11. The initial subprojects of the support to the water sector in Viet Nam will occur in the HCMC, Hai Phong, Quang Tri, Thua Thien Hue, Da Nang, Dak Lak, and Binh Duong. The types of water supply development activities described at the pre- and feasibility stages of the subprojects are summarized below.

1. HCMC

- Construction of 10 km 2400 mm treated water main from existing water treatment plant (WTP);
- Distribution pipeline renewal including meters & accessories for NRW;

⁵ Footnote 3, Annex 1 of Appendix 4

⁶ Footnote 3, Annex 2 & 3 of Appendix 4

⁷ ADB, 2010. Operations Manual F1 Safeguard Review Procedures, issued January 2010

- Information management technology including Supervisory Control & Data Acquisition; and (SCADA), Geographic Information System (GIS), & Management Information System (MIS).

2. Hai Phong

Construction of Kim Son Water Supply System

- New WTP with capacity of 25,000 – 200,000 m³/day; and
- 21 km of new transmission mains (D300-D500).

Construction of Water Supply System in Northern Part of Cam River

- New WTP with capacity of 25,000 – 200,000 m³/day & 1 km access road
- New BPS; and
- 18 km of new transmission mains (D250-D600).

Upgrading An Duong Treatment Plant

- Upgrade WTP from 100,000 to 200,000 m³/day; and
- 5 km of new transmission mains (D400 & D700).

Hung Dao Water Supply Project

- New WTP with capacity of 25,000m³/day; and
- New transmission mains (D300-D600).

Rehabilitation of Do Son Water Supply System & Adjacent Areas

- Conversion of WTP to BPS (25,552 m³/day;
- 11.5 km of new transmission mains (D300-D400); and
- New service connections (approx. 20,000).

3. Quang Tri

- Quat Xa water supply system (30,000 - 60,000 m³/day), including raw water intake & pumping station;
- Improvements to Tan Luong WTP (15,000 m³/day) & network of transmission and distribution;
- Upgrades to water supply system of Quang Tri Town (13,500 m³/day); and
- Upgrades to water supply system of Lao Bao town to 6,000 m³/day.

4. Thua Thien Hue

Situated in eleven geographic areas in the Thua Thien Hue subproject consists of:

- Eight new water treatment plants (WTP);
- Five off-take pumping stations;
- Closure of three WTPs;
- Capacity upgrades to four WTPs with surface extensions;
- Construction of five new booster pumping stations; and
- 1,075 km of pipeline for transmission and distribution (D50-D1200).

5. Da Nang

- 16 km raw water main (D1400) from independent Bac river hydroelectric reservoir;

- New WTP (120,000 – 240,000 m³/day); and
- Expansion of existing treated water distribution.

6. Dak Lak

A) Buon Ma Thuot Water Supply System

- new intake for new raw water source;
- raw water pumping station & 6 km main;
- new WTP (35,000 m³/day);
- new BPS & reservoir (5000 m³); and
- expanded and improved distribution network.

B) New water supply systems in:

- Ea Kar District (2,500 – 5,000 m³/day);
- Krong Nang District (1,600 – 3,200 m³/day); and
- Buon Duong District (1,000 – 2,000 m³/day).

7. Binh Duong

- new WTP (45,000 m³/day) & pumping station;
- new intake & pumping station at Dong Nai river;
- raw water main (4.9 km, DN1200); and
- a new treated water distribution network (17.8 km, DN50 – 1000).

II. ASSESSMENT OF LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

12. Viet Nam has promulgated a legal and policy framework for environmental protection of development activities, and is party to many international agreements and conventions such as the Convention on Biological Diversity, Convention on Wetlands of International Importance (RAMSAR), the Montreal Protocol for Deletion of Substances that Deplete the Ozone Layer; the United Nations Framework Convention on Climate Change, and the Paris Declaration on Aid Effectiveness. The GoV environmental assessment process is conducted in compliance with Vietnamese law, decrees, circulars, national technical regulations (QCVN), and national technical standards (TCVN). The list of the environmental laws, policies, regulations and technical standards related to water supply are provided in Appendix 5.

A. Overview of GoV EIA

13. The GoV EIA system is governed by the following primary legal and policy regulations:

- Law on Environmental Protection (LEP) No. 52/2005/QH11;
- Decree 80/2006/ND-CP, On Detailed Guideline for Implementation of Some Articles of Law on Environmental Protection;
- Decree No. 29/2011/ND-CP of the Government providing strategic environmental assessment (SEA), environmental impact assessment (EIA) and environmental protection commitment (EPC); and
- Circular No. 26/2011/TT-BTNMT of the Ministry of Natural Resources and Environment detailing a number of articles of the Government's Decree No. 29/2011/ND-CP on strategic environmental assessment, environmental impact assessment and environmental protection commitment.

14. The GoV environmental assessment (EA) system articulates two levels of environmental assessment for development projects as defined below:

- (i) Environmental Protection Commitment (EPC); and
- (ii) Environmental Impact Assessment (EIA).

15. The two levels of assessment are determined from a prescriptive screening protocol⁸ that generally distinguishes development projects by size. For large projects that meet quantitative criteria for size, resource consumption, or process production an EIA report is required. Criteria for the location of a project near, or potentially affecting protected natural resources, critical habitat, or social assets & livelihoods also determine whether and EIA is required for a project. For smaller projects that fall under and do not meet the same quantitative criteria an EPC report is required.

16. The EPC represents the “lighter” EA of the GoV system focusing primarily on liquid and gaseous wastes produced by a project, whereas the EIA is a more comprehensive assessment of potential impacts.

B. Overview of ADB EIA Requirements

17. The EIA requirements of the ADB for development projects are described by the Safeguard Policy Statement⁹. The SPS in turn is supported by safeguard modules, operational manuals, and review procedures e.g.,¹⁰ The ADB protocol defines four levels of impact assessment for development projects as summarized below:

- (i) **Category A:**
For a project that is expected to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. An environmental impact assessment (EIA) report including an environmental management plan (EMP) is required.
- (ii) **Category B:**
For a project which potential adverse environmental impacts are less adverse, site-specific, mostly reversible, and in most cases can be mitigated. An IEE including an EMP is required.
- (iii) **Category C.**
For a project expected to have minimal to no adverse environmental impacts. An EIA or IEE is not required beyond screening.

The fourth **Category FI** is assigned to projects that involve investment of ADB funds to, or through, a financial intermediary.

18. It is common but not the rule that water supply projects in Viet Nam are screened by the GoV system to require an EPC, or a Category B IEE by the ADB screening protocol. However, the scope of the EPC¹¹ is notably less comprehensive than the scope of a ADB Category B IEE. Thus, if a subproject supported by the MFF was screened to require a GoV EPC then an ADB IEE would need to be prepared in order to satisfy the safeguard requirements of the ADB.

⁸ GoV Decree 21/2008/ND-CP, Annex 1

⁹ ADB, 2009. Safeguard Policy Statement.

¹⁰ Footnotes 4 and 7.

¹¹ GoV Circular 05/2008/TT-BTNMT, Annex 4.

C. Lack of Equivalence of ADB and GoV EIA Requirements

19. The assessment of equivalence between the EIA requirements of the ADB and the GoV was updated in May 2010¹² as part of the ongoing update of the Country Safeguard Review (CSR) for Viet Nam¹³. The update of the CSR is being prepared to address, *inter alia*, the recent promulgation of Decree 21/2008/ND-CP, and MoNRE Circular 05/2008/TT-BTBMT. Circular 05 replaced Circular 08.

In addition to the differences between the GoV EPC and ADB Category B IEE, the ADB and GoV EIA requirements differ in key areas as summarized below:

1. Timing of EA

20. The recently articulated GoV Decree 21 stipulates that EIA reports for construction-related projects are to be submitted for appraisal and approval just before applying for construction permits. This late date for EIA approval means that the project design can be well developed, if not completely developed before the EIA is completed. The delayed GoV EIA process conflicts with the ADB requirement for EA to begin as soon as possible - with prefeasibility stage. The timing of initiation of EA has direct implications to when the GoV system would be applied to the subprojects supported by the MFF.

2. Screening

21. The screening protocol of 162 defined project types that specify quantitative criteria for size, resource consumption, or production of Appendix 1 of Decree 21 that distinguish “big” projects requiring an EIA from “small” projects requiring an EPC is too prescriptive. The screening protocol results in all projects of a particular sector that share the same range of quantitative criteria being assessed with same level of effort. The important subjective screening of individual project contexts is lost. The implication for using the GoV EIA screening protocol is that two subprojects supported by the MFF that share the same screening criteria would be assessed with same level of effort even if they differed significantly with respect to potential environmental or social impacts.

3. Scoping

22. Because of the prescriptive nature of GoV screening, scoping the focal areas of the assessment for the subprojects of the MFF is reduced because sector projects that share the same quantitative criteria essentially receive the same level and scope of assessment.

4. Public Consultation

23. Formal public consultation is not required for a GoV EPC. Public consultation is required for an EIA, however, due to the timing of a GoV EA, public consultation is initiated too late in the EIA process. Thus, public consultation of GoV EIA system is not as effective – meaningful - as that applied by the ADB EA protocol.

¹² JDM 2010. Updated Equivalence Matrix for Revised CSR for Viet Nam. Draft Matrix prepared for ADB.

¹³ ADB 2009. Country Safeguards Review, RETA 6285: Strengthening Country Safeguards Systems, 19ps + Annexes.

5. Adopting ADB Protocol

24. The overview of the GoV EIA system, and the lack of equivalence between the two EIA protocols indicates the need to adopt the ADB EIA procedures to develop the environmental safeguards for the subprojects supported by the MFF. See section IV below.

D. Assessment of Institutional Capacity

25. Viet Nam has an expanding community of competent, professional practitioners of the GoV EIA system that is emanating from the private sector, MoNRE/DoNRES, and from GoV institutes. However, the public and semi-private service utilities are weak with their capacity and skills to implement the EIA requirements of Viet Nam. The urban water supply companies of Viet Nam are no exception.

26. The water supply companies know how to monitor raw and treated water quality, and the quality of treatment backwash water, as part of their water supply operations but do not have the expertise to design and implement an EIA for an expansion of the their water supply operations, or to manage an EMP.

27. The situation worsens at the subproject management level because the water supply companies are not able transfer the few staff they have with environment education/experience in environmental protection to the join the project management units (PMU) that are established by the utilities to implement a subproject. As an example, the SAWACO of HCMC will need to hire an outside environmental consultant to review, update where necessary, and to implement the EMP that was prepared as part of the Initial Environmental Examination (IEE)¹⁴ of the HCMC water supply subproject. Similarly, the other water supply companies of Da Nang, Hue, and Hai Phong will need outsourced support.

28. Thus, the water supply companies of the target cities for Water Sector Support do not have the capacity and skills to implement the EIA requirements of the ADB for their subprojects.

III. ANTICIPATED ENVIRONMENTAL IMPACTS

A. Summary of Major Activities of Water Sector Support

29. From section I-C the water supply investment areas and activities planned for the subprojects comprising PFR-1 and PFR-2 are as follows:

Water Supply

1. New or upgraded surface water intakes & pumping stations
2. Use of future/existing independent reservoirs
2. New or rehabilitated raw water mains

Water Treatment

4. New or upgraded WTPs
5. New or rehabilitated treated water mains

Distribution Network

6. New and upgraded distribution networks

Management Capacity, Support & Systems

¹⁴ Footnote 8.

7. Capacity development & training
8. Installation of SCADA, GIS, or MIS

1. Additional Water Supply Activities

30. Other important water supply development activities not included above but which are included in the EARF are as follows:

10. Construction of new, or rehabilitation of water supply reservoirs including dam works;
11. New or upgraded groundwater pumping stations; and
12. Use of existing irrigation reservoirs or canal networks.

B. Environmental Impacts

31. Environmental impacts of water supply development occur from the following component activities:

- a) Water Supply;
- b) Water Treatment; and
- c) Distribution Networks.

32. Activities associated with the fourth component activity area; Management Capacity, Support, and Systems are not likely to cause any negative impacts on the environment. Environmental impacts of the three component activities can be divided into:

- a) construction-related impacts; and
- b) long-term or permanent impacts.

1. Construction-related Impacts

33. Common construction activities of water supply projects are listed in Table 1.

Table 1. Common Construction Activities of Water Supply Projects

- | |
|--|
| <ol style="list-style-type: none"> 1) land clearing; 2) excavation and grading; 3) filling and dike construction; 4) disposal of excavated spoil; 5) development of borrow pits; 6) permanent or temporary road construction; 7) river diversions; 8) coffer dam construction; 9) movement of construction vehicles; 10) maintenance of construction vehicles; 11) movement of pipeline, equipment, and materials; 12) heavy equipment use; and 13) construction and operation of worker camps. |
|--|

34. The short-term impacts associated with civil construction works consist of noise, dust, erosion, surface water sedimentation, traffic interruptions & accidents, flooding, pollution from solid and liquid domestic and construction wastes, disruption of water supply, and transmission

of communicable diseases. The short-term construction impacts for the most part can be prevented or mitigated with standard operation procedures and good construction management practices, e.g.¹⁵.

35. The potential long-term or permanent impacts of construction and the impacts of the overall water development investment are most important, and generally determine the level of impact assessment a water supply project requires (see section IV). The long-term impacts are summarized below generically using specific examples drawn from the IEEs prepared for the subprojects of PFR-1 and PFR-2.

2. Water Supply Development

a. Reservoir Construction or Expansion Including Dam Works

36. The construction or expansion of a water supply reservoir from a dammed river represents the single largest water supply investment activity with respect to potential impacts on the natural and social environments. The size of the area affected by new reservoirs underlies the significance of the potential impacts on the environment.

37. New or expanded reservoirs created from dammed rivers destroy the terrestrial ecosystem and natural habitat that is flooded, and stops all original human use of inundated lands such as living & housing, business, industry, agriculture, forestry, and mining. A new or expanded reservoir destroys inundated protected lands, nature reserves, critical habitat for rare or endangered species, and cultural resources and property.

38. Flooded lands in Viet Nam commonly leach natural toxicants such as cadmium, and manmade toxicants such as pesticides, herbicides, and hydrocarbons which end up downstream, and in drinking water and the food chain. In the area of Da Nang, and north of HCMC the herbicide used in the war ending 1975 commonly referred as agent orange is a notable manmade toxicant.

39. New reservoirs significantly alter downstream water quality, disrupt human and animal transportation routes, and create habitat for disease vectors. The construction of reservoirs and dams create safety hazards for local communities and workers. The independent Bac River reservoir and dam on the Cu De River to be created for a power station is a good example of a new reservoir that would require a major impacts assessment if it were part of a subproject supported by the MFF (see below).

a. Use of Existing Supply Reservoirs

40. The use of existing man-made water sources such as dammed reservoirs and irrigation canals can create water shortages, negatively affect aquatic habitat, and create conflicts amongst water user groups. The potential impacts occur when water resource budgeting and planning are not conducted accurately with shortages normally occurring during the dry season. Use of the planned Bac River reservoir on the Cu De River in Da Nang is a good example of a potential situation where water resource budgeting and allocations must be conducted carefully with a wide margin for contingency.

¹⁵ World Bank Group, 2007. Environmental Health & Safety Guidelines.

b. Groundwater Extraction

41. Similar to shared surface water resources, new or increased groundwater consumption can negatively affect dependent households and industry. Significant groundwater consumption in coastal areas can exacerbate saltwater intrusion.

c. New or Upgraded Pumping Stations

42. The construction or expansion of shoreline pump houses can destroy critical or sensitive aquatic habitat, destroy or otherwise remove physical and cultural property, and disrupt shoreline transportation. The operation of pump houses can pose safety hazards to the public and workers. Some of these potential impacts were identified by the IEEs for Hue and Da Nang.

3. New or Rehabilitated Raw and Treated Water Mains

43. Raw and treated water mains are the second largest water supply intervention with respect to environmental impacts because water mains are normally large and can require much space for land clearing and excavation for installation. The 2400 mm dia treated water main of HCMC subproject is a good example of a large pipeline.

44. Placement or rehabilitation of a new water main creates or expands a permanent right-of-way (ROW) corridor in which all original natural habitat, animal movement/migration routes, and land use is destroyed or negatively affected. The degree of permanent ecological change depends on whether the main is above ground or buried, and the extent of ecological restoration after the main is completed.

45. The planned 16 km raw water main from the Cu De River to the new Hoa Lien WTP in Da Nang is a good example of a pipeline that is expected to cause a great deal of small but permanent community and ecological disturbance because of the unusually confined space through which the pipeline must be laid. Conversely, the 2400 mm treated water main of HCMC will have minimal long-term impacts because the pipeline it is being laid in the existing corridor developed for the Ha Noi highway and elevated LRT.

46. Other potential major impacts of a pipeline corridor stem from the access it creates to valued ecological habitat or wilderness areas leading to the impacts of resource exploitation, and pristine or wild lands degradation. This is particularly important for pipelines that are placed in or near the buffer zones of protected areas such as natural parks and reserves.

47. The most notable subproject with respect to potential impacts on ecological protected areas is Thua Thien Hue. The geographic spread of that subproject in the feasibility design stage could potentially affect six protected or valued green areas of the province defined by Bach Ma National Park, Phong Dien Nature Reserve, Bac Hai Van Special-use Forest, Tay Nam Hue Cultural/Historic Site, Tam Giang Marine Protected Area, and the WWF Green Corridor.

4. Water Treatment

a. New or upgraded WTPs

48. Similar to pumping stations but at a much larger scale are the potential impacts of the buildings and physical structures of new or expanded WTPs. The placement of buildings, roads, and backwash sludge settling ponds can destroy or damage valuable ecological or cultural assets. However, because WTPs tend to be located in urban or peri-urban locations these physical-spatial impacts are focused more on the community assets.

49. The issue unique to new or upgraded WTPs is the potential for spills and pollution inside and outside the WTP from improper storage and use of treatment chemicals such as chlorine and alum. Another area of potential impact is surface water and soil pollution caused by improper management of backwash water, and sludge from the sludge ponds. Settled backwash water is normally discharged to a local water course so it needs to meet the existing QCVN discharge standards. Similarly, settled sludge for the sludge ponds needs to meet TCVN standards for contaminated soil before being dumped into designated landfill areas.

5. Distribution Networks

a. New and upgraded distribution networks to end users

50. Potential impacts associated with the development and upgrading of distribution pipelines and meter stations for end users of water supply are identical but smaller in scale than impacts associated with new or expanded raw or treated water mains. However, collectively the potential area of construction or upgrading of clusters of distribution pipelines forming a network or sub-networks could cause significant disturbance to the community, and negatively affect habitat/resources per-urban areas.

IV. ENVIRONMENTAL ASSESSMENT FOR SUBPROJECTS AND/OR COMPONENTS

51. This section outlines the steps to develop environmental safeguards for future tranches (subprojects) of the MFF that are required by the ADB and GoV. Because the GoV's requirements for EIA do not completely meet the EIA requirements of the ADB, the guidance provided below will address the important steps of both jurisdictions while focusing on the safeguard requirements of the ADB.

52. The term subproject refers to a water supply investment of a single borrower water supply company, such as the individual subprojects for PFR-1 and PFR-2. A tranche refers to the funding for one or more subprojects. Because under the MFF environmental safeguards are developed for individual tranches, safeguards could be developed for more than one subproject at a time. Tranche and subproject are used interchangeably here with respect to environmental safeguards.

53. The "borrower" Water Supply Company developing and implementing future subprojects is encouraged to consult with the Environment and Safeguards Division (RSES) of the Regional Department of Sustainable Development (RSDD) of the ADB for any required information on the EIA requirements of the SPS (2009) in addition to the guidance provided below. As introduced above the EIA requirements of the GoV are described in detail by Decree 80/2006/ND-CP, Decree 29/2011/ND-CP, and Circular 26/2011/TT-BTBNT which support the implementation of the EIA requirements specified by the LEP (2005).

A. Approach to Safeguard Development for Future Subprojects

54. The guidance provided below assists with the identification and overall management of potential environmental impacts of future tranches (subprojects) supported by the MFF for Water Sector Support to Viet Nam. Noteworthy, is that the MFF will benefit from the ability of the EARF to use the results of the recent IEEs prepared for the pre-feasibility stages of the subprojects of PFR-1 and PFR-2 to assist with safeguard development of future subprojects. While the environmental safeguards described by these completed IEEs could be updated in preparation for final approval of the MFF, they nonetheless provide valuable insight into

potential impacts and required environmental management of future water supply investments supported by the MFF.

1. Project Screening & Categorization

55. The first step toward safeguard development is screening the subproject (tranche) for potential environmental impacts and risks to determine the level of impact assessment that is required. Screening also determines the extent of public consultation on the subproject, and follow-up environmental management that is required.

a. ADB

56. Environmental specialists from the operations department of the RSDD will screen each submitted tranche for potential environmental impacts and risks. Based on results of screening the RSDD of the ADB will categorize the subproject which describes the level of impact assessment required (see below). The borrower Water Supply Company must understand the ADB screening protocol.

57. A rapid environmental assessment (REA) is conducted initially by the RSDD of ADB to screen candidate tranches or subprojects. The REA process consists of a series of checklists of potential impacts areas for different development sectors. The REA checklist for Water Supply Projects is provided in Appendix 1. Separate checklists are used to screen the extent of required Resettlement, and potential impacts on Indigenous Peoples. Application of these other checklists occur as part of the development of separate Resettlement Frameworks (RF), and Indigenous Peoples Planning Frameworks (IPPF) which are outside the EARF.

58. The results of screening are used by RSDD to assign a Category A, B, or C designation to the tranche or subproject depending on the potential environmental impacts or risks. As introduced above the four assessment categories are defined as follows:

Category A applies to tranche or subproject if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment (EIA), including an environmental management plan (EMP), is required.

Category B applies to a tranche or subproject if its potential adverse environmental impacts 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 for category A projects. An initial environmental examination (IEE), including an EMP, is required.

Category C is applied to tranche or subproject if it is likely to have minimal or no adverse environmental impacts. An EIA or IEE is not required after screening although environmental implications need to be reviewed.

Category FI initiatives involve investment of ADB funds to, or through, a financial intermediary which likely do not apply to the MFF.

59. An environment category of a tranche/subproject is determined from the most environmentally sensitive component including direct, indirect, induced, and cumulative impacts.

60. The results of screening and initial categorization of a tranche/subproject proposed by the subproject design team are sent to the sector operations department of the ADB for review. The Operations Department also assesses whether the subproject is complex or has high risk

elements. If the project is clearly category B without high risk elements the Operations Department will confirm that environmental safeguards are met before the PFR for the tranche/subproject is considered.

61. If the subproject is classed as category A, or includes high risk elements or is complex the Operations Department will send the results of screening to the Chief Compliance Officer (CCO), through the Environment and Safeguards Division (RSES) of the RSDD for review. The CCO is responsible for the final categorization of a tranche or subproject including the determination of whether a tranche or subproject is to be deemed highly complex and sensitive.

62. The RSES will issue a SPCM before the MRM approves the first tranche allocated to HCMC subproject, and then before the PFRs of the second and subsequent tranches for subprojects in Da Nang, Hue & Hai Phong, and the other undefined subproject/cities. Because screening and tranche/subproject categorization must be iterative, the tranche/subproject categories starting with HCMC may be re-confirmed at the management review meeting (MRM).

63. Table 2 exemplifies ADB categories for different generic project types. Note that urban water supply investments generally fall under category B which is the category assigned to the subprojects in HCMC, Da Nang, Hue and Hai Phong. Note also in Table 2 that dams and reservoirs which are commonly constructed for water supply developments are classed as category A projects.

Table 2. Example Assessment Categories of Different Generic Project Types¹⁶.

Category A	Category B	Category C	Category F1
Dams and reservoirs Forestry and production projects (large-scale) Industrial plants (large-scale) Irrigation, drainage, and flood control (large-scale) Mineral development (oil and gas) Port and harbour development Thermal and hydropower development	Agro-industries Rural electrification Electrical Transmission Urban water supply and sanitation Rural water supply and sanitation Irrigation and drainage (small-scale) Watershed projects Renewable energy	Forestry research and extension Rural health services Marine research Family planning program Microfinance projects likely to have minimal or no adverse impacts	Not applicable to MFF (e.g., credit lines)

i. Category A Tranches/subprojects and the EARF

64. While water supply investments are commonly classed as category B interventions, the EARF recognizes the possibility of Category A tranches or subprojects for the following reasons:

¹⁶ ADB, 2003. Environmental Assessment Guidelines, 107 pgs + Appendices

1. the locations, descriptions, and scope of future tranches/subprojects are unknown;
2. the *a priori* urban focus of water supply developments can extend into and per-rural and rural environments potentially affecting valued natural resources and protected areas; and
3. while construction of supply reservoirs are not anticipated for subprojects of the Water Sector Support the EARF needs to be able to address that eventuality.

65. Example subproject elements that would require a Category A EA is a short reach of water main crossing or laying adjacent to the buffer zone of a natural park, dry season water extractions from an irrigation reservoir potentially causing resource conflicts, or if the reproductive habitat of a rare animal was at risk of being destroyed or damaged.

66. This means that water supply subprojects of future tranches of the MFF could have characteristics requiring a Category A impact assessment as exemplified below:

- be located near, or inside buffer zones of ecological protected areas such as one of the many national parks or protected areas in Viet Nam;
- be in or near sensitive and valued ecosystems such wetlands, critical habitat for rare or endangered wildlife species, and valued resources such as medicinal plants; and pristine wild lands;
- negatively affect biodiversity through habitat destruction;
- be in or near cultural heritage sites such as archeological sites, historic sites, existing cultural sites or values;
- require a new reservoir and dam for water supply;
- create water use conflicts from insufficient water resources; and
- cause large scale resettlement, or encroachment on indigenous peoples which are addressed by the separate RF and IPPF.

b. GoV

67. The GoV EIA system screens projects to determine whether an EPC or EIA is required. Appendix 1 of Decree 29/2011/ND-CP lists project descriptions from approximately 16 project types which prescribe mostly quantitative criteria related to project size.

68. Projects that meet or exceed the criteria require EIAs, whereas projects that are smaller require EPCs. The subset of water supply-related project types that need to be applied to screen tranches/subprojects of the MFF for either a GoV EIA or EPC are listed in Appendix 2.

2. Additional Criteria for Subproject Selection

69. As indicated above urban water supply development projects generally require Category B assessments, but that subprojects of the Water Sector Support initiative have the potential for requiring a Category A-level assessment due to potential impacts on valued natural resources, critical habitat associated with national parks and protected areas, and cultural property and values. Subprojects that would directly affect the core and buffer zones of national parks and protected areas should be strictly avoided or the subproject component(s) causing potential impacts relocated. Similarly, are subprojects that will directly affect highly valued cultural property.

70. For completeness additional criteria¹⁷ that prohibit inclusion of a subproject with the Water Sector Support initiative are as follows:

- 1) activities involving harmful or exploitative forms of forced labour or child labor;
- 2) any activity deemed illegal under host country laws or regulations or international conventions and agreements or subject to international phase-outs or bans, such as
 - a. pharmaceuticals, pesticides, and herbicides,
 - b. ozone-depleting substances,
 - c. polychlorinated biphenyls and other hazardous chemicals,
 - d. wildlife or wildlife products regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and
 - e. transboundary trade in waste or waste products
- 3) activities of gambling, casinos, and equivalent enterprises;
- 4) production of, trade in, or use of un-bonded asbestos fibers;
- 5) commercial logging operations or the purchase of logging equipment for use in primary tropical moist forests or old-growth forests; and
- 6) marine and coastal fishing practices, such as large-scale pelagic drift net fishing and fine mesh net fishing, harmful to vulnerable and protected species in large numbers and damaging to marine biodiversity and habitats.

3. Impact Assessment

71. The assessment of potential impacts of a tranche or subproject must follow the structured steps of an IEE or EIA of the ADB. The assessment process systematically links detailed descriptions of subproject activities to the detailed descriptions of affected components of the natural and social environments in an assessment of potential impacts of the subproject. Moreover, the IEE or EIA is logically executed with the reports structured by the three phases of subproject implementation defined by pre-construction, construction, and operational phases.

72. The major components of an IEE and EIA are summarized below. The table of contents for an example IEE or EIA report is provided in Appendix 3.

1. Description of Project*
2. Description of Affected Natural and Social Environments
3. Assessment of Impacts*
4. Public Consultation, Disclosure, & Grievance Process
5. Assessment of Alternatives
6. Environmental Management Plan*
 - a) Impact Mitigation Plan
 - b) Monitoring Plan
 - c) Institutional Responsibilities & Capacity Needs
 - d) Reporting Requirements
 - e) Budget

*Organized and reported by pre-construction, construction, & operational phase of subproject

a. Environmental Management Plan

73. An environmental management plan (EMP) must be developed for a tranche or subproject. The EMP carries the results of the IEE or EIA forward to ensure that unnecessary impacts of a subproject are mitigated, and unexpected impacts of a subproject are identified and managed through follow-up environmental monitoring during subproject implementation. The

¹⁷ Adapted from ADB, 2009. Safeguard Policy Statement, Appendix 5

structure of an EMP is found in Appendix 4. GoV EIA practitioners are directed to an introductory guideline for the preparation of an EMP¹⁸. The guideline was developed in support of EIA Harmonization for the Ha Noi Core Statement pursuant to the Paris Declaration on Aid Effectiveness.

74. The content and structure of an ADB IEE or EIA report must be prepared for a tranche or subproject not the GoV EPC or EIA report. The scope of a GoV EA is likely not to be as comprehensive as the ADB EA of same subproject as a result of the prescriptive nature of GoV screening process. And as indicated earlier the scope of the EPC is by design less than the IEE. Further, formal public consultation is not a requirement of an EPC, and GoV impact assessments are not necessarily structured by the three subproject implementation phases (pre-construction, construction, operation) which strongly benefits the EA.

V. CONSULTATION, DISCLOSURE, & GRIEVANCE RE-DRESS MECHANISM

A. Public Consultation

75. The borrower Water Supply Company must conduct meaningful consultation of affected people and concerned stakeholders to determine their views and concerns of the tranche or subproject. Meaningful consultation occurs when the affected community is able to freely and comfortably express their views of the subproject in their own language from their own communes, or districts.

76. Meaningful consultation starts at the pre-feasibility stage of the subproject and continues throughout subproject implementation extending into implementation of the subproject EMP with a series (at least two) meetings in which subproject development and issues of affected households and stakeholders are reviewed. Easy communication links must be established early and maintained between the community and the subproject management unit (PMU) of the Water Supply Company.

77. Public consultation can take the form of distributed information materials and pamphlets, individual interviews, and formal public meetings. GoV EIA practitioners are directed to an introductory guideline for the preparation of an EMP¹⁹

78. Meaningful consultation occurs when the affected community effectively becomes an “at arms length” part of the subproject management team. The information and results obtained from meaningful consultation are integrated in the assessment of impacts of subproject, and used to determine mitigation and monitoring requirements of the EMP. GoV practitioners are directed to a guideline for public consultation that was prepared for the GoV EIA system²⁰.

B. Information Disclosure

79. To meet the ADB’s information disclosure requirements the borrower Water Supply Company of tranche or subproject must submit to the ADB the following documents for disclosure on ADB’s website:

¹⁸ JDM et al. 2010. Guidelines for Environmental Management Plan and Public Consultation, report prepared for Study of EIA Harmonization under Ha Noi Core Statement
<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/VIETNAMEXTN/0,,contentMDK:22593949~pagePK:1497618~piPK:217854~theSitePK:387565,00.html>

¹⁹ Footnote 23

²⁰ Footnote 21.

- 1) a draft full EA (IEE or EIA) including EMP of subproject at least 120 days prior to consideration and approval of PFR for subsequent tranches by ADB Board;
- 2) final EA document following updated draft document;
- 3) EMP reports as scheduled in EMP; and
- 4) all other required monitoring reports as needed for specific tranche or subproject.

80. In addition to ADB web sites, the borrower Water Supply Company will make available up to date information [including draft & final EA reports] on subproject development and impacts to the affected community throughout subproject implementation in an accessible place and in a form and language(s) understandable to affected people and other stakeholders. For illiterate people other suitable communication methods will be used.

C. Grievance Redress Mechanism

81. As part of meaningful public consultation on the tranche or subproject that is conducted by the borrower Water Supply Company a mechanism must be developed by the borrower and affected community to receive and facilitate resolution of affected peoples' concerns, complaints, and grievances about the project's environmental performance. The development of the mechanism initially will be facilitated through the relevant Provincial Peoples Committee, and then managed through the affected district and commune offices.

82. The mechanism should address affected people's concerns and complaints promptly using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to all segments of the affected people at no costs and without retribution. The mechanism should not impede access to Viet Nam's judicial or administrative remedies.

VI. INSTITUTIONAL ARRANGEMENT AND RESPONSIBILITIES

A. Responsibilities

83. The following parties and agencies have responsibilities for the administration and environmental management of the subproject(s) of a tranche as summarized below.

1. Ministry of Planning and Investment

- Acts as executing agency for the MFF.
- Selects future water supply companies that will access the MFF.
- Produces consolidated reports on subprojects selected for each tranche.

2. Ministry of Finance

- Disburses MFF to water supply companies.
- Establishes direct financing for PFR1 (HCMC subproject).

3. Water Supply Companies

- Drafts & submits PFR.
- Takes overall responsibility for implementation of required environmental safeguards for subproject.
- Organizes and leads public consultation of subproject.
- Prepares IEE or EIA in consultation with RSDD with support from an environmental consultant if necessary.
- Establishes Project Management Unit (PMU) for subproject & hires environmental officer for PMU.

- Oversees implementation of EMP for IEE or EIA.
 - Hires an environmental consultant to assist with IEE or EIA, and PMU with EMP.
 - Hires independent environmental auditor for EMP if necessary.
 - Ensures required environmental reports for EMP are prepared.
- 4. PMU**
- Implements EMP of IEE or EIA.
 - Ensures contractor or construction management consultant (CMC) implements the mitigation measures of EMP.
 - Prepares reports on implementation & effectiveness of mitigation measures, observed impacts, and overall implementation of EMP as dictated by EMP.
- 5. Contractors / CMC**
- Implements mitigation measures of EMP.
 - Prepares & submits monthly reports on mitigation measures and impacts of subproject to PMU.
- 6. ADB (RSDD)**
- Finalize subproject category (B or A)
 - Provides guidance to water supply company for preparation of IEE or EIA

B. Staffing and Budget

84. The following staff requirements and budget are identified for the preparation of the environmental safeguards for an individual new subproject of future tranches of the Water Sector Support initiative (Table 3). The estimated staffing and budget for future subprojects only include staff that must be hired to develop and implement an IEE or EIA for new subprojects. The budget estimate will need to be reviewed and adjusted to fit a newly described subprojects.

The staffing requirements consist of international and national environmental specialists, international and national biodiversity/forestry specialists, an environmental officer for PMU, and an optional national environmental auditor.

Table 3. Staffing and Budget Estimate for Environmental Safeguards per Subproject.

Resource Needs	Unit Cost	Quantity	Cost
IEE			
International environment specialist*			
professional fee	\$18,000. / month	3	\$54,000.
per diem	\$3,500. / month	3	\$10,500.
travel	\$5,000. lump		\$5,000.
National environmental specialist			
fee	\$2,400. / month	5	\$12,000.
per diem & local travel	\$4,000. lump		\$4,000.
Surveys, data collection, laboratory analyses, public consultations	\$25,000. lump		\$25,000.
Total IEE			\$110,500.
EIA			
International environment specialist			
professional fee	\$18,000. / month	5	\$90,000.
per diem	\$3,500. / month	5	\$17,500.
travel	\$5,000. lump	2	\$10,000.

Resource Needs	Unit Cost	Quantity	Cost
National environmental specialist fee per diem & local travel	\$2400. / month \$7,000. lump	8	\$19,200. \$7,000.
International biodiversity/forestry specialist			
professional fee	\$18,000. / month	3	\$54,000.
per diem	\$3,500. / month	3	\$10,500.
travel	\$5,000. lump	2	\$10,000.
National biodiversity/forestry specialist			
fee	\$2400. / month	5	\$12,000.
per diem & local travel	\$7,000. lump		\$7,000.
Surveys, data collection, laboratory analyses, public consultations	\$75,000. lump		\$75,000.
Total EIA			\$312,200.
EMP			
National environment officer (PMU)	\$3,000. / year	3	\$9,000.
National environmental consultant part-time support	\$2,400. / month	9	\$21,600.
Optional international EMP auditor	\$500. / day	30	\$15,000.
Reporting	\$2,000. lump		\$2,000.
Total EMP			\$47,600.

* Estimate for international consultant leading preparation of IEE. Alternatively, national consultant leads IEE depending on project context with international consultant as advisor thereby reducing budget.

C. Capacity Development

85. Utility companies do not need fulltime staff dedicated to environmental assessment of their operations and development initiatives. Normally utility companies outsource specialized environmental management support when needed. For example SAWACO of HCMC confirmed that necessary fulltime environmental expertise is required only for management of water treatment plant processes, monitoring raw and treated water quality, and management of treatment process waste such as used alum and sludge. This work is performed by environmental engineers of the utility.

86. However, in order to protect the natural environment, and their investments water supply companies should be independently knowledgeable of their responsibilities for protecting the environment pursuant to the LEP (2005) including understanding the GoV EIA process and their responsibilities for implementing the EIA process. Moreover, water supply companies will be responsible for the preparation of the required environmental safeguards for their subprojects.

87. Two environmental engineers of individual water supply companies should be trained on the LEP (2005) and how it is applied to water supply development. Training should include the implementation of EIA and an EMP, and use of TCVN and QCVN environmental standards. Water supply companies will continue to outsource the preparation of EIAs and the implementation of EMPs for their development projects, however, the training will position them to be able to better manage consultant activities and inputs. The trained staffers would become responsible for managing external consultants.

88. Two courses for designated environment staff of water supply companies would sufficient. A first course should be given on the LEP (2005) and all supporting Decrees and Circulars relevant to water supply. Other policy on construction management should be included. A second course on EIA and EMP should follow. The key requirements are is to have the courses focus on the context and needs for environmental management of water supply development.

VII. MONITORING AND REPORTING

89. As part of the EMP for an IEE or EIA of a subproject of a tranche the borrower Water Supply Company must develop a reporting protocol to monitor and document environmental impacts and overall environmental management of the subproject. Regular reports on mitigation and monitoring activities that are prescribed by the EMP must be prepared for the construction and operational phases of the subproject. Reporting also must include results of public consultations on the subproject.

90. The regular reports will document the implementation and effectiveness of the impact mitigation measures of the EMP, and will document any unexpected environmental or social impacts of the subproject. In addition to monitoring for successful implementation of EMP monitoring activities will assess compliance with any permit conditions.

91. The reporting and monitoring process will also serve the communication mechanisms described above for public consultation, information disclosure, and grievances established between affected communities and the Water Supply Company. Some monitoring reporting for subproject implementation will be distributed or made available to the affected community.

92. During the construction phase contractors or designated construction management consultants (CMC) will report progress to the PMU of Water Supply Company on a monthly and quarterly basis. The CMC will assist Water Supply Company in preparing environmental monitoring reports. The reports shall be forwarded to the MPI and ADB. The reports will contain progress made in EMP implementation with particular attention to compliance with required mitigation and monitoring as set out in EMP.

93. Monitoring will occur during the operation and maintenance phase to guard against negative environmental impacts. A third party consultant may be needed to audit performance of Water Supply Company with implementation of the EMP. Table 4 summarizes example required reporting. Example report formats are found in Appendix 6-8.

Table 4. Example Environmental Mitigation & Monitoring Reporting

Author	Purpose	Frequency	Recipient	Subproject Phase
Contractors or CMC	Summary of activities of contractor with EMP including mitigation activities & impacts	weekly observations reported monthly	PMU	construction
PMU	Summarize mitigations & impacts of all construction packages	quarterly	PWSC, ADB, DONRE	construction
PWSC	Periodic summaries of effectiveness of EMP as needed – most likely during operational phase of subproject	as needed	ADB, MPI, DONRE	operational
Optional Independent environmental auditor	Report on implementation of the EMP	every six months	PWSC, ADB, MPI	construction & operational

Appendix 1. Rapid Environmental Assessment Checklist for Water Supply

WATER SUPPLY page 1 of 3

Instructions:

- (i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES) for endorsement by the Director, RSES and for approval by the Chief Compliance Officer.
- (ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.
- (iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title:

Sector Division:

SCREENING QUESTIONS	Yes	No	REMARKS
A. Project Siting			
Is the project area...	<input type="checkbox"/>	<input type="checkbox"/>	
▪ Densely populated?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ Heavy with development activities?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ Adjacent to or within any environmentally sensitive areas?			
• Cultural heritage site	<input type="checkbox"/>	<input type="checkbox"/>	
• Protected Area	<input type="checkbox"/>	<input type="checkbox"/>	
• Wetland	<input type="checkbox"/>	<input type="checkbox"/>	
• Mangrove	<input type="checkbox"/>	<input type="checkbox"/>	
• Estuarine	<input type="checkbox"/>	<input type="checkbox"/>	
• Buffer zone of protected area	<input type="checkbox"/>	<input type="checkbox"/>	
• Special area for protecting biodiversity	<input type="checkbox"/>	<input type="checkbox"/>	
• Bay	<input type="checkbox"/>	<input type="checkbox"/>	
B. Potential Environmental Impacts			
Will the Project cause...			
▪ pollution of raw water supply from upstream wastewater discharge from communities, industries, agriculture, and soil erosion runoff?	<input type="checkbox"/>	<input type="checkbox"/>	

SCREENING QUESTIONS	Yes	No	REMARKS
▪ impairment of historical/cultural monuments/areas and loss/damage to these sites?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ hazard of land subsidence caused by excessive ground water pumping?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ social conflicts arising from displacement of communities ?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ conflicts in abstraction of raw water for water supply with other beneficial water uses for surface and ground waters?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ unsatisfactory raw water supply (e.g. excessive pathogens or mineral constituents)?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ delivery of unsafe water to distribution system?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ inadequate protection of intake works or wells, leading to pollution of water supply?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ over pumping of ground water, leading to salinization and ground subsidence?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ excessive algal growth in storage reservoir?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ increase in production of sewage beyond capabilities of community facilities?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ inadequate disposal of sludge from water treatment plants?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances and protect facilities?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ impairments associated with transmission lines and access roads?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ health hazards arising from inadequate design of facilities for receiving, storing, and handling of chlorine and other hazardous chemicals.	<input type="checkbox"/>	<input type="checkbox"/>	
▪ health and safety hazards to workers from handling and management of chlorine used for disinfection, other contaminants, and biological and physical hazards during project construction and operation?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ dislocation or involuntary resettlement of people?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ noise and dust from construction activities?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ increased road traffic due to interference of construction activities?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ continuing soil erosion/silt runoff from construction operations?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ delivery of unsafe water due to poor O&M treatment processes (especially mud accumulations in filters) and inadequate chlorination due to lack of adequate monitoring of chlorine residuals in distribution systems?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ delivery of water to distribution system, which is corrosive due to inadequate attention to feeding of corrective chemicals?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ accidental leakage of chlorine gas?	<input type="checkbox"/>	<input type="checkbox"/>	

SCREENING QUESTIONS	Yes	No	REMARKS
▪ excessive abstraction of water affecting downstream water users?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ competing uses of water?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ increased sewage flow due to increased water supply	<input type="checkbox"/>	<input type="checkbox"/>	
▪ increased volume of sullage (wastewater from cooking and washing) and sludge from wastewater treatment plant	<input type="checkbox"/>	<input type="checkbox"/>	
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ social conflicts if workers from other regions or countries are hired?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during operation and construction?	<input type="checkbox"/>	<input type="checkbox"/>	
▪ community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?	<input type="checkbox"/>	<input type="checkbox"/>	

Appendix 2. List of Water Supply - Related Projects Requiring a GoV EIA

Projects in list are a subset of the full list of project types found in Appendix 1 of Decree 29/2012/ND-CP.
Projects that do not meet criteria in right column require an EPC

Number 1 - 162	Projects	Size
1	Important national projects and works in which investment guidelines are submitted to the National Assembly for decision under the National Assembly's Resolution No. 66/2006/NQ11 dated June 29, 2006	All
2	Projects using part or the whole of land areas of nature conservation zones, national parks, historical-cultural relic areas, world heritages, biosphere reserves, and famous scenic places, ranked or not yet ranked, which are protected under decisions of provincial/municipal People's Committees	All
3	Projects involving risks of directly and badly affecting water sources in river basins, coastal areas and areas having protected eco-systems	All
52	Projects on reservoirs and irrigation lakes	With a reservoir of a capacity of 300,000 m ³ or more of water
53	Projects on irrigation works	Covering 200 ha or more
56	Projects involving exploitation or conversion of use purposes of headwater	Covering 5 ha or more

Number 1 - 162	Projects	Size
	protection forests, breakwater forests or special-purpose forests	
57	Projects involving exploitation or conversion of use purposes of natural forests	Covering 20 ha or more
58	Forestation and forest exploitation projects	Forestation of 1,000 ha or more; exploitation of forests of 200 ha or more
67	Projects to exploit groundwater	Exploitation capacity of 10,000 m ³ or more of water per day and night
70	Projects to exploit surface water	Exploitation capacity of 50,000 m ³ or more of water per day and night
81	Projects to build concentrated daily-life wastewater treatment systems	Design capacity of 1,000 m ³ or more of wastewater per day and night

Appendix 3. Outline of an ADB IEE or EIA Report

The generic table of contents of an ADB IEE or EIA report is provided below²¹. The difference between the IEE and ADB is the scope of the assessment. The order of dominance of the different sections may vary slightly depending on the assessment context.

A. Executive Summary

This section describes concisely the critical facts, significant findings, and recommended actions.

B. Policy, Legal, and Administrative Framework

This section discusses the national and local legal and institutional framework within which the environmental assessment is conducted. It also identifies project-relevant international environmental agreements to which the country is a party.

C. Description of the Project

This section describes the proposed project; its major components; and its geographic, ecological, social, and temporal context, including any associated facility required by and for the project (for example, access roads, power plants, water supply, quarries and borrow pits, and spoil disposal). It normally includes drawings and maps showing the project's layout and components, the project site, and the project's area of influence.

D. Description of the Environment (Baseline Data)

This section describes relevant physical, biological, and socioeconomic conditions within the study area. It also looks at current and proposed development activities within the project's area of influence, including those not directly connected to the project. It indicates the accuracy, reliability, and sources of the data.

E. Anticipated Environmental Impacts and Mitigation Measures

This section predicts and assesses the project's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic (including occupational health and safety, community health and safety, vulnerable groups and gender issues, and impacts on livelihoods through environmental media), and physical cultural resources in the project's area of influence, in quantitative terms to the extent possible; identifies mitigation measures and any residual negative impacts that cannot be mitigated; explores opportunities for enhancement; identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions and specifies topics that do not require further attention; and examines global, transboundary, and cumulative impacts as appropriate.

F. Analysis of Alternatives

This section examines alternatives to the proposed project site, technology, design, and operation - including the no project alternative - in terms of their potential environmental

²¹ Directly from Footnote 1, Annex 1 to Appendix 1

impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. It also states the basis for selecting the particular project design proposed and, justifies recommended emission levels and approaches to pollution prevention and abatement.

G. Information Disclosure, Consultation, and Participation

This section:

- (i) describes the process undertaken during project design and preparation for engaging stakeholders, including information disclosure and consultation with affected people and other stakeholders;
- (ii) summarizes comments and concerns received from affected people and other stakeholders and how these comments have been addressed in project design and mitigation measures, with special attention paid to the needs and concerns of vulnerable groups, including women, the poor, and Indigenous Peoples; and
- (ii) describes the planned information disclosure measures (including the type of information to be disseminated and the method of dissemination) and the process for carrying out consultation with affected people and facilitating their participation during project implementation.

H. Grievance Redress Mechanism

This section describes the grievance redress framework (both informal and formal channels), setting out the time frame and mechanisms for resolving complaints about environmental performance.

I. Environmental Management Plan

This section deals with the set of mitigation and management measures to be taken during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental impacts (in that order of priority). It may include multiple management plans and actions. It includes the following key components (with the level of detail commensurate with the project's impacts and risks):

- (i) Mitigation:
 - a. identifies and summarizes anticipated significant adverse environmental impacts and risks;
 - b. describes each mitigation measure with technical details, including the type of impact to which it relates and the conditions under which it is required (for instance, continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; and
 - c. provides links to any other mitigation plans (for example, for involuntary resettlement, Indigenous Peoples, or emergency response) required for the project.
- (iii) Monitoring:

- a. describes monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits and definition of thresholds that will signal the need for corrective actions; and
 - b. describes monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and document the progress and results of mitigation.
- (iv) Implementation arrangements:
 - a. specifies the implementation schedule showing phasing and coordination with overall project implementation;
 - b. describes institutional or organizational arrangements, namely, who is responsible for carrying out the mitigation and monitoring measures, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; and
 - c. estimates capital and recurrent costs and describes sources of funds for implementing the environmental management plan.
- (v) Performance indicators: describes the desired outcomes as measurable events to the extent possible, such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods.

J. Conclusion and Recommendation

This section provides the conclusions drawn from the assessment and provides recommendations.

Appendix 4. Outline of an Environmental Management Plan

The content and structure of a generic EMP is provide below²²

1. Introduction to EMP
2. Results of EIA
Potential impacts and mitigation measures
3. Public consultation process
4. Impacts mitigation plan
5. Environmental monitoring plan
6. Institutional responsibilities & capacity needs for EMP
Existing situation
Human resource & training needs
7. Reporting requirements
8. EMP Workplan and schedule
9. Procurement needs
10. Estimated budget for EMP

²² Updated from ADB, 2003. Environmental Impact Assessment Guidelines

Appendix 5. GoV Legal & Policy Framework for Water Sector Development

Environmental Protection & EIA

Vietnam has promulgated Law on Environmental Protection (LEP) No. 52/2005/QH11. Requirements for EIA specified by the LEP are supported Decree No.80/2006/ND-CP and Decree No. 29/2011/ND-CP which provide direction with the implementation of specific articles of the LEP. Decree No.81/2006/ND-CP was issued to provide basis for punishing administrative violations in environmental protection. The Ministry of Natural Resources and Environment (MONRE) has promulgated Circular No.26/2011/TT-BTNMT to instruct the strategic environmental assessment, environmental impact assessment and environmental protection commitment.

Other Laws Related to Environmental Protection

- Water Resources Law 8/1998/QH10 dated 20th May 1998;
- Biodiversity Law 20/2008/QH12 dated 13th November 2008;
- Cultural Heritage Law 28/2001/QH10 dated 29th June 2001;
- Forest Protection and Development Law 29/2004/QH11 dated 3rd December 2004.
- Law on Water Resources and Land Law (1998), and
- Forest Protection and Development Law (amended in 2004).

Construction

For construction activities Vietnamese has promulgated the Law on Construction (LoC) No. 16/2003/QH11 which is supported by Decree No. 12/2009/ND-CP dated 10th February 2009 on managing construction and investment projects and Decree No. 209/2004/ND-CP dated 16th December 2004 on managing the quality of construction projects.

Land Use & Planning

For land use and planning, land acquisition, and resettlement Vietnam has promulgated legal regulations, as follows:

- Land law No.13/2003/QH11 dated 26th November 2003 on regulation of management and use of land. This law is instead of Land laws promulgated in 1987 and 1993;
- Decree No. 181/2004/ND-CP on instruction on executing Land law 2003;
- Decree No. 197/2004/ND-CP on compensation, support and resettlement when the State acquires land;
- Circular No. 116/2004/TT-BTC on instruction on executing Decree No. 197/2004/ND-CP;

- Decree No. 188/2004/ND-CP on method for determining land price and price frame of land types;
- Decree No. 17/2006/ND-CP on adjustment to some articles of Decree No. 181/2004/ND-CP and Decree No. 197/2004/ND-CP; and
- Decree 69/2009/ND-CP dated 13th August 2009 on additional regulation on land use and planning, land price, land acquisition, compensation, support and resettlement.

Drinking Water Quality

For the quality of drinking water and domestic water, the Ministry of Health issued Circulars No.04/2009/TT-BYT and No.05/2009/TT-BYT dated 17th June 2009 on National technical regulation on drinking water and domestic water quality. For the planning and design of infrastructure, operation and management of the water supply systems the following decision and standards are apply:

- Decision No.04/2008/QĐ-BXD of the Ministry of Construction (MOC) dated 3rd April 2008: National Technical Regulation on Construction Planning;
- Design standards No. 20TCN-33-85 for water supply projects;
- Instructions for preparation and approval of town construction planning of MOC in 1998;
- Construction standard TCXD No.66:1991 on Operation of water supply and drainage systems – Safety requirements;
- Construction standard TCXD No. 76:1979 on Procedures for technical management in operation of water supply systems; and
- Construction standard TCXD No.233:1999 on criteria used for choosing surface water – groundwater sources to serve domestic water supply system.

Environmental Quality Standards

The following environmental standards were developed to protect the environment. They apply to all development activities in including water supply investments.

- QCVN 08:2008/BTNMT: National technical regulation on surface water quality;
- QCVN 09:2008/BTNMT: National technical regulation on underground water quality;
- QCVN 14:2008/BTNMT: National technical regulation on domestic wastewater;
- QCVN 03:2008/BTNMT: National technical regulation on the allowable limits of heavy metals in the soils;
- QCVN 24:2009/BTNMT: National technical regulation on industrial wastewater;

- QCVN 05:2009/BTNMT: National technical regulation on ambient air quality;
- QCVN 01:2009/BYT: National technical regulation on drinking water quality;
- QCVN 02:2009/BYT: National technical regulation on domestic water quality;
- TCVN 6962:2001 – Vibration emitted by construction works and factories – Maximum permitted levels in the environment of public and residential areas;
- TCVN 5949:1998 – Noise in public and residential areas – Maximum permitted noise level; and
- TCVN 5576:1991 – Water supply and drainage systems – Rules for technical management

Appendix 6. Example Report Template for Construction Management Contractors

WATER SECTOR SUPPORT

Tranche # _____

CMC Monthly Report* on Environmental Management of _____ Subproject

Contractor Name _____

Construction Package: _____

Month / Year: _____

Responsible Officer: _____

Potential Adverse environmental impact/issue from EMP	Required Mitigation Measures from Environmental Management Plan (EMP)	Were mitigation measures implemented? Yes or No	Describe any occurrence of impact/issue	Describe any extra corrective action taken for impact/issue	Describe any requirement for additional or improvement to mitigation measure
Construction Phase					
Brief description of impact #1	Description of mitigation measure from EMP				
Brief description of impact #2	Description of mitigation measure from EMP				
Brief description of impact #3.....	Description of mitigation measure from EMP				
Summary of Environmental Management of Construction of Subproject					
1. Are mitigation measures for the construction phase of subproject effective? If not explain the problem.					

Potential Adverse environmental impact/issue from EMP	Required Mitigation Measures from Environmental Management Plan (EMP)	Were mitigation measures implemented? Yes or No	Describe any occurrence of impact/issue	Describe any extra corrective action taken for impact/issue	Describe any requirement for additional or improvement to mitigation measure
<p>2. Are there other environmental impacts on the following environmental components e.g.,</p> <ul style="list-style-type: none"> a) air quality & noise; b) surface or groundwater quality; c) vegetation, d) natural resources, parks, protected areas; e) wildlife habitat; f) wastewater pollution g) solid waste pollution h) local community and workers <p>If yes, describe the other impacts.</p>					

*Regular report on implementation of EMP prepared for PMU.

Appendix 7. Example Template for PMU Report for Construction Phase of Subproject

WATER SECTOR SUPPORT

Tranche #_____

**PMU Monthly Report on Environmental Management
of _____ Subproject**

PMU Name & Address: _____

Construction Packages Included in Report: _____

Reporting Period: _____

Responsible Officer: _____

Potential adverse environmental impacts/issues from EMP	Number of times and locations impact/ issue occurred	Are mitigation measures from EMP easy to implement? Y or N If not easy explain why.	Are mitigation measures from EMP effective at preventing or reducing impact/issue? Explain.	Identify any unexpected environmental impacts.	Describe any requirement for additional or improvement to mitigation measure from EMP.
Construction Phase					
Brief description of impact #1	Description of mitigation measure from EMP				
Brief description of impact #2	Description of mitigation measure from EMP				
Brief description of impact #3.....	Description of mitigation measure from EMP				
Summary of Environmental Management of Construction of Subproject					
If possible please provide additional comments or observations on the following:					

Potential adverse environmental impacts/issues from EMP	Number of times and locations impact/ issue occurred	Are mitigation measures from EMP easy to implement? Y or N If not easy explain why.	Are mitigation measures from EMP effective at preventing or reducing impact/issue? Explain.	Identify any unexpected environmental impacts.	Describe any requirement for additional or improvement to mitigation measure from EMP.
<p>1) Any unexpected environmental impacts that are occurring during the construction phase of the subprojects; and</p> <p>2) How well the mitigation measures of the EMP are preventing or reducing the predicted potential impacts/issues of the subproject construction phase</p> <p>If possible please provide information on the following:</p> <p>1) Recommendations on how to improve existing impact mitigation measures.</p> <p>2) Recommendations on additional impact mitigation measures</p>					

Appendix 8. Example Template for Water Supply Company Report on Subproject

WATER SECTOR SUPPORT

Tranche #_____

**Water Supply Company Biannual Report* on Environmental
Management of _____ Subproject**

Water Supply Company Name & Address: _____

Reporting Period: _____

Responsible Officer: _____

Summary of Environmental Management of Operational Phase of Subproject	
Potential adverse environmental impacts/issues from EMP	Summary of Effectiveness of Mitigation Measures from EMP
Pre-construction	
Brief description of impact #1	
Brief description of impact #2	
Brief description of impact #3.....	
Unexpected impacts	
Construction	
Brief description of impact #1	
Brief description of impact #2	
Brief description of impact #3.....	
Unexpected impacts	
Operation	
Brief description of impact #1	
Brief description of impact #2	
Brief description of impact #3.....	
Unexpected impacts	
Construction	

*Report on overall effectiveness of EMP, for pre-construction, construction, and operational phases of subproject