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Report No: PAD889

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

AND

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A PROPOSED LOAN
IN THE AMOUNT OF US$250 MILLION

AND

ON A PROPOSED CREDIT
IN THE AMOUNT OF SDR135.3 MILLION
(US$200 MILLION EQUIVALENT)

TO THE

SOCIALIST REPUBLIC OF VIETNAM

FOR THE

SECOND HO CHI MINH CITY ENVIRONMENTAL SANITATION PROJECT

November 25, 2014

Global Practice Water
East Asia and Pacific Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective June 23, 2014)

Currency Unit = VND
VND 21,310 = US$1

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AMT	Aligned Monitoring Tool	MOF	Ministry of Finance
BOD	Biological Oxygen Demand	NLTN	Nhieu Loc-Thi Nghe
BP	Bank Procedure (World Bank)	O&M	Operations and Maintenance
CPS	Country Partnership Strategy	OM	Project Operational Manual
D2	District 2 of Ho Chi Minh City	OP	Operational Policy (World Bank)
DA	Designated Account	PC	People's Committee
DBO	Design Build Operate	PDO	Project Development Objective
DOT	Department of Transportation	PPTAF	Project Preparation Technical Assistance Facility
EIA	Environmental Impact Assessment	RAP	Resettlement Action Plan
ELC	Environmental Learning Center	RPF	Resettlement Policy Framework
EMP	Environmental Management Plan	SA	Social Assessment
ESMF	Environmental and Social Management Framework	SAV	State Audit of Vietnam
FM	Financial Management	SCFC	Steering Committee of Flood Control
GDP	Gross Domestic Product	SDR	Special Drawing Rights
HCMC	Ho Chi Minh City	SOE	Statement of Expenditures
HCMC ES1	HCMC Environmental Sanitation Project Phase 1	TOR	Terms of Reference
HCMC ES2	HCMC Environmental Sanitation Project Phase 2	US$/USD	United States Dollar
IBRD	International Bank for Reconstruction and Development	VAT	Value-Added Tax
IDA	International Development Association	VND	Vietnamese Dong
IEC	Information, Education and Communication	VST	Vietnam State Treasury
IMA	Investment Management Authority	WSP	Water and Sanitation Program
ISP	Implementation Support Plan	WWTP	Wastewater Treatment Plant
MARD	Ministry of Agriculture and Rural Development		

Units of Measure

ha	hectare	m	meter
km	kilometer	m^3	cubic meter

Regional Vice President:	Axel van Trotsenburg
Country Director:	Victoria Kwakwa
Sector Director:	John A. Roome (through June 30, 2014)
Global Practice Senior Director:	Junaid Kamal Ahmad (from July 1, 2014)
Sector Manager:	Jennifer J. Sara (through June 30, 2014)
Practice Manager:	Ousmane Dione (from July 1, 2014)
Task Team Leader:	Sudipto Sarkar

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Second Ho Chi Minh City Environmental Sanitation Project (P127978)

PROJECT APPRAISAL DOCUMENT

EAST ASIA AND PACIFIC
GWARD

Report No.: PAD889

Basic Information			
Project ID	EA Category	Team Leader	
P127978	A - Full Assessment	Sudipto Sarkar	
Lending Instrument	Fragile and/or Capacity Constraints [ ]		
Specific Investment Loan	Financial Intermediaries [ ]		
	Series of Projects [ ]		
Project Implementation Start Date	Project Implementation End Date		
July 1, 2015	June 30, 2021		
Expected Effectiveness Date	Expected Closing Date		
April 15, 2015	June 30, 2021		
Joint IFC			
No			
Practice Manager	Senior Director	Country Director	Regional Vice President
Ousmane Dione	Junaid Kamal Ahmad	Victoria Kwakwa	Axel van Trotsenburg

Borrower: Ministry of Finance

Project Financing Data(in USD Million)					
[X] Loan	[ ] Grant	[ ] Guarantee			
[X] Credit	[ ] IDA Grant	[ ] Other			
Total Project Cost:	495.00	Total Bank Financing:	450.00		
Financing Gap:	0.00				

Financing Source	**Amount**
BORROWER/RECIPIENT	45.00
International Bank for Reconstruction and Development (IBRD)	250.00
International Development Association (IDA)	200.00
Total	495.00

Expected Disbursements (in USD Million)									
Fiscal Year	2016	2017	2018	2019	2020	2021			
Annual	4.00	9.0	67.5	135	135	99.5			
Cumulative	4.00	13.0	80.5	215.5	350.5	450			

Proposed Development Objective(s)

The proposed project development objective (PDO) is to improve wastewater services in a sustainable manner in selected areas of Ho Chi Minh City (HCMC) and increase awareness on sanitation.

Components

Component Name	Cost (USD Millions)
Component 1: Interceptor	63.0
Component 2: Wastewater Treatment Plant	220.0
Component 3: Sewerage in District 2 Area	45.0
Component 4A: Construction Supervision and Project Management	29.0
Component 4B: Land Acquisition and Operating Cost of IMA (Investment Management Authority)	41.0
Physical and Price Contingency	49.0
Value Added Tax (VAT)	45.0
Financing Cost (Front End Fee; Commitment Fee)	3.0

Institutional Data

Sector Board

Water

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Water, sanitation and flood protection	Wastewater Treatment and Disposal	50		
Water, sanitation and flood protection	Wastewater Collection and Transportation	25		
Water, sanitation and flood protection	General water, sanitation and flood protection sector	25		
Total		100		

☑ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

Themes		
Theme (Maximum 5 and total % must equal 100)		
Major theme	Theme	%
Environment and natural resources management	Pollution management and environmental health	50
Urban development	City-wide Infrastructure and Service Delivery	50
Total		100

Compliance

Policy

Does the project depart from the CAS in content or in other significant respects?	Yes [ ] No [X]
Does the project require any waivers of Bank policies?	Yes [ ] No [X]
Have these been approved by Bank management?	Yes [X] No [ ]
Is approval for any policy waiver sought from the Board?	Yes [ ] No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X] No [ ]

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04	X	
Forests OP/BP 4.36		X
Pest Management OP 4.09		X
Physical Cultural Resources OP/BP 4.11	X	
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12	X	
Safety of Dams OP/BP 4.37		X
Projects on International Waterways OP/BP 7.50	X	
Projects in Disputed Areas OP/BP 7.60		X

Legal Covenants

Name	Recurrent	Due Date	Frequency
Sections I and II of Schedule 2 to the Loan Agreement	Yes	NA	Continuous

Description of Covenant

The Borrower shall maintain the implementation arrangements and the Project monitoring reporting and evaluation as described respectively in Sections I and II of Schedule 2 to the Loan Agreement.

Conditions		
Source Of Fund	**Name**	**Type**
IBRD	Cross Effectiveness condition	Effectiveness
IDA	Cross Effectiveness condition	Effectiveness
Description of Condition		

Team Composition

Bank Staff

Name	Title	Specialization	Unit
Sudipto Sarkar	Lead Specialist	Team Leader	GWADR
Dean A. Cira	Lead Urban Specialist	Lead Urban Specialist	AFCE4
Hien Minh Vu	Program Assistant	Program Assistant	GEEDR
Kien Trung Tran	Senior Procurement Specialist	Senior Procurement Specialist	GGODR
Nina Masako Eejima	Senior Counsel	Senior Counsel	LEGES
Huong Thi Mai Nong	Associate Counsel	Associate Counsel	LEGES
Kirsten Hommann	Senior Economist	Senior Economist	GSURR
Mara T. Baranson	Consultant	Project Preparation	GWADR
Hung Duy Le	Senior Urban Spec.	Senior Urban Specialist	GWADR
Xavier Cledan Mandri-Perrott	Lead Financial Officer	Lead Financial Officer	GCPDR
Iain Menzies	Senior Water and Sanitation Specialist	Water & Sanitation Specialist	GWASE
Linh Thi Thuy Tran	Team Assistant	Team Assistant	EACVF
Giang Thi Huong Nguyen	Program Assistant	Program Assistant	EACVF
Demilour Reyes Ignacio	Program Assistant	Program Assistant	GWADR
Tuan Anh Le	Social Development Specialist	Social Development Specialist	GSURR
Victor Vazquez Alvarez	Water & Sanitation Specialist	Water & Sanitation Specialist	GWADR
Ha Thuy Tran	Financial Management Specialist	Financial Management Specialist	GGODR
Ruxandra Maria Floroiu	Senior Environmental Engineer	Senior Environmental Engineer	GENDR
Thuy Cam Duong	Environmental Specialist	Environmental Specialist	GENDR

Roxanne Hakim	Senior Social Development Specialist	Senior Social Development Specialist	GSURR
Prajakta Chitre	Consultant	Financial Analyst	GEEDR

Non Bank Staff

Name	**Title**	**Office Phone**	**City**
Thi Van Ha Nguyen	Environment Specialist		
Friedrich Schwaiger	Technical Specialist		
Christopher Banes	Technical Specialist		

Locations

Country	**First Administrative Division**	**Location**	**Planned**	**Actual**	**Comments**

I. STRATEGIC CONTEXT

A. Country Context

1. **Vietnam's economic development over the past 25 years has been remarkable.** With the introduction of economic and political reforms in 1986, the country initiated its transformation from a centrally-planned economy to a more market-oriented one. This change has fueled economic growth providing improvements in the welfare of its citizens. Economic growth is increasingly driven by growth in urban areas, led by cities like Hanoi and Ho Chi Minh City (HCMC). Vietnam's rapid urbanization is expected to continue for the next decade. Over 30 percent of Vietnam's population currently lives in urban areas, and this is expected to grow to 50 percent by 2020-2025.[1] Accordingly, the Government plans to support the development of urban areas and services to sustain economic growth.

2. **HCMC has been an engine of economic growth for Vietnam.** HCMC accounts for about 20 percent of Vietnam's gross domestic product (GDP) and between 2001 and 2012, its annual GDP growth was about 1.6 times higher than the national average. While rapid urbanization has created opportunities for growth, it has also resulted in challenges in environmental management including access to sanitation. It is estimated that the economic cost of inadequate sanitation in Vietnam is about 1.3 percent[2] of GDP. The sanitation improvements that are planned under the project will help to reduce this cost in HCMC, benefitting the city and its entire population.

B. Sectoral and Institutional Context

3. **Steady progress is being made to improve wastewater and septage services in Vietnam.** The Government is aware of the sectoral needs and since 1998 has taken measures that have led to progress. Access to toilets in urban areas is high (around 94 percent) but only 10 percent of the wastewater is treated. Most urban homes have septic tanks but only about 4 percent of the septage that is collected is treated. To address these issues, the Government is planning to build more wastewater treatment plants and improve sanitation services. It is also considering new policies on wastewater tariffs that will support the financial viability of the sector.

4. **Improved urban sanitation services benefits all citizens, especially the poor.** The positive environmental externalities are large with improvements in sanitation practices as they make cities more clean and competitive and create a healthy environment for the population. It is often the poor that benefit most from improved sanitation practices – including proper wastewater management – as they may not have access to the sewerage network or may live next to waterways that are polluted due to wastewater generated in other parts of the urban area. Although the costs of improving urban sanitation are large and estimated to be US$8.3 billion (until 2025), the Government of Vietnam is spending about US$500 million each year to make improvements. This project supports the Government's efforts. It will pay special attention to ensuring that the poor are served in the project areas. A poverty mapping was carried out in the District 2 (D2) area of HCMC where the project will develop a sewerage network. The project will focus on areas where about 78 percent of the poor households are located in District 2.

[1] Vietnam Urbanization Review. World Bank, 2011.
[2] Economic Assessment of Sanitation Interventions in Vietnam, WSP, 2012.

5. **HCMC aims to improve its competitiveness through sustainable infrastructure services**. HCMC is emerging as a large city in South East Asia and is a hub of economic activities in Vietnam. To maintain its competitive position and provide quality services to its citizens, the city plans to develop its infrastructure among other initiatives. Water related infrastructure is one area of focus for the city as it plans to increase the supply of drinking water to the growing urban population, protect the city from floods, and improve the environment and reduce health risks through the collection and treatment of wastewater. An integrated approach is being taken to address these water issues, which will support economic growth and in turn help boost shared prosperity in the city. In Vietnam, growth over the last 25 years has strongly benefited the bottom 40 percent. In the most recent period for which household survey data is available (2010-12), the bottom 40 percent has experienced per capita consumption growth of 5.4 percent annually, compared to 1.4 percent for the entire population.

6. **In HCMC, a catchment approach is being used to improve wastewater management.** Improvement of wastewater management is following a Master Plan (approved in 2000) that outlines initiatives in different catchment areas. The Binh Hung Hoa district and Districts 1 and 5 are served by the Binh Hung Wastewater Treatment Plant (WWTP). In another catchment called the Nhieu Loc-Thi Nghe (NLTN), a phased approach was taken. In the first phase, the Bank supported the development of drains through the first Ho Chi Minh City Environmental Sanitation Project (HCMC ES1; P052037). The earlier project closed on June 30, 2012 and the benefits of the project were significant as seen through the increase in property values due to better drains and collection of wastewater in the NLTN basin. As a second phase, the HCMC ES2 project intends to treat the wastewater that is collected in the NLTN area. The project also aims to collect and treat wastewater from the rapidly growing D2 area.

C. Higher Level Objectives to which the Project Contributes

7. **The proposed project is aligned with the World Bank Country Partnership Strategy (CPS, 2012-2016) for Vietnam**. The CPS is organized through a framework of three pillars: (a) strengthening Vietnam's competitiveness in the regional and global economy; (b) increasing the sustainability of its development; and (c) broadening access to opportunity. The proposed project would directly support the CPS objective of increasing sustainability of development by improving infrastructure services in a city that generates a large portion of the GDP of the country.

8. **The project supports the Prime Minister's decision and complements other Bank activities in HCMC**. The Prime Minister's Decision[3] on the project has been followed in designing the interventions. The proposed project would provide infrastructure improvements supporting better wastewater management in the project area, while also providing technical assistance to build capacity on sanitation management and increase awareness about the benefits of improved sanitation. In addition, the project complements other Bank activities that are supporting the development of HCMC related to water and wastewater issues, namely: the

[3] The Prime Minister approved the Project Detail Outline through Decision #2377 (December 6, 2013). The objective of the project according to the Government is: "…to complete the wastewater interceptor and wastewater treatment system for the whole NLTN basin and District 2 aiming at improving the health of HCMC population, rehabilitating and preserving the Sai Gon River and Dong Nai River ecosystems; upgrading the urban landscape and improving HCMC population awareness about environmental protection…"

proposed HCMC Flood Risk Management Project (P149696) that will mitigate flood risks in some parts of the city; and the ongoing Urban Upgrading Project that is improving the conditions around Tan Hoa - Lo Gom Canal (P070197; the project will close on December 31, 2014).

9. **Poverty mapping carried out to serve the poor.** During project preparation a poverty and sanitation access mapping study, supported by the Water and Sanitation Program (WSP), was carried out which identified the location of the poor in the D2 area. The areas proposed for sewer connection investments under the project were selected on the basis of including the highest concentrations of poor households and the lowest sewer connection rates identified in the studies. These areas comprise: Cat Lai, Binh Trung Dong, Binh Trung Tay, and Thanh My Loi wards in Basin 6; An Phu ward in Basin 1; and Binh An ward in Basin 2. These areas will cover some 78 percent of all the poor households identified by HCMC in the District 2 area (see Annex 2 for details). The poverty mapping and method followed to improve sanitation for the poor could be used in other projects in the country.

D. Project Development Objective

10. The Project Development objective is to improve wastewater services in a sustainable manner in selected areas of Ho Chi Minh City (HCMC) and increase awareness on sanitation.

E. Project Beneficiaries

11. **The proposed project would benefit the entire city of HCMC.** The positive externalities of environmental improvements are large and the interventions under the project will benefit the entire city, especially since the main improvement will take place in the Saigon River, which will receive less pollution due to project activities. The Information, Education, and Communication (IEC) activities that are planned under the project will also make the population of the city more aware of the sanitation improvements that are necessary, leading to better practices on sanitation. Apart from collecting and treating the wastewater generated from the population in the NLTN catchment area, the sewage investments will also benefit the population in the D2 area. About 65,000 people currently live in the D2 area and the improvement in the sewerage system in the area will help to reduce environmental and health concerns. The feasibility study for the area mentions that there are about 987 poor households[4] in the entire District 2; and the project will be focused in areas where about 78 percent of these poor households are located.

F. PDO Level Results Indicators

12. Achievement of the PDO will be measured through the following indicators:

(a) Volume (mass) of Biological Oxygen Demand (BOD) pollution load removed by the treatment plant supported under the project (tons/year);
(b) Direct project beneficiaries (number), of which female (percentage) (number)
(c) Maintaining cost recovery for wastewater management in HCMC; and
(d) Percentage of respondents demonstrating an increase in awareness on sanitation issues (surveys: baseline and follow-up).

[4] Per capita annual income less than VND 16 million (approximately US$2/capita/day).

II. PROJECT DESCRIPTION

A. Project Components

13. The project will have the following four components. Details are provided in Annex 2.

- **Component 1: Interceptor (Base Cost: US$63 million).** This will be a large diameter pipe (about 3.2 meters in diameter; length of about 8 kilometers) that will convey the wastewater that is currently being discharged on the east side of the Saigon River without treatment to the wastewater treatment plant that will be constructed under the project. The construction of the interceptor will prevent the discharge of untreated wastewater collected in the NLTN and D2 areas, to the Saigon River.

- **Component 2: Wastewater Treatment Plant (Base Cost: US$220 million).** This WWTP will treat the wastewater collected in the NLTN basin and in the D2 areas. The plant is being designed for a capacity of 480,000 m^3/day and is going to be located at the confluence of the Saigon and the Dong Nai rivers (see map in Annex 7). The site is prone to flooding and as a result flood protection measures would be included in the project design. The plant will be constructed through a Design Build and Operate (DBO) contract through which a private company will design and build the wastewater treatment plant and operate it for a given period of time. The private sector is expected to be in HCMC for at least 10 years (five years for the design and construction and at least another five years for operations, with provisions in the contract to extend the operating period). This will contribute to transfer of knowledge on wastewater management. Specifically, the DBO contractor would be required to provide training to HCMC staff on wastewater treatment to ensure operational sustainability.

- **Component 3: Sewerage in District 2 Area (Base Cost: US$45 million).** Sewers (combined and separated) would be installed in three areas of District 2. The areas that have been selected are priority areas within the district where there is an existing population that needs better sewerage services. These areas are Thao Dien, Binh An, and Bing Trung (East and West; this includes the Cat Lai and the Thanh My Loi wards). The project will also support house connections through which septic tanks will be connected to drains, wherever feasible, if they are not already connected. Details on how houses will be connected will be determined during the detailed engineering work and after survey of households is completed. In addition, to address the situation that low elevation project areas often become flooded during periods of high tides when river water flows back to the streets through the combined drains, non-return valves (flap valves) would be provided on drainage outlets in the project areas to prevent flooding. This flood protection activity will complement the larger flood protection measures for HCMC which are being planned by the Ministry of Agriculture and Rural Development (MARD)

- **Component 4A: Construction Supervision and Project Management (Base Cost: US$29 million).** This will have the following two sub-components:

  (i) Construction Supervision (US$16 million). The funds would be used to hire consultants to supervise the construction during the project implementation period. The supervision cost is assumed to be about 5 percent of the investment cost; and

  (ii) Project Management (US$13 million). This will include: (a) support to the Investment Management Authority (IMA) for project implementation; (b) capacity building in HCMC on sanitation management including support to the IMA and the Steering Committee of Flood Control (SCFC), update of the sewerage Master Plan, including septage management, IEC campaign on better sanitation practices, and technical support to the Environmental Learning Center (ELC). The septage management plan will have a special focus on the project areas (NLTN and D2 areas) and will make specific recommendations for these areas. Surveys will also be carried out to determine the increase in public awareness on sanitation matters to determine progress in meeting the development objective of the project. The surveys will seek feedback from the citizens on issues of solid waste management, household connections to sewers, cleaning septic tanks, hygienic sanitation practices, and operations of sanitation services provided by the city. The IEC campaign will raise awareness on sanitation issues and will also help to build support to raise tariffs to meet increasing costs of collecting and treating wastewater; (c) independent safeguard monitoring (social and environmental) and completion of financial audits; and (d) equipment to monitor water quality in strategic locations in the Dong Nai and Saigon Rivers and in the wastewater treatment plant and the pumping station; and to purchase office equipment for the IMA.

- **Component 4B: Land Acquisition and Operating Cost of IMA (Base Cost: US$41 million).** This will have the following two sub-components which will be fully financed by HCMC:

  (i) Resettlement and Land Acquisition (US$31 million). This will include costs to compensate people who currently own the land where the WWTP will be constructed and in other project areas, as needed; and

  (ii) Operating cost of the IMA (US$10 million). This is the operating cost of the IMA during the project implementation period, including salaries, fees, and other costs.

B. Project Financing

14. The project cost is US$495 million which would be financed through an IBRD loan of US$250 million, an IDA credit of SDR 135.3 million (US$200 million equivalent), and funding of US$45 million from HCMC. Additional details are presented in Table 1 and in Annex 6.

Table 1: HCMC ES2 project cost and financing

DESCRIPTION	COST (US$ mln.)	FINANCING (US$ mln.)	
		Bank	HCMC
Component 1			
Interceptor	63	63	0
Component 2			
Wastewater Treatment Plant	220	220	0
Component 3			
Sewerage in District 2	45	45	0
Component 4A			
Construction Supervision (5% of investments)	16	16	0
Project Management	13	13	0
Component 4B			
Resettlement and Land Acquisition Costs	31	0	31
Operating Cost of IMA	10	0	10
BASE COST	**398**	**357**	**41**
Physical and Price Contingency (for Civil Works)	49	49	0
TOTAL COST	**447**	**406**	**41**
Value Added Tax (VAT)	45	41	4
Financing Costs (Front End Fee, Commitment Fee)	3	3	0
TOTAL INVESTMENT COSTS	**495**	**450**	**45**

C. Lessons Learned and Reflected in the Project Design

15. In preparing the proposed project, the Bank has drawn upon lessons learned through previous experiences, particularly those in the sector and also from the first phase of this project. The key lessons are summarized below.

- **Global knowledge of the Bank incorporated in the design.** The Bank provided advice on various aspects of project preparation, based on its experience in other parts of East Asia and other regions including Latin America, and Eastern Europe. Innovations that have been included in the project design include the following which have not been typically used in Vietnam: (a) the proposed introduction of the private sector through a DBO contract which would lead to a public-private partnership for the construction and operation of the WWTP. This is expected to bring about efficiency in operations; (b) using a competitive life-cycle cost to select the DBO operator that would make operations financially sustainable; (c) promoting public awareness on sanitation through the IEC activities, including the use of the ELC; (d) ensuring that the poor are well served through the poverty mapping; and (e) planning the use of odor control equipment given the proximity of the wastewater treatment plant to a road and nearby population.

- **Continuous effort is needed to meet project objectives in a timely manner.** The first phase of this project (HCMC ES1) was implemented over a longer period of time compared to the plan. Learning from this experience, a number of measures have been incorporated in the project design which would address the concern of delays. These

measures include: streamlining the project objective which will also focus the implementation on certain key areas; limiting the number of procurement activities; and developing the bidding documents for large value contracts prior to effectiveness (wastewater treatment plant and interceptor). In addition, public awareness activities will be carried out to raise the importance of sanitation matters with stakeholders which is important in order to create broad support for the project activities and minimize delays.

- **Financial and operational viability of wastewater treatment plants should be considered at the design stage.** In Vietnam, and in other parts of the world, the experience has been that operations of plants are not optimal either due to: financial reasons where sufficient funds are not generated to operate the plant in a proper manner; or institutional reasons where adequate technical capacity may not be in place. To address the financial concern, the project is designed such that the DBO contractor which provides the lowest life cycle cost for wastewater treatment will be chosen. Furthermore, there would be a contractual obligation on the part of HCMC to pay the DBO contractor the operating costs to meet the effluent standards. To address the institutional concern, the DBO contract will be required to provide training to staff in HCMC on efficient operations of a wastewater treatment plant.

- **Social and environmental considerations have to be taken into account in project design.** While the project will ultimately improve the environmental conditions in HCMC, construction will take place in an urban setting and the wastewater treatment plant will be located next to a road that is used regularly. To avoid any adverse effects to the population, and to enhance social development impacts, social and environmental concerns have to be taken into account given the location of the project. Thus, while preparing the project the potential adverse effects were considered and mitigating measures have been included in the project design. The safeguards section of this document outlines how the project will address the social and environmental issues related to the project.

III. IMPLEMENTATION

A. Institutional and Implementation Arrangements

16. The State Bank of Vietnam, representing the Government of Vietnam, will sign a Loan Agreement (for IBRD) and a Financing Agreement (for IDA) with the Bank. There will be a subsidiary agreement between the central government and HCMC, through which the funds and the responsibility to implement the project will be passed on to HCMC. It is expected that the Subsidiary Agreement would be signed within two months after the signing of the Loan Agreement and Financing Agreement.

17. The IDA credit would be provided as a grant from the Ministry of Finance (MOF) to HCMC. The IBRD loan will be on-lent from MOF to HCMC at terms and conditions that are identical to the IBRD loan between the Bank and the Government of Vietnam. Within HCMC, the IMA has been authorized to implement the project. The IMA reports to the Department of Transportation (DOT) and, on behalf of the People's Committee (PC), the DOT will oversee the activities of the IMA and also be responsible for staffing decisions of the IMA.

18. Staff from the IMA implemented the first phase of this project (HCMC ES1) and the IMA is also currently preparing this project (HCMC ES2) with assistance from the Bank's Project Preparation Technical Assistance Facility (PPTAF). As the IMA has implemented Bank-financed projects, it is familiar with Bank procedures which will facilitate implementation. During the investment phase, the IMA will sign all contracts with the suppliers, contractors, and consultants; and it will be responsible for meeting the conditions outlined in the legal agreements. During the operational phase of the project, the IMA will ensure that the DBO contractor is carrying out its functions in a proper way and, as needed, will draw upon the expertise of SCFC to supervise the DBO contractor. While the IMA will be responsible for day-to-day operations of the project, it will seek approval from HCMC PC on the procurement plan for the project.

B. Results Monitoring and Evaluation

19. The results framework of the project has been developed and forms the basis to track progress of activities to meet the project objective. As part of the project, the IMA will submit to the Bank semi-annual reports that would provide an overview on the progress made and it will also highlight the issues that need attention. The IMA will be supported by technical consultants that will carry out construction supervision and environmental and social safeguard audits. The key findings of these consultants will be incorporated in the semi-annual report.

C. Sustainability

20. A number of factors support project sustainability. HCMC aims to improve its environmental conditions; the project fits that aim and, as a result, is supported by the city. The first phase of the project started in early 2000 and since then HCMC has taken measures not only to improve the wastewater management in the NLTN area but in other areas of the city as well to make environmental improvements and reduce health risks for its population. Under this project (HCMC ES2), city officials have decided to introduce the private sector through a DBO contract by which an experienced operator will ensure that environmental sustainability is maintained through proper treatment of the wastewater. Institutional sustainability will also be maintained as the DBO contractor is expected to train local staff on operations of a wastewater treatment plant. Financial sustainability will be ensured through the selection of the lowest life cycle cost for the wastewater treatment plant and the commitment by HCMC to provide resources if the environmental fee is not sufficient to cover the investment and debt service costs. Furthermore, the creation of an Environmental Learning Center under the project will raise awareness on sanitation issues and create city-wide support for activities carried out under the project.

IV. KEY RISKS AND MITIGATION MEASURES

A. Risk Ratings Summary Table

21. The risk ratings after mitigation measures are in place are reflected in Table 2 below:

Table 2: Risk ratings (after mitigation)

Risk Category	Rating
Stakeholder Risk	M
Implementing Agency Risk	
- Capacity	S
- Governance	S
Project Risk	
- Design	L
- Social and Environmental	S
- Program and Donor	L
- Delivery Monitoring and Sustainability	M
- Other: Financial Management	M
- Other: Procurement	M
Overall Implementation Risk	S

B. Overall Risk Rating Explanation

22. The risks that are high or substantial are explained below and additional details for all the risks are provided in Annex 4.

- The Capacity risk is deemed to be substantial as implementation capacity could be inadequate in some areas. To mitigate this risk, the same entity (IMA) that worked with the Bank on the first phase project (HCMC ES1) would also implement this project as the IMA staff is familiar with Bank procedures. Also, the IMA will hire consultants, as needed to support implementation. Furthermore, the DBO contractor will be in place for at least 10 years (five years for the design and build stage and at least five years for operations with provisions in the contract to extend the operating period) and will bring good international practices to HCMC – and ensure that quality services are provided.

- The Governance risk is considered to be substantial since economic decisions may not be taken as the experience on wastewater management is limited in Vietnam, especially for a large project as this one. This risk has been mitigated through a focused objective, streamlined project design, and a limited number of procurement events. Cost effectiveness of the investments would be ensured through the Bank's competitive procurement process. In addition, consultants would be hired by the IMA to provide advice on technical and procurement matters and the Bank's Anti-Corruption guidelines will apply for this project.[5] As increasing public awareness on sanitation is a development objective of the project, carefully designed survey instruments will be used to assess the overall governance in the sector measured through improvement in sanitation services in the project areas. The survey instrument will take into account the approach used by HCMC PC which also periodically carries out surveys on public services provided by the

[5] "Anti-Corruption Guidelines" means the "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants", dated October 15, 2006 and revised in January 2011.

city. The project aims to promote awareness on sanitation matters and provide institutional strengthening to related agencies which will complement the ongoing efforts of the city to improve the governance in the sector.

- The environmental and social risks are considered to be substantial as delays in addressing these safeguard issues can affect the project's ability to meet its target in a timely manner. The delays can be due to the time taken to: obtain permits for construction after proper environmental procedures are followed; complete the land acquisition or resettlement process so that construction can start. To address this risk of delay, the safeguard documents have identified the key issues that need to be addressed along with the institutional arrangements, including semi-annual audits on progress made on social and environmental issues related to the project. Public awareness is also being supported under the project so that there is a change in the way the population approaches environmental issues. For instance, the project will aim to improve the quality of the water in the NLTN canal by informing people about the benefits of not discharging solid waste in the canal.

- The Overall Implementation risk is considered to be substantial given the risks associated with institutional capacity, governance, social and environmental issues that may come up for the project. These are described in more detail in Annex 4. Construction in urban areas takes time and to address the above risks a number of measures have been considered: (a) the land acquisition process and consultation with the stakeholders have already begun to ensure that the project affected people are aware and that they support the project; (b) the site for the wastewater treatment plant and the routing for the interceptor have been chosen to minimize disruption for the city; and (c) a pipe jacking method is being considered for the interceptor construction where the pipe would be pushed under the ground through shafts which would minimize open excavation causing less inconvenience for the citizens.

V. APPRAISAL SUMMARY

A. Economic and Financial Analysis

Economic Analysis

23. For HCMC ES2, in qualitative terms, the positive externalities of improved environment and reduced health risks are largely due to the reduction of pollution being discharged to the Saigon River. However, these benefits are difficult to quantify. Thus, instead of a cost-benefit approach, a cost-effectiveness approach has been taken for the economic analysis. The benefits of the project are significant as environmental improvements in HCMC will promote economic development as seen through HCMC ES1, where land prices increased significantly due to the drainage improvements supported under the project. It is also estimated that the cost of inadequate sanitation in Vietnam is about 1.3[6] percent of the GDP and better sanitation practices, including treatment of wastewater, will lead to a reduction of this cost.

[6] Source: Economic Assessment of Sanitation Interventions in Vietnam, WSP, 2012.

24. For the WWTP, there is a regulatory requirement to meet effluent standards and the project aims to meet this standard in a cost effective way by awarding the DBO contract to a private company that provides the lowest life cycle cost (combination of capital costs and net present value of operating cost). The project will also help to improve the environmental conditions in three zones of District 2 (focusing on three populated areas - Thao Dien, Binh An and Binh Trung – which do not yet have a sewerage system). The improvements would come through collecting the wastewater from these areas and transferring it to the wastewater treatment plant. To ensure cost effectiveness in building these sewers, the lower cost option was selected in each case from the two viable choices: (a) build separate sewers for rain water and wastewater; or (b) build combined sewers and/or interceptors to collect the wastewater from households.

Financial Analysis

25. The wastewater and flood management activities are carried out by the SCFC, which is responsible for operating existing wastewater treatment plants in the city. However, for this project, a decision has been taken by HCMC authorities that: (a) for the implementation stage of the project, the IMA will carry out the investments and will also sign the contract with the DBO firm; and (b) for the operational phase of the project, the IMA will continue to supervise the DBO contractor and would draw upon the expertise of SCFC as needed.

26. SCFC's operating costs are split into three groups: (a) priority one - wastewater management costs; (b) priority two - principal and interest on all outstanding loans related to wastewater treatment projects; and (c) priority three – expenses related to flood management. Historically, SCFC has had sufficient revenues from the environmental fee (10 percent of water tariffs) to cover wastewater related expenditures (priority one). However, in the past, SCFC has received funding from HCMC to cover part of debt service and the flood management expenditures (priorities two and three).

27. It is estimated that due to the project and interventions in other catchment areas, the cost of wastewater management will increase about 4.5 times between 2016 and 2021 (US$9.5 million to US$42.8 million). To account for this increase in costs, tariffs have to increase to fully cover the wastewater costs (priority one). The affordability of tariffs to the population was assessed, taking into account that no more than 4 percent of the household income should be spent on water and sanitation. The required increase of wastewater tariffs (to meet priority one costs) from US$0.05/$m^3$ (2014) to US$0.11/$m^3$ (2021) is affordable The combined water and wastewater bill on a monthly basis will be about 1 and 2.9 percent for households with average and low incomes,[7] respectively. Additional details are provided in Annex 6. To support the increase in tariffs, the IEC campaigns will help to highlight the importance of sanitation and the associated costs related to collecting and treating wastewater.

28. There are two financial risks to the project: (a) during the construction phase, the timely provision of the counterpart funds by HCMC to the IMA; and (b) during the operations phase, the availability of sufficient funds at SCFC to cover its cost for flood and wastewater management. To address these risks and ensure the financial viability of the project, the legal

[7] Assumptions: a) 3.8 person/household; b) in 2021, monthly household incomes assumed to be $1,108 and $ 395 for average and poor households, respectively

agreements will specify that: (a) within a year of project effectiveness, SCFC will maintain two separate accounts: one for flood management and the other for wastewater management to ring fence the two operations and facilitate the goal of increasing cost recovery for wastewater management through tariffs; (b) every year, SCFC will submit its financial statements to the Bank and demonstrate how its cost would be recovered through contributions from HCMC and through tariffs; (c) HCMC will facilitate timely increase of wastewater tariffs to ensure cost recovery; and (d) HCMC will provide the necessary financial support that is needed to meet investment and operating costs of the project.

B. Technical

29. The technical aspects of the project have been reviewed to ensure that cost effective solutions are being provided through the project. Feasibility studies have been prepared, other relevant studies (mentioned below) have been carried out, and bidding documents are under preparation. These early technical preparation activities have strengthened the project design as the related documents were reviewed and comments were incorporated to bring in good practices from other similar projects. Bidding documents for the wastewater treatment plant and the interceptor (representing a large part of project expenditures) will also be drafted prior to effectiveness, which would facilitate implementation.

30. The key technical points of the project are highlighted below: (a) two feasibility studies have been completed: for the interceptor and the wastewater treatment plant and for the drainage investments in the D2 area. These studies have helped to identify viable and least cost options for the investments; (b) a flood protection study has been carried out to protect the WWTP and the interceptor from floods. The recommendations of this study will be reflected in the final design of the project; (c) water quality and quantity analysis is underway so that the actual and updated information is available for the construction of the WWTP. The water quality and quantity information will be collected over the dry and wet seasons which will allow the bidders to optimize the design of the plant; (d) for the WWTP and the interceptor, the designs and bidding documents are being prepared and these documents in draft form would be available before project effectiveness. In addition, the pre-qualification documents to select contractors for the interceptor and the wastewater treatment plant have been prepared; and (e) a poverty mapping, supported by the WSP, was also carried out in the project area to ensure that the poor benefit from the project. The poverty mapping helped to identify the location of the poor; and measures will be taken in the project to connect households, including the poor, to the network.

31. During the implementation stage of the project, important technical work will be carried out to support HCMC in its plans to improve sanitation practices and better manage the wastewater. These activities include: (a) creation of the ELC, which will provide information to the citizens about the benefits of better sanitation and the importance of managing water and wastewater in an economic way; (b) undertaking public awareness campaigns on better sanitation practices, which would include preparing information materials for women and those linked to the benefits of hand washing; and (c) updating the sewerage master plan for HCMC so that wastewater is managed in an environmentally safe manner. This would include plans for better management of septic tanks and septage.

C. Financial Management (FM)

32. Project financial management risk is assessed to be "Moderate" with the mitigation measures that are in place. An assessment of the financial management arrangements for the proposed project was conducted which concluded that the Project meets the Bank's financial management requirements, as stipulated in BP/OP 10.00. The FM capacity of the IMA was also assessed; provided more training is provided to relevant staff, the IMA's FM capacity will be adequate. The FM staffing, budgeting and planning procedures, accounting system (including accounting policies), financial reporting, and internal controls procedures of the IMA are also adequate for financial management purposes. Additional details are provided in Annex 3.

33. Key features of the FM arrangements are: (a) one Designated Account (DA) will be opened in US dollars in a commercial bank with terms and conditions satisfactory to the Bank. The disbursement methods are outlined in the Disbursement Letter; (b) traditional disbursement methods (with reporting method using Statement of Expenditure (SOE) / Summary Sheet) will apply; (c) Vietnam State Treasury (VST) will be the expenditure verification agency for the Project. The IMA will be responsible for registering a verification method (either prior or post verification), with Ho Chi Minh State Treasury; (d) Semi-annual Interim Financial Reports based on the government's Aligned Monitoring Tool (AMT), will provide information for monitoring the use and management of Project funds. The Interim Financial Reports will not be audited and shall be submitted to the Bank within 45 days after the reporting period; and (e) the project Financial Statements will be audited annually by State Audit of Vietnam (SAV) in accordance with terms of reference (TORs) acceptable to the Bank. All audited financial statements are to be published according to the Bank's information disclosure policy.

D. Procurement

34. The IMA is responsible for the implementation of the project including procurement. The IMA had previously implemented the first Ho Chi Minh Environmental Sanitation Project (HCMC ES1) and as a result is familiar with Bank procurement procedures. At pre-appraisal, the Bank carried out a procurement risk assessment and rated the procurement risk as Substantial. With the mitigation measures being implemented, the procurement risk is reduced to Moderate. The main risks and the corresponding mitigation measures are discussed in Annex 3.

35. Procurement for the proposed project will be carried out in accordance with the World Bank's *"Guidelines: Procurement of Goods, Works and Non-Consulting Services Under IBRD Loans and IDA Credits & Grants by World Bank Borrowers"* dated January 2011, revised July 2014 (the Procurement Guidelines); and *"Guidelines: Selection and Employment of Consultants Under IBRD Loans and IDA Credits & Grants by World Bank Borrowers"* dated January 2011, revised July 2014 (the Consultant Guidelines) and the specific provisions stipulated in the Loan Agreement and the Financing Agreement. The Procurement Plan for the project for the first 18 months has been prepared.

E. Social (including Safeguards)

36. **A Social Assessment (SA) was undertaken to understand impacts and inform project design**. The SA focused generally on the project impact area, with random sampling from

potential beneficiary population. In addition, consultations were carried out in geographic areas where the construction activities will take place and where there will be direct project impacts. The SA confirms that the overall social impact of the project is positive; however there are some adverse impacts that need to be addressed, primarily in the area of land acquisition. Mitigation measures to address these impacts are presented in Annex 3. There were no specific sub-groups identified as socially vulnerable or with a risk of being left out. The SA also confirms that there are no impacts on ethnic minority in the project area.

37. **The Bank's Involuntary Resettlement (OP 4.12) policy is triggered** due to land acquisition impacts as follows: (a) the need to permanently acquire 38.47 hectares (ha) of land in District 2 in order to construct the WWTP; this land is mainly vacant but the owners need to be compensated as part of the land acquisition process; (b) limited (permanent and temporary) land acquisition at the location of the vertical shafts (about 22) that would be constructed for the pipe jacking method of building the interceptor; and (c) limited land that may need to be acquired for the construction of the sewers in the D2 area, as most of the construction will be under existing streets. In compliance with the Bank policy, three safeguard instruments have been prepared and they have been publicly disclosed as per Bank's policies (see Annex 3 for details):

- *Resettlement Action Plan (RAP)*. The RAP has been prepared to outline the resettlement process that would be carried out for the permanent acquisition of land (38.47 ha.) for the WWTP. There were three rounds of consultations with affected households that took place from 2012-2014. In total there are 63 affected households and two companies who would be compensated as per Bank policies. The RAP outlines the compensation measures, legal structure, grievance procedures and implementation and monitoring arrangements. A cut-off date of July 14, 2014 is applicable to determine the eligibility for compensation to project affected people.

- *Resettlement Policy Framework (RPF)*. For the interceptor and the sewerage in the D2 areas, the designs are not yet complete. As the footprint of the investments is not known, the land to be acquired is not confirmed. To this end, an RPF has been prepared to guide the preparation of a RAP(s) for site-specific civil works under the project that requires land acquisition. The HCMC PC adopted the RPF which specifies steps to be taken for preparation, review, and clearance of a RAP. It also includes an entitlement matrix that identifies compensation and other measures for different categories of assets (such land, structures, crops, businesses) that are likely to be affected during project implementation.

- *Due Diligence has been undertaken* which covers three areas where the land acquisition took place earlier. As these areas would be used for the project due diligence was carried out to ensure that the land acquisition process is in line with relevant Vietnamese regulation and meets the overall objectives of OP 4.12. These areas are: the Da Phuoc landfill site that will accept the sludge from the WWTP; the area under which the interceptor would be laid, although land acquisition for the project will only be limited to the construction of the shafts; and two sections of the WWTP area which were previously acquired by two companies. The Due Diligence indicates that the land acquisition process that was carried out in these areas in the past is in compliance with relevant regulations in Vietnam and meets the overall objectives of OP 4.12. Monitoring of ongoing resettlement in the area of the interceptor will be done under the WWTP RAP.

38. **There are two issues related to social impacts that would need attention from the IMA during project implementation:**

- *for the wastewater treatment plant area*, 14 households that own land could not be contacted during consultations, despite efforts made by the HCMC officials. A tracer mechanism has been put in place to locate these households. Once they are located, they would be advised of their entitlements and they would be compensated as per the RAP. In the event that these households cannot be reached and the civil works must commence, the estimated compensation amount will be held in an escrow. This will ensure that the households will not be denied their due entitlements and they will receive compensation once they are located; and

- *for the construction of the interceptor*, there is an area where four shafts (out of 22 shafts) would be constructed and where 13 households are located. This area is being acquired by a company for development purposes (not connected with the Bank project) and the process of land acquisition is not completed. For the Bank project, temporary (during construction) and permanent land (for the manholes) will be required at the location of the 4 shafts. The plan is that the company will acquire the land following applicable regulations and IMA would subsequently acquire the area needed for the four shafts. However, by December 2015, if the company has not acquired the land where the four shafts would be constructed, the IMA would acquire the land directly from the current landowners. Compensation to either party would be paid as per the RPF and in both cases the land acquisition for this portion would be monitored through the RAP.

39. **Social safeguards implementation responsibilities are assigned**. The IMA is responsible for implementation of the RAP. Costs for land acquisition and resettlement will be financed by HCMC PC. IMA will co-ordinate activities with District 2 authorities as all project activities will take place in the district. A social staff will be appointed in IMA to address social safeguard issues. An independent price appraiser and a monitoring agency will be engaged by IMA to ensure that the compensation payment is made in line with the policies set in the RAP and RPF. In addition, a social safeguard audit will be carried out on an annual basis and funded by the project funds.

40. **The project is gender informed**. The social assessment done in the larger beneficiary population included detailed interviews with 118 households of which 39 percent of the participants were female. During the consultation, women provided their inputs and there were no major concerns raised by them. However, the discussions identified a need for increased awareness raising on hygiene issues at the household level, and the potential for behavior change in the area of sanitation and waste disposal at the larger community level. Project design has hence included financing of specific activities to address this feedback received during consultations. Behavior change on sanitation will be promoted through Information Education and Communication activities. The IEC campaigns will also be supplemented by public messages that would be available in the ELC that would be created under the project. The sanitation behavior change information that would be prepared will aim to inform women in a household about better sanitation practices that lead to reduced health risks. The Bank's two technical assistance projects in Vietnam - *the Hand-washing Initiative* and the *Scaling up Rural*

Sanitation - have targeted training and information campaigns to women to help improve their family and children' health and development. Lessons learned from these initiatives would be incorporated in the implementation of the project.

F. Environment

41. **Environmental impacts have been identified.** The project is classified as Category A in line with the Bank's safeguard policies OP/BP 4.01 given the possible negative impacts. During the construction period, temporary site-specific environmental impacts will include (i.e., dust pollution, noise and vibration due to the operation of heavy equipment, waste generation at the construction site, and traffic interferences). Additional potential impacts are expected at the site on, local vegetation and landscape, which is dominated by shrubs, common nipa bushes and three creeks. The main impact at the site would be linked to the permanent loss of land, erosion and sedimentation due to the diversion of a creek in the treatment plant area, movement of six graves, and removal of thatched huts. During the operation phase, the main environmental concerns are linked to the generation of odor, treatment and transfer of sludge to the Da Phuoc landfill, and potential discharge of untreated wastewater in case the treatment plant is non-operational. A cumulative environmental impact was carried out during project preparation as part of the Environmental Assessment which indicated that the interventions under the project will improve the quality of the Saigon River in line with the plans of the city. Other urban development activities – construction of roads, metro stations and urban buildings – outside the project will also take into account environmental concerns, including cumulative impact on the quality of the water in the Saigon River. It is expected that the HCMC authorities will ensure that the quality of the Saigon River will not be negatively affected due to the other investments.

42. **Mitigation measures are in place.** Compensation will be paid to those households for the loss of land and movement of structures (graves and huts) within the project area. In addition, the movement of a creek (required to create space for the wastewater treatment plant) will be carried out with a goal to minimize the environmental impact due to sedimentation and change in the flow of water. The impacts due to odor and sludge management will be managed with proper procedures and equipment, as needed (e.g., odor control investments). Emergency plans will also be developed to mitigate impacts due to the discharge of untreated wastewater.

43. **Environment Safeguard Instruments.** During project preparation, a full Environmental Impact Assessment (EIA) - including an Executive Summary and an Environmental Management Plan (EMP) - has been developed. The Department of Natural Resources and Environment (DONRE) on behalf of HCMC PC adopted the EIA, which covers impacts and mitigation measures for investments for which locations have been broadly identified (the interceptor and WWTP). It also includes results from the environment and social due diligence carried out for the Da Phuoc landfill where sludge from the wastewater treatment plant will be discharged. As part of the EIA, water quality modelling was conducted which concluded that the water quality in the Saigon River will improve as the discharge of untreated wastewater will cease due to project activities. The EMP includes appropriate mitigation measures, with a monitoring plan and budget, to address environmental concerns. The EMP will be updated, as necessary, during the detailed design and will be implemented through the construction contracts, and supervised by the IMA with support by consultants. In addition, an Environmental and Social Management Framework (ESMF) has been prepared to assess and manage impacts

associated with construction of sewerage and drainage network of D2 area. For these investments, technical details and specific locations have not been fully finalized during the project preparation stage and as a result the ESMF will be used to ensure that Bank's safeguard policies are followed. The ESMF was adopted by the IMA on behalf of HCMC PC.

44. **Public Consultation and disclosure process**. During the EIA and ESMF preparation, three rounds[8] of participatory consultations took place. Feedback from public consultation have been taken into account and reflected in the final EIA and ESMF. The EIA and ESMF have been disclosed locally in Vietnamese language at the IMA website on Aug 29, 2014. The English versions of these documents were disclosed on July 15, 2014 at the Bank's Infoshop in Washington DC.

G. Other Safeguards Policies Triggered

45. **OP7.50 on International Waterways is triggered**. The project will finance a WWTP discharging into Dong Nai River, a tributary of Saigon River, which is in turn an international waterway rising in the Kingdom of Cambodia. The policy OP 7.50 is triggered since the project will take place on an international river (Saigon River) and since the wastewater will be discharged to the Dong Nai River which is a tributary of an international river (Saigon River) [as per paragraphs 1(a) and 1(b) of the policy]. Vietnam is the lowest downstream riparian of the Saigon River and the project will not create additional harm to the Saigon River and the malfunctioning of the WWTP will not affect the Kingdom of Cambodia. Therefore, Vietnam is exempted from notifying the Kingdom of Cambodia about this project investment as set forth in paragraphs 7(a) and 7 (c) of OP 7.50. This assessment regarding the application of OP 7.50 and the exemption to notify riparians has been confirmed by the Regional Vice President through a memo dated September 9, 2014.

46. **OP 4.11 on Physical Cultural Resources is triggered** as the construction of the WWTP will require the relocation of six graves. Furthermore, physical cultural resources may be affected during the construction activities. Hence, as a precautionary measure, the policy is also triggered so that appropriate remedial actions can be taken. Ways to address the policy are outlined in the RAP and the EMP. The EMP also includes guidance on chance find procedures in accordance to the Government regulations.

47. **OP 4.04 on Natural Habitats is triggered**. This policy is being triggered as the project will have an impact on a river which is a natural habitat. Additionally, the WWTP site is near a natural national reserve area in Can Gio (30 km downstream). Furthermore, a creek at the location of the treatment plant would have to be moved which may impact the natural habitat. However, site survey conducted during the preparation of the EIA did not indicate that there are any endangered species in the location of the treatment plant. In case during the design and construction stages, if it is revealed that any natural habitat will be affected during works, appropriate mitigation measures would be considered and applied.

[8] The consultations took place as follows: (i) initial EIA phase on December 24-26, 2010 and December 20-23, 2011 respectively; (ii) draft EIA based on initial FS findings during Feb 9-24, 2012; and (iii) revised draft EIA and draft ESMF based on revised FS on April 24, 2014. The Bank received the environmental safeguard documents (draft EIA and draft ESMF) on June 25, 2014 from the IMA.

Annex 1: Results Framework and Monitoring

Country: Vietnam

Project Name: Second Ho Chi Minh City Environmental Sanitation Project (P127978)

Results Framework

Project Development Objectives

PDO Statement

The Project Development Objective is to improve wastewater services in a sustainable manner in selected areas of Ho Chi Minh City (HCMC) and increase awareness on sanitation.

These results are at | Project Level

Project Development Objective Indicators

Indicator Name	Baseline	Cumulative Target Values									
		YR1	YR2	YR3	YR4	YR5	YR6	YR7	YR8	YR9	End Target
Volume(mass) of BOD pollution load removed by the treatment plant under the project (Ton/year) - (Core)	0						3,883				3,883
Direct project beneficiaries (number), of which female	0						1,125,000				1,125,000

(percentage) (Number - Sub-Type: Supplemental)											
Maintaining cost recovery for wastewater management in HCMC (Number - Sub-Type: Supplemental)	0.00	1	1	1	1	1	1				1.00
Percentage of respondents demonstrating an increase in awareness on sanitation issues											50

Intermediate Results Indicators

Indicator Name	Baseline	Cumulative Target Values									
		YR1	YR2	YR3	YR4	YR5	YR6	YR7	YR8	YR9	End Target
Length of interceptor installed (Kilometers)	0.00	0.00	0.00	0.00	2.00	5.00	8.00				8.00
New household sewer connections constructed under the							7,153				7,153

project (Number) - (Core)											
District 2 sewers operational (Yes/No)	No						Yes				Yes
DBO contractor activities in place (Yes/No)	No	No	Yes	Yes	Yes	Yes	Yes				Yes
Survey and IEC activities conducted (Yes/No)	No	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Number of poor people in the D2 area connected to the sewerage network (Number)							3,318				3,318

Indicator Description

Project Development Objective Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Volume (mass) of BOD pollution load removed by the treatment plant under the project	This indicator measures the cumulative volume (mass) of Biological Oxygen Demand (BOD) pollution loads removed by the treatment plant supported under the project.	Semi-annual	Semi-annual report	IMA
Direct project beneficiaries (number), of which female (percentage)	The indicator is the number of people connected to the combined or separated sewers in the NLTN and the D2 area; the female population will be provided in percentage terms. The target of 1,125,000 is based on 1,060,000 and 65,000 people in the NLTN and D2 areas, respectively.	Semi-annual	Semi-annual report	IMA
Maintaining cost recovery for wastewater management in HCMC	Operating costs for wastewater management (priority 1 expenditures of SCFC) should always be less than revenues from wastewater tariffs.	Annual	Annual financial statements of SCFC that show the revenues and expenditures for wastewater management	IMA
Percentage of respondents demonstrating an increase in awareness on sanitation issues	A baseline survey will be conducted the first year based on which the target for the increase will be set for year 6. This will be validated through a follow up survey in year 6.	Semi-annual	Semi-annual report	IMA

Intermediate Results Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Length of interceptor	Length of the interceptor under component 1	Semi-annual	Semi-annual report	IMA

installed	installed. The target is 8 km as per the Feasibility Study.			
New household sewer connections constructed under the project	This indicator is measured as the cumulative number of new sewer connections constructed under the project. The baseline value is expected to be zero. The target is 7,153, as identified in the Feasibility Study of District 2.	Semi-annual	Semi-annual report	IMA
District 2 sewers operational	Year 1: Design consultant selected; Year 2: Design complete; Year 3: Bidding document for construction issued; Year 4: All construction contracts in place; Year 6: Construction completed.	Semi-annual	Semi-annual report	IMA
DBO contractor activities in place	Year 1: contract signed; Year 2: Design completed: Year 3: Construction starts; Year 6: Wastewater treatment plant operational.	Semi-annual	Semi-annual report	IMA
Survey and IEC activities conducted	Year 1: Survey instrument developed and baseline survey conducted; Year 6: follow-up survey conducted. Year 2-6: Information, Education, and Communication activities.	Semi-annual	Semi-annual report	IMA
Number of poor people in the D2 area connected to the sewerage network	The indicator is the number of poor people connected to the combined or separated sewers through which wastewater is collected and treated. The target is 3,318 as identified in the Feasibility Study of District 2.	Semi-annual	Semi-annual report	IMA

Annex 2: Detailed Project Description

VIETNAM: Second Ho Chi Minh City Environmental Sanitation Project

1. The technical aspects of the project have been reviewed through feasibility studies to ensure that cost effective solutions are being provided through the project. Two feasibility studies have been completed: for the interceptor and the wastewater treatment plant and for the drainage investments in the D2 area. In addition, the bidding documents for the construction of the wastewater treatment plant and the interceptor will be in place prior to project effectiveness to facilitate implementation (these two components represent a large portion of the planned expenditures under the project). Furthermore, the pre-qualification documents to select the firms for the construction of the interceptor and the wastewater treatment plant have also been drafted. These early technical preparation activities will allow the implementation to take place in a timely manner. The project will have the following four components:

Component 1: Interceptor

2. The interceptor will transfer the wastewater from the East Bank Shaft (where the wastewater collected from the NLTN area is being discharged on the eastern side of the Saigon River) to the location of the wastewater treatment plant. The diameter of the interceptor will be 3.2 m which is the same diameter for the existing pipe that brings the wastewater to East Bank Shaft from the NLTN area. The wastewater will flow by gravity through the interceptor; the average slope of the interceptor will be around 0.1 percent and the length will be around 8 km.

3. To avoid disruption in the D2 area, pipe jacking method would be used for the construction of the interceptor which will minimize open excavations. While pipe-jacking does not require open excavation, there would be around 22 vertical shafts that would be created along the route of the interceptor through which construction will take place. The routing of the interceptor was carefully considered through an alternative analysis. The current routing was selected on the basis of minimizing the length of the interceptor and disruption to the city during the construction.

4. The design of the interceptor is currently underway. In addition, the bidding document to select the firm that will carry out the construction is underway. The interceptor is being designed for a 50 year time horizon and takes into account the hydraulic load that it would carry, based on the volume of wastewater generated and the infiltration in the drains in the NLTN and D2 area. In addition, as the wastewater is collected mainly through combined sewers, the volume of water collected increases significantly during rain events. Wet weather flow can be two times higher than dry weather flows. The interceptor design will take into account this variation in the flows between the dry and wet seasons.

Component 2: Wastewater Treatment Plant

5. The WWTP will have a hydraulic capacity of 480,000 m^3/day and provisions will be in place for future expansion. The wastewater effluent standards that have to be met by the DBO contractor are summarized below (Table A2.1). At the feasibility study stage, four technical options were considered: Conventional Activated Sludge (CAS), Sequencing Batch Reactor

(SBR), Bio-filtration, and Trickling Filter. Although these four processes can meet the effluent standards, the Trickling Filter technology cannot be applied as per Vietnamese regulations given the size of the plant. SBR has been suggested as the reference technology during the project preparation stage. However, following Bank procurement procedures, pre-qualified bidders will have the option to bid on any of the three remaining technologies or an alternative technology that will meet the effluent discharge criteria as per the Vietnamese regulations. The firm that satisfies all the technical and quality requirements and has the lowest life cycle cost (capital cost plus discounted operating cost) will be chosen as the Design Build and Operate (DBO) contractor.

Table A2.1: Wastewater effluent standards

Parameters	Units	Effluent Standard (QCVN 14-2008 Class A)
PH		5-9
BOD (20^oC)	mg/l[1]	30
TSS	mg/l	50
Total Diluted Solids	mg/l	500
Sulfur	mg/l	1.0
Ammonia	mg/l	5
Nitrate (NO_3)	mg/l	30
Oil	mg/l	10
Total surface active agent	mg/l	5
Phosphate (PO_4)	mg/l	6
Total Coliform	MPN/100 ml	3,000
Note: [1] mg/l denotes milligrams per liter.		

6. The treatment plant is located in a low-lying area and as a result it would be important to protect the plant from flood risks. A study was conducted to assess the options for flood protection taking into account the historic level of floods, future levels of sea water rise due to climate change, and land subsidence. Options of building a wall around the plant, locating the treatment plant on a higher elevation, building a dyke to protect the plant etc. were considered. The recommended option was to build the treatment plant on elevated land (2.3 m above sea level) and then further protecting it with a wall (0.5 m) which can be increased in height later to increase the level of protection. The DBO contractor will take into account the recommendations of the study and will include the flood protection measures as part of the construction works. There is also a creek in the wastewater treatment site that would have to be relocated. Options to relocate the creek have been studied and the DBO contractor would have to review these options and carry out the works as part of the construction activity.

7. The design and construction period is expected to last for five years; the operating period is planned for five years, with provisions in the contract to extend the operating period. Thus, the DBO contractor will be in place for at least 10 years. As part of the contract, the DBO company will have to ensure that: wastewater effluent standards are met, odor from the plant is well controlled as the plant will be located next to a road with traffic, the sludge from the plant is handled in a proper way. The payments to the DBO contractor are going to be performance based and would be linked to unit volume of wastewater treated and the hydraulic load as large

volumes of water will have to be moved within the plant. Performance bonds will also be in place which can be used by HCMC in case there is failure on the part of the DBO contract to meet requirements specified in the contract.

8. The pre-qualification document to select the DBO contractor for the plant has been drafted. The bidding documents for the construction of the treatment plant are also being prepared. The DBO contractor will have to design the plant in a way to account for differences in the concentration of pollution between dry and rainy seasons. For instance, the average concentration of BOD that has been considered at the feasibility stage is 88 mg/l, with variations between the dry and wet weather flow. HCMC is now carrying out a detailed water quality analysis, covering dry and wet weather flows to take into account the variations in the concentration. The results of this water quality analysis will be available to the bidders so that they can design the treatment plant in an optimal way.

Component 3: Sewage in District 2 Area

9. District 2 has a total area of 5,018 hectares over eight sub-catchment areas. An analysis was carried out to determine the important wastewater and drainage issues in these sub-catchments and three areas have emerged as priority areas where interventions are needed. These areas are: Thao Dien (including An Phu), Binh An (or south Thao Dien), and Binh Trung (East and West). These three areas were chosen as they have an existing population and their wastewater is discharged to various water bodies without treatment, causing environmental and health concerns.

10. As part of the feasibility study, an analysis was done to determine whether combined or separated sewers would be most cost effective. The analysis suggests that in Binh An separated sewers would be more suitable while in Thao Dien and Binh Trung the use of the combined sewers and interceptors to prevent the flow of wastewater to the Saigon River are proposed. The total hydraulic load generated from this area is about 50,000 m^3/day. The wastewater collected from the area will be transferred to the treatment plant being constructed under the project.

11. As new sewer lines would be laid in the D2 area, attention was paid to make sure that the poor are well served. A poverty and sanitation access mapping study was undertaken by WSP in 2013 to identify the location of the poor in the project areas and the level of sewered sanitation access. The aim of the study was to support the development of a project that assists the poor. This mapping study has subsequently been complemented by data gathered in 2014 through the feasibility study prepared to develop sewerage in the District 2 area. The data for both these studies was provided at the ward level by HCMC's Department of Labor, Invalids and Social Affairs (DOLISA) and the Department of Health (DOH), and the District 2 Peoples Committee.

12. Central and provincial governments have a number of income thresholds for classifying poor households. Nationally, urban households are classified as poor if per capita annual income is below VND 6,000,000 (VND 4,800,000 for rural households). These thresholds were issued by the Prime Minister under Decision # 09/2011/QĐ-TTg dated January 30, 2011 for the duration of the period 2011-2015. However, each province/city may set its own poverty classification thresholds and on January 24, 2014, HCMC set its own poverty thresholds as:

"poor" households with per capita income less than VND 16[9] million (roughly equivalent to US$ 2/capita/day) and "near poor" households with per capita income ranging from VND 16 to 21 million. HCMC uses a higher threshold to classify the poor compared to the national threshold as the level of economic activity is higher in the city compared to the national average.

13. The project will focus sewerage/household connection investments in Basins 1, 2 and 6 (see Table A2.2). Poor households in the project area are concentrated in Basin 6 (Cat Lai, Binh Trung Dong, Binh Trung Tay, and Thanh My Loi wards); this basin includes 748 poor households, equivalent to 75 percent of all the poor residents in D2. Basins 1 (An Phu and Thao Dien wards) and 2 (Binh An ward) of the project area include a further 3 percent of D2's poor households. Project investments in sewer/drainage networks and household connections will, therefore, be focused on areas comprising some 78 percent of all the poor households in D2.

Table A2.2: Household sewerage connection information by basin

Basin	Ward	Total Households	Unconnected Households	Unconnected Households	Poor Households
		(Number)	(Number)	(Percentage)	(Number)
Project Basins in District 2					
1	An Phu	721	144	20%	-
	Thao Dien	4,574	137	3%	-
2	Bin An	4,810	481	10%	22
6	Cat Lai	2,344	1,125	48%	89
	Binh Trung Dong	3,581	1,791	50%	171
	Binh Trung Tay	5,055	2,477	49%	171
	Thanh My Loi	2,042	998	49%	317
Sub-total		23,127	7,153	31%	770
Other Basins in District 2					
3	Binh Khanh+An Khanh	419	97	23%	23
	An Loi Dong	100	100	100%	-
4	An Phu	986	197	20%	194
Sub-total		1,505	394	26%	217
	TOTAL	24,632	7,547		987

14. Households without a connection to a sewer are concentrated in the wards with the highest concentration of poor households. In Basin 6, 49 percent of the 13,022 households are not connected to sewers, while in Basin 1, 5 percent of the 5,295 households are unconnected and 10 percent of the 4,810 households in Basin 2 are unconnected. The poverty assessment carried out by WSP and the feasibility studies were used to ensure that the project will target sewerage/connection investments in areas identified as having the highest concentrations of poor households in D2. In addition, the Information, Education, and Communication (IEC) activities that are planned under the project will inform the poor households on the benefits of sewer connections and good sanitation hygiene practices.

[9] In 2013, the level was VND 12 million

15. In the three project areas, river water backs up through the combined drains flooding streets during period of high tides. As the combined drains carry wastewater, the pollution also reaches the streets during these flood events. To prevent such flooding, non-return valves would be installed at the outfall locations (points where the drains discharge to the river) and will be supported under the project. These valves will reduce the flood risks in the area and the associated pollution due to the discharge of wastewater in the streets.

Component 4A: Construction Management and Project Management

16. This component will have two sub-components:

(i) *Construction Management (US$16 million)*: The IMA will be supported by consultants to help with respect to construction management. Works will be carried out in urban areas and it is important to have close supervision of the works so that the implementation of the project is not delayed and the disruption to the population is minimal. The construction management will be financed by the Bank and the cost is estimated to be about 5 percent of the investment cost.

(ii) *Project Management (US$13 million).* This sub-component will focus on building awareness in HCMC on matters related to sanitation, supporting HCMC's efforts to plan for wastewater management, and providing support to the IMA to implement the project. Included activities are summarized in Table A2.3 and described below:

Table A2.3: Project management activities

Component 4 A2: Cost Breakdown	
Description	**Cost ($ mln.)**
1 Support to the IMA for Project Implementation	5.25
2 Capacity Building in HCMC on Sanitation	
Institutional Support to DOT, SCFC	1.50
Update of Sewerage Master Plan (including septage)	2.00
Public Awareness Campaigns and Surveys	1.00
Materials for Environmental Learning Center	0.70
3 Fiduciary and Safeguard Activities	
Financial Audit and Support on Accounting	0.75
Safeguard Audit (Environment and Social)	1.00
4 Equipment	
Laboratory at WWTP (for monitoring by SCFC)	0.50
Equipment and Office Facilities for IMA	0.30
Total	**13.00**

- *Project Implementation Support to the IMA.* This will include hiring consultants (firms and individuals) to help the IMA implement the project which will include assistance on monitoring project activities and taking remedial actions in case of delays, collection of periodical data on key project indicators, and preparation of semi-annual reports.

- *Capacity Building in HCMC on Sanitation.* Multiple activities are planned under this Technical Assistance:

  - Institutional Support to DOT and SCFC on matters related to drainage, and wastewater management and septage management. Funds will be used to support the development of institutions that are responsible for sanitation and on ways to improve sanitation services; and also for training of relevant HCMC departments responsible for sanitation.

  - Update of the Sewerage Master Plan. The current Master Plan was prepared in 2000 and needs to be updated based on urban development in HCMC. The project will support the update of this Sewerage Master Plan which will include recommendations on wastewater and storm water management and also on septage management to improve the collection and safe disposal of sludge from septic tanks.

  - Public Awareness campaign. A survey instrument will be developed that would gauge the citizen's awareness on sanitation issues. The survey will be conducted in the first year of the project. Based on results of the survey, the IEC activities will be carried out from the second year of project implementation. The IEC campaign will raise awareness on sanitation issues and will also help to build support to raise tariffs to meet increasing costs of collecting and treating wastewater. In the last year of project implementation, another survey would be carried out to determine an increase in awareness on sanitation matters. The objective of this activity is summarized in Table A2.4.

Table A2.4: Public Awareness Campaign

Topic	Objective
Project Area	
Solid Waste management near the NLTN canal	Improve the awareness on the need to reduce the disposal of solid waste in the NLTN canal
Household connections in the D2 area	Increase awareness on the benefits of household connections to the sewer network in the D2 area
De-sludging and septage management in NLTN and D2 areas	Increase awareness on the importance of regular de-sludging in households and proper management of septage
City-wide	
Sanitation practices in households	Increase awareness on the benefits of hygienic sanitation practices
Water and wastewater cycles	Increase awareness on the need to conserve water and reduce water pollution
Sanitation services provided by the city	Seek inputs from citizens on the quality of sanitation services provided by HCMC. This will complement the efforts of the PC to seek feedback from citizens on the quality of public services. Based on the survey results carried out under the project, adjustments would be made to improve services, including Information, Education, and Communication activities on sanitation.

- Materials for the Environmental Learning Center (ELC). HCMC authorities plan to build an ELC in the location of the wastewater treatment plant. Through this center, the public would be informed about key urban environmental issues, such as the water cycle and wastewater generation and treatment. Funds from the project would be used to prepare the materials for the ELC.

- *Fiduciary, Social and Environmental Monitoring*. This sub-component will finance financial audits; and environmental and social safeguard audits to ensure that the social and environmental safeguards are being properly addressed.

- *Equipment*. Equipment will be purchased to monitor water quality in the Saigon and Dong Nai Rivers. Flow monitoring stations will be also installed in strategic points of the interceptor in order to assist the operation of the pumping station and optimize the performance of the Wastewater Treatment Plant. A laboratory for water quality monitoring will be installed at the WWTP facilities. In addition, equipment for the IMA office will be purchased.

Component 4B: Land Acquisition Costs and Operating Costs for the IMA

17. For the construction of the wastewater treatment plant, there will be land acquisition and resettlement. In addition, land acquisition and resettlement may be needed for the construction of the interceptor and the sewage network in the D2 area, although it will be limited given that: the construction of the interceptor will not require open excavation and land will be acquired only at the areas where the vertical shafts are being constructed and since the sewage network will be largely installed under existing roads. The land acquisition and resettlement costs will be fully borne by HCMC and provisions will be made in the city budget to pay for these cost.

18. HCMC will also fully pay for the IMA (salaries and office space) during the implementation of the project and this cost is included in the overall project cost. The IMA is part of the Department of Transportation and it will finance public officials working on this project.

Annex 3: Implementation Arrangements

VIETNAM: Second Ho Chi Minh City Environmental Sanitation Project

Project Institutional and Implementation Arrangements

1. During the investment phase, the IMA will carry out all project activities. During the operational phase, the IMA will also supervise the contract with the DBO contractor and will draw upon the expertise of the SCFC on technical matters as needed. Additional implementation details are provided below.

Financial Management

2. The FM capacity assessment of the IMA was conducted which concluded that a "Moderate" FM risk rating is assigned to the project. The IMA, which is the Project implementing agency, is part of the Department of Transportation, officially established in August 2013 by Ho Chi Minh City People Committee, and has experience in implementing World Bank-funded investment projects, including the HCMC ES 1, which has had a satisfactory or moderately satisfactory FM rating during the implementation period. The IMA will be responsible for overall coordination, quality assurance, procurement, financial management, monitoring and reporting, and day-to-day supervision of Project activities. Regarding the accounting staff, except for the chief accountant, the current accounting team of seven staff was responsible for FM implementation of HCMC ES1. This is a strength of the IMA considering the current accounting unit has accumulated 10 years of implementation experience on HCMC ES1. The chief accountant has been mobilized since April 1, 2014. With more FM training provided to accounting staff, especially the chief accountant, the IMA has adequate financial management staff capacity. The budgeting procedures and practices, accounting system including accounting policies, and internal controls procedures of the IMA are also adequate for financial management purposes. The key features of the FM arrangements are mentioned in the main text of this PAD.

3. **Staffing**. The IMA has adequate financial management staff capacity. It has experience in implementing World Bank funded investment projects and the financial management of these projects has been satisfactory or moderately satisfactory.

4. **Budgeting**. Budgeting procedures and practices are adequate for the purpose of Project financial management. For this Project, the annual disbursement plan will be prepared by the FM/accounting function which is linked with the physical work plan and procurement plan completed by the IMA. This plan will then be approved by the IMA management, DOT and relevant agencies.

5. **Counterpart funds**. The overall budget for the Project will be approved by DOT and PPC. The counterpart funds will be made available for the IMA through the State Treasury system. The IMA will open counterpart fund accounts at the State Treasury at the same geographical locations, and payments to contractors/ suppliers will be made upon State Treasury verification approval of the payment claims.

6. **Accounting**. The IMA will apply government accounting system for investment owner, following Decision 214, revised by Decision 195 of Ministry of Finance. The accounting system including the accounting policies, procedures and software of IMA, are adequate for Project FM. The IMA will use relevant accounting software for the project and train staff to use the software.

7. **Internal controls**. The project's internal controls are documented in a Financial Management Manual (FMM) which was reviewed by the Bank and will be updated regularly to take into account any changes in procedures. The FMM must be reviewed annually to ensure it is up-to-date and relevant**.**

8. **Specific measures for improved transparency and accountability.** Contract management will be performed by the IMA to avoid overpayment and overrunning of contract budgetary allocations. The contract management will form part of the Interim Financial Reporting. To continue to strengthen the financial management arrangements for the Project and to help further reduce the risk of fraud and corruption, particular emphasis during preparation has been given to the financial management arrangements in the following areas: (a) clear FM responsibilities with avoidance of gaps and overlaps and maintenance of segregation of duties of FM personnel included in the FM Manual; (b) construction performance audit; and (c) enhanced disclosure and transparency of financial information. The audited financial statements of the Projects (prepared under an accounting basis acceptable to the Bank) will be audited in accordance with International Standards on Auditing (ISA) and consistent with an Audit TOR acceptable to the Bank. In addition, the Project audited financial statements will be made publicly available.

9. **Financial Reporting**: Semi-annual Interim Financial Reports (IFRs) will be prepared by the IMA for monitoring of financial performance of the project in a format agreed between the representatives of the GoV and the Bank. IMA will use the Aligned Monitoring Tool (AMT) which is acceptable to the Bank and the Ministry of Planning and Investment. The IFRs are not required to be audited and will be submitted to the Bank within 45 days after the reporting period.

10. **Audit Arrangement**: Financial statements for the Project will be prepared by IMA annually. The Project's financial statements will be audited on an annual basis in accordance with international auditing standards, with statements and audit reports to be submitted to the Bank within six months of the close of the fiscal year. Under the Project, State Audit of Vietnam (SAV) will be the auditor to conduct the audit of the annual financial statements of the Project in accordance with TOR acceptable to the Bank. The SAV will be required to express an audit opinion covering the project financial statements, use of funds, SOEs and DA, which are prepared in accordance the adopted Accounting Standards. A management letter addressing internal control weaknesses will also be provided by the auditor together with the audit report on the Project financial statements. The Project's audited financial statements will be published according to the Bank's information disclosure policy.

Disbursements

11. The project will use the following disbursement methods (a) reimbursement: the Bank may reimburse the borrower for eligible expenditures "eligible expenditures" that the borrower has pre-financed from its own resources; (b) advance: the Bank may advance Loan/Credit proceeds into a designated account of the borrower to finance eligible expenditures as they are incurred and for which supporting documents will be provided at a later date; (c) direct payment: the Bank may make payments, at the borrower's request, directly to a third party (e.g., supplier, contractor, and consultant) for eligible expenditures; and (d) special commitment: the Bank may pay amounts to a third party for eligible expenditures under special commitments entered into, in writing, at the borrower's request and on terms and conditions agreed between the Bank and the borrower.

12. One Designated Account (DA) for the IBRD/IDA funds will be opened in a commercial bank, with terms and conditions satisfactory to the Bank. The DA will be US$20 million or any other amount as set in the Disbursement Letter. Replenishment applications will be submitted quarterly or when the account is drawn by 50 percent of the authorized allocation, whichever occurs first. For withdrawal outside the designated account (applications for direct payment, reimbursement or for issuance of special commitments), a minimum application value of US$2 million will be observed.

13. Supporting documentation required for demonstrating eligible expenditures paid from the DA and for Reimbursements will be Statements of Expenditure and a list of payments against the contracts that are subject to the Bank's prior review, together with the records. The frequency for documenting expenditures paid from the DA will be quarterly. Direct Payments will be documented by records. The Minimum Application Size for Reimbursement, Special Commitment and Direct Payments will be specified in the Disbursement Letter.

14. Disbursements from IBRD and IDA will be made against the expenditures incurred under Components 1, 2, 3, and 4A of the project. The Bank will finance up to 100 percent of the eligible expenditures related to goods, works, non-consulting, consulting assignments, training and workshops, and incremental operating costs, for these four components. For all expenditures, the use of IDA and IBRD will be allocated to different contracts. As a result, these funds will be used at the same time for different activities. The disbursement arrangement for IDA and IBRD funds is shown in Table A3.1. For each withdrawal application, the Borrower/Recipient will specify whether the IBRD or IDA funds will be used. Component 4B of the project will be fully financed by HCMC.

Table A3.1: Disbursement arrangement

Category	Amount of the Loan Allocated (in USD)	Amount of the Credit Allocated (expressed in USD equivalent)	Percentage of Expenditures to be financed (inclusive of Taxes)
Goods, works, non-consulting services, consultants' services, Training and Workshops, and Incremental Operating Costs for the Project for components 1, 2, 3, and 4A	247,000,000	200,000,000	100%
Front-end Fee	625,000	N/A	100%
Commitment Charge	2,375,000	N/A	100%
TOTAL AMOUNT	**250,000,000**	**200,000,000**	

15. The Project will have a Disbursement Deadline Date (final date on which the Bank will accept applications for withdrawal from the borrower or documentation on the use of loan/credit proceeds) four months after the Closing Date. This deadline is established in order to permit the orderly project completion and closure of loan/credit/grant accounts via the submission of applications and supporting documentation for expenditures incurred on or before the Closing Date. Expenditures incurred between the Closing Date and the Disbursement Deadline Date are not eligible for disbursement, except as otherwise agreed with the Bank.

Procurement

16. **Procurement Risk Assessment**. The IMA is the project implementing agency and it is directly responsible for the implementation of the project including procurement. The IMA had previously implemented the HCMC ES1 and is familiar with Bank's procurement procedures. The Bank conducted an assessment of the project's procurement capacity and risks. Main risks include noncompliance and delays due to time-consuming bidding process for large valued complex contracts; and weak procurement and contract management capacity.

17. **Risk Mitigation Measures**. To mitigate the identified risks, the following major mitigation measures (Table A3.2) have been agreed with the DOT/IMA and are being implemented. As these measures will be implemented during the project, the overall risk on procurement is assessed to be Moderate.

Table A3.2: Risk mitigation measures

	Actions	Responsibility	Expected Date of Completion
1	Hiring qualified international consultants in advance for preparation of designs, technical specifications and bidding documents, using PPTAF funds	IMA	Two major consulting contracts awarded; another one to be awarded in the first year of implementation
2	Appointing more qualified procurement staff for IMA	DOT/IMA	Within first year of implementation
3	Providing procurement and contract management training for DOT/IMA to ensure that bidding processes are competitive, fair, and transparent. Training to carry out due diligence on past procurement activities will also be provided.	DOT/ IMA	Throughout project procurement implementation period
4	Mobilizing design international consultants for bid evaluation for major works contracts and continuing to use individual procurement support consultant's service for other contracts	IMA	Throughout project procurement implementation period
5	Requesting bid evaluators to sign and commit to comply with a Code of Conduct Declaration when carrying out their duties	IMA	Throughout project procurement implementation period
6	Improving safeguard of bids/proposals during bid evaluation process	IMA	Throughout project procurement implementation period
7	Employing a qualified international consulting firm for construction and contract management	IMA	Throughout project implementation period
8	Improving and expanding procurement record keeping system	IMA	Throughout project implementation period

18. **Procurement Arrangements**. Procurement for the proposed project will be carried out in accordance with the World Bank's *"Guidelines: Procurement of Goods and Non-consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers"* dated January 2011, revised July 2014 ("Procurement Guidelines"), and *"Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers"* dated January 2011, revised July 2014 ("Consultant Guidelines"). The vast majority of the project procurement shall be done using International Competitive Bidding (ICB) and Quality Cost Based Selection (QCBS) with shortlists of international consultants and subject to the Bank's Prior Review. The rest will be procured using other methods including National Competitive Bidding (NCB), Shopping, Direct Contracting (DC), Quality Based Selection (QBS), Least Cost Selection (LCS), Selection Based on the Consultants' Qualifications (CQS), Single Source Selection (SSS) and Selection of Individual Consultants (IC). The thresholds for the application of these procurement methods and the thresholds for the Bank's Prior Review applicable for the proposed project are indicated in the Procurement Plan.

19. **Procurement Plan**. IMA has prepared a Procurement Plan for the first 18 months of project implementation. This Procurement Plan, is subject to public disclosure, and will be updated throughout the duration of the project at least annually by including contracts previously awarded and to be procured in the next 12 (twelve) months. All procurement plans, their updates or modifications shall be subject to Bank's prior review and no-objection. The Bank shall arrange for the publication of the procurement plan and its updates on the Bank's external website.

Safeguards

Addressing Involuntary Resettlement Impacts

20. A series of consultations for the Social Assessment (SA) studies were carried out during project preparation between 2012 and 2014. The consultations with households, including men and women, were used to inform overall project design. This resulted in the design of specific activities like the IEC campaign that will aim to raise awareness on sanitation. The SA confirms that the overall social impact of the project is positive; and adverse impacts are primarily in the area of land acquisition. The SA also confirms that there are no impacts on ethnic minority sub-groups in the project area.

21. The project has triggered OP 4.12 on Involuntary Resettlement. Specific consultations were carried out in four geographic areas where there will be direct project impacts due to land acquisition: (a) the linear area where the interceptor (about 8 km of pipe) will be installed; (b) the area where the WWTP will be built; (c) the residential areas downstream of the WWTP that will discharge treated water to the Dong Nai River; and (d) some areas of District 2 where sewerage lines would be laid. Based on the analysis of potential impacts from land acquisition, 3 instruments have been developed.

Resettlement Policy Framework (RPF)

22. The RPF covers project activities such as the interceptor and sewage lines in the D2 area where the exact project footprint is not yet final. As a result, the exact area of land to be acquired cannot be determined during project preparation. The RPF serves as a framework to guide development of RAPs during project implementation. It is a comprehensive document which includes legal basis for the resettlement activities, an entitlement matrix, grievance redress mechanisms, and the process for RAP preparation. The RPF has been adopted by HCMC PC.

Resettlement Action Plan (RAP) for WWTP

23. This document covers the mitigation of impacts for households that are affected by the acquisition of 38.47 ha of land for the construction of the WWTP. The census identified that a total of 63 households and two companies will be affected by the land acquisition. Out of the 63 households, 59 own agricultural land and there are four other households that have structures (graves, restaurant, thatch huts) that would be affected. The two companies own some land which has not been used. There were several rounds of consultation conducted during RAP preparation by the HCMC authorities (April 25, 2012, February 18, 2014, and August 9, 2014)

during which 45 out of the 59 households that own land were consulted. For those households (14) that own land and could not be contacted, a tracer mechanism has been put in place by the IMA to locate these households. Once they are located, they would be advised of their entitlements and they would be compensated as per the RAP. In the event that these households cannot be reached and civil works must commence, the estimated compensation amount will be held in an escrow account. This will ensure that the households will not be denied their due entitlements and they will receive compensation once they are located.

24. Out of the 45 households that own land and were consulted, 17 of them are local and 28 of them live in other parts of HCMC (outside District 2) or in other provinces. These households will lose their land, although the land is not being used for agricultural purposes. However, these households are not considered to be vulnerable as the loss of land will not directly impact their livelihood; hence a supplementary income and livelihood restoration program is not required. However, in line with Bank policies, the compensation packages will be developed in such a manner that no one is "worse-off" after the land has been acquired.

25. There are four other households that would be affected due to the project. There are two households that use the land and have structures that would have to be removed. These structures are small thatch huts mainly for duck farming and a small restaurant. Compensation for these households will take into account the investment in the structures as well as impact on potential loss of business during transfer to an alternative site. In addition, there are two other households that have six graves on the site of the treatment plant. These two households have indicated that they will move the graves themselves using cash compensation.

26. The two companies that own part of the land are Thanh My Loi Company (1.88 ha) and the Saigon Industrial Zone Development Company (3.2 ha). The land is not being currently used by the companies and as a result there is no adverse impact anticipated due to the sale of the land. These two companies will be compensated as per the RAP when the land is acquired by HCMC.

27. Following the announcement of the WWTP boundary in February 2014, the cut-off date for eligibility to receive compensation was established as July 14, 2014 in accordance with the Vietnam's regulations related to compensation/resettlement. As per World Bank requirements, an escrow account will be set up to cover situations where a compensation package is rejected or disputed by any affected household, or it is not possible to locate the head of household. The calculated compensation amount plus an additional 10 percent of the amount will be deposited in a bank in an escrow account. This will be done by HCMC prior to the land acquisition being carried out.

Due Diligence Report

28. Due Diligence has been carried for the following project related areas:

- *Da Phuoc landfill area*, which will accept the sludge from WWTP. The project started in 2004 and the land acquisition started in 2005. For the 47 ha (out of 306.5 ha) which will be used for the project, land acquisition was completed by 2013. A total of 70 households (for the 47 ha) were affected – 17 lost residential land and 53 lost the use of agricultural

land. There were two rounds of consultations with affected households during the due diligence process which confirmed that full compensation payments were made in compliance with the HCMC's regulations and consistent with Bank's safeguard policy objectives. These households have handed the land over to the government, and the construction of the sludge treatment facility has been approved by HCMC PC.

- *Area covered by the interceptor for wastewater*. This is located in District 2 and will be 8 km in length. However, most of it will be located underground, and land acquisition for the current project will be limited to some shafts above the ground. Although most of the proposed right of way of the interceptor is currently in public land, these areas used to be populated by local households and such land was acquired by government and private project developers prior to the current project, as part of the urbanization program for District 2. Review of compensation policies, payment records for land acquisition, and 2 rounds of consultations with affected households indicated that payments for affected households were in accordance with the relevant national Laws, decrees, and regulations of HCMC People's Committee; and they were also in line with the objectives of OP 4.12. It is should be noted that a small portion of the land needed for the interceptor is being acquired by the Thanh My Loi Company for a housing project, not connected with the Bank project. This process of land acquisition which affects 13 households is not completed, although it started in 2007. Within the area to be acquired by the Thanh My Loi Company, land will be required temporarily (during construction) and permanently (for manholes) for 4 shafts of the interceptor as part of the project. The Thanh My Loi Company plans to acquire the land following applicable regulations and IMA would subsequently acquire the area needed for the four shafts. However, by December 2015, if the company has not acquired the land where the four shafts would be constructed, the IMA would acquire the land directly from the current landowners. Compensation to either party would be paid as per the RPF and in both cases the land acquisition for this portion would be monitored through the RAP.

- *WWTP*. The area of the WWTP includes land that had earlier been given to two private companies (1.88 ha for Thanh My Loi and 3.2 ha for Saigon Industrial Zone Development Company) for development projects. Consultations with the companies and a review of their payment records revealed that Saigon Industrial Zone Development Company had acquired the land from 3 households on a willing buyer-willing seller basis. The three households were paid in 2002. Similarly, Thanh My Loi Company had acquired 0.45ha from 6 households from 2007 to 2013 on a willing buyer-willing seller basis (with contracts certified by local government). The due diligence confirms that the land acquisition was in compliance with HCMC PC's regulations and that the transactions made by the companies were on willing buyer willing seller basis. There are no pending legacies issues, and no further action is required under the WWTP RAP.

Environmental Safeguards

29. The project will bring about environmental improvements as it will treat wastewater from the NLTN and D2 areas and thereby reduce the pollution discharged to the Saigon River. The project is classified as Category A in line with the World Bank Safeguard Policies on

Environmental Assessment OP/BP4.01. Additional World Bank Group operational policies triggered are: (a) OP4.04: Natural Habitats; (b) OP 4.11: Physical Cultural Resources; (c) OP4.12: Involuntary Resettlement; and (d) OP7.50: International Waterways. The interventions that are being carried out by HCMC under the project will improve the quality of the Saigon River in line with the plans of the city. The Environmental Impact Assessment was adopted by DONRE on behalf of HCMC PC. It indicated that the interventions under the project will improve the quality of the Saigon River in line with the plans of the city. Other urban development activities – construction of roads, metro stations, urban buildings - outside the project will also take into account environmental concerns, including cumulative impact on the quality of the water in the Saigon River. It is expected that the HCMC authorities will ensure that the quality of the Saigon River will not be negatively affected due to the other investments not connected to the project.

30. The project area is located near the intersection of the Saigon and Dong Nai rivers in an area which has interlinked rivers and canals. The international waterway Saigon River originates in the Kingdom of Cambodia and flows through HCMC before meeting the Dong Nai River. Results of surface water samples in the Dong Nai and Saigon show that BOD and ammonia concentrations often do not meet regulatory standards (QCVN 08:2008/BTNTM, Column A2). Air samples collected at project area for dust, sulfur dioxide, nitrogen dioxide, carbon monoxide and volatile organic constituents showed concentrations within the limits of the Vietnamese technical environmental regulations for ambient air quality. The noise levels in the project area are also within the regulatory limits (National Technical Regulations 26 on Noise).

31. For the WWTP and the interceptor, an Environmental Impact Assessment with EMP has been prepared to cover potential impacts during construction and operation phases. For the District 2 area investments, as the sewerage and drainage investments' locations are still being identified and relevant detailed designs would be completed after the proposed approval of the project by the Bank, a separate Environmental and Social Management Framework (ESMF) has been prepared. The ESMF outlines the process that will be carried out to address environmental and social considerations that may come up during the construction phase once the location of the D2 investments is known. The ESMF was adopted by the IMA on behalf of HCMC PC. The EIA and ESMF will be subject to revisions in line with additional information that would emerge during the detailed design of these investments.

32. The area assigned for the WWTP construction requires 38.47 hectares of land which was mainly used in the past for agricultural purposes. Currently, the area is covered by vegetation (shrubs, small bushes, and nipa) as well as three creeks and ditches, all of which give the area the characteristics of swamp-like conditions. The WWTP area, which is prone to flooding, is not a natural habitat for migratory birds or any protected species. Analysis of samples collected within the project area in Saigon River shown that there are 72 species of the phytoplankton and 39 species of zooplankton. There are no endangered species known in the project area. The interceptor that would take the wastewater from the NLTN area to the wastewater treatment plant will be constructed through a pipe jacking method where the entire stretch (8 km) would not have to be excavated. Vertical shafts would be constructed along the path of the interceptor and through these vertical shafts the interceptor would be laid. This type of construction will minimize the impact on the environment during the construction.

Project Impacts and Mitigation measures

33. The adverse impacts during construction of the WWTP and interceptor are assessed as localized, temporary, and moderate. These impacts include the generation of dust pollution, noise and vibration due to the operation of heavy equipment, waste generation at the construction site, and traffic interferences. Also, due to the construction activities, local vegetation and landscape will be affected as the vegetation at the site of the wastewater treatment plant will be removed and also a creek that is located in the site will be diverted to another creek to create space for construction. The main impact of this would be: the permanent loss of agricultural land (about 74 percent of the land is agricultural), movement of six graves, and removal of temporary shelters. Potential impacts of the creek diversion include erosion and sedimentation along the receiving creek. The relocation of the creek (about 150 m within the site) will be done in line with the overall flood control measures that are being considered in the site. The negative impacts will be addressed through the application of mitigation measures outlined in the EMP which will include a monitoring plan and through the application of health and safety requirements of workers that would be involved in the construction. Implementation of the EMP will be a requirement for contractors under the project.

34. The environmental concerns during the operational phase include the odor, and management of sludge and effluent from the operation of the WWTP. For odor and effluent concerns, control equipment will be installed in the WWTP and the DBO contractor will be required to conduct environmental quality monitoring to ensure that standards are being met. In addition, the WWTP operational manual (to be prepared by the DBO contractor) will include detailed procedures to handle emergency situations (such as the malfunctioning of the WWTP) and health and safety of workers. The DBO contractor will be responsible for managing the sludge in an environmentally safe manner.[10] The sludge is expected to be transferred by land way to Da Phuoc landfill, located about 25 km from the WWTP. The social and environmental due diligence on Da Phuoc landfill confirmed that its technology and capacity are adequate to receiving and treat the sludge generated from the operation of the WWTP.

35. As the WWTP is located in a flood-prone area, there is a risk that the plant operations could be affected by floods. To avoid any environmental concerns related to discharge of wastewater to the city during a flood event and to protect the WWTP, the flood risk was carefully analyzed and mitigation measures are being planned. The proposed mitigation measures include the construction of a flood protection wall or dyke around the WWTP, locating the electro-mechanical equipment at a higher level that will have a low risk of flooding, and elevating the entire area where the treatment plant will be constructed. The technical option that would be chosen would depend on the DBO contractor, which would have to meet the flood protection requirements specified by HCMC in the bidding documents.

36. Project alternatives were analyzed with respect to type and performance of wastewater treatment technology, WWTP location and interceptor routes, and location of WWTP discharge point. Regarding the treatment technology, four options were considered: Conventional Activated Sludge (CAS); Sequencing Batch Reactor (SBR); Bio-filtration; and Trickling Filter.

[10] The volume of sludge that would be generated at the plant will be dependent on the technology that would be chosen for the WWTP.

All four processes are suitable to meet the required effluent standards (QCVN 14:2008/BTNMT (Column A)). Following Bank procurement procedures, bidders will have the option to bid on a technology that meets effluent standards and has the lowest life cycle cost (Capital expenditure plus discounted Operational Expenditure). For the location of the wastewater treatment plant, three options were considered and the current site was chosen based on availability of land and proximity to the Dong Nai River which has a high flow and the current discharge point of wastewater. Alternative routes were also considered for the interceptor and the current plan follows a path that will have minimal disruption to traffic. Also, three effluent discharge points were considered and the choice was to discharge the water to the Dong Nai River (instead of nearby canals) as the flow of the river is large compared to the canals which will minimize any environmental impacts.

37. Institutional arrangements for environmental monitoring and implementing the EMP are clear. The IMA will have overall responsibility to ensure that the environmental safeguard policies of the Bank are followed; including the implementation of the EMP. Compliance with the EMP is a requirement under the legal agreements of the project. Given the need to implement environmental safeguards, the IMA will receive specific training and will be supported by consultants to ensure that the Bank's policies are being followed and that the aim of improving the environmental conditions of the city is being met. This would include developing the institutional capacity in HCMC on environmental awareness through the Environmental Learning Center that is supported under the project. In addition, environmental auditing of the project will be carried out and the findings of the audits will be reported in the semi-annual reports. The environmental auditing will be financed under the project and will commence within three months after the project implementation begins.

38. A site-specific Environmental Management Plan (EMP) will be developed by construction contractor prior to the start of any construction activities following the procedures specified in the EMP and using information from the detailed design. The EMP will include mitigation measures for negative impacts caused by the construction of the interceptor sewer and WWTP, including measures for health, safety, environmental pollution, and traffic management.

39. Capacity building and training for workers will focus on knowledge about labor safety, collection and treatment of waste and environmental protection. The training programs for workers will be conducted according to construction contracts between the IMA and contractors. Public information program and community relation will be developed during the preconstruction, construction and operation phases.

Project Public Consultation and disclosure process

40. Extensive public consultations have been carried out for the project. The first public consultation was held between December 24 and 26, 2010. Information on the project was disseminated and sample households were interviewed. The second round of consultations took place between December 20 and 23, 2011. In this consultation, opinions of local authorities and residents were sought.

41. Between February 9 and 24, 2012, the main findings of the draft EIA were discussed with affected households. In addition, to comply with Circular 26/2011/BTNMT and Decree

29/2011/ND-CP, consultations were undertaken to collect opinions from leaders (e.g., People's Committee, Fatherland Front's Committee) of Wards and Communes and representatives of affected people. The final public consultation was held on April 24, 2014 by the IMA before finalizing the EIA and the ESMF. The consultation results show that the participants support the project and recognize that their living conditions will improve due to the project. They requested that appropriate measures should be taken by the local authorities to keep the environment clean and they also wanted to be informed about the developments regarding the project and the area.

Annex 4: Operational Risk Assessment Framework (ORAF)

Vietnam: Second Ho Chi Minh City Environmental Sanitation Project (P127978)

<table>
<tr><td colspan="7">Risks</td></tr>
<tr><td colspan="7">Project Stakeholder Risks</td></tr>
<tr><td>Stakeholder Risk</td><td>Rating</td><td colspan="5">Moderate</td></tr>
<tr><td>Risk Description:
There are multiple stakeholders, and it may take time to address all their interests.</td><td colspan="6">Risk Management:
To mitigate the risks of implementation delays, a number of steps have been taken, including: (a) undertaking public consultations regarding environmental and social aspects and making the safeguards documents publicly available to ensure that project affected persons are aware of and support the project; (b) consulting with stakeholders (officials) of HCMC and the central government to discuss the technical aspects of the project; and (c) creating the Environmental Learning Center to inform all the citizens of HCMC about the benefits of sanitation -- including the benefits of wastewater management.</td></tr>
<tr><td></td><td>Resp: Client</td><td>Status: In Progress</td><td>Stage: Both</td><td>Recurrent: ☑</td><td>Due Date:</td><td>Frequency: CONTINUOUS</td></tr>
<tr><td></td><td>Resp: Client</td><td>Status: In Progress</td><td>Stage: Both</td><td>Recurrent: ☑</td><td>Due Date:</td><td>Frequency: CONTINUOUS</td></tr>
<tr><td></td><td>Resp: Client</td><td>Status: In Progress</td><td>Stage: Both</td><td>Recurrent: ☑</td><td>Due Date:</td><td>Frequency: CONTINUOUS</td></tr>
<tr><td colspan="7">Implementing Agency (IA) Risks (including Fiduciary Risks)</td></tr>
<tr><td>Capacity</td><td>Rating</td><td colspan="5">Substantial</td></tr>
<tr><td>Risk Description:
Implementation capacity may be inadequate.</td><td colspan="6">Risk Management:
The implementation capacity is being strengthened along these lines: (a) the same entity that had worked with the Bank before, under HCMC ES1, would implement the project as staff are familiar with Bank procedures; (b) the IMA will hire consultants, as needed, to support the implementation; and (c) the DBO contractor will be in place for at least 10 years (5 years for design and build stage and at least 5 years for operations with provisions in the contract to extend the operating period) and it will bring in good international practices to HCMC.</td></tr>
</table>

	Resp: Client	Status: In Progress	Stage: Both	Recurrent: ☑	Due Date:	Frequency: CONTINUOUS
Governance	Rating	Substantial				
Risk Description: Economic decisions may not be taken as the experience on wastewater management is limited in Vietnam, especially for a large project as this one.	**Risk Management:** The project will address this risk through focused objectives, streamlined project design, and a limited number of procurement events. Cost effectiveness of the investments would be ensured through the Bank's competitive procurement process. In addition, consultants would be hired by the IMA to provide advice on technical and procurement matters and the Bank's Anti-Corruption guidelines will apply for this project.					
	Resp: Client	Status: In Progress	Stage: Both	Recurrent: ☑	Due Date:	Frequency: CONTINUOUS
Project Risks						
Design	Rating	Low				
Risk Description: Land acquisition challenges and permit/construction delays could impact the timeliness of results delivery.	**Risk Management:** The public authorities would provide oversight of the construction schedule and processes – and intervention by these authorities would be expected in the case of construction delays. Both the HCMC PC and D2 Authorities are familiar with the project which will allow timely issuance of construction permits. A Grievance Redress Mechanism will be in place to handle concerns about any aspect of the project. During supervision missions, the Bank will monitor implementation and construction progress.					
	Resp: Client	Status: In Progress	Stage: Both	Recurrent: ☑	Due Date:	Frequency: CONTINUOUS
Social and Environmental	Rating	Substantial				
Risk Description: During construction works at the specific sites, temporary risks due to dust, traffic and noise are increased. During operations, complaints could arise due to odors, improper sludge disposal, malfunction of the WWTP, or flood damage.	**Risk Management:** An Environmental Assessment has been carried out and an Environmental Management Plan is in place to address environmental concerns. In addition, a social assessment has been carried out and the risks related to resettlement and land acquisition will be addressed through the Resettlement Action Plan and Resettlement Policy Framework. During supervision missions, the Bank will ensure that the safeguard procedures being followed are in line with Bank policies. Mitigation measures and health and safety guidelines will be followed during construction works in line with site-specific EMPs.					
	Resp: Client	Status: In Progress	Stage: Both	Recurrent: ☑	Due Date:	Frequency: CONTINUOUS

Program and Donor	Rating	Low				
Risk Description: The financing of the project is not dependent on other donors.	**Risk Management:**					
	Resp:	Status:	Stage:	Recurrent:	Due Date:	Frequency :
Delivery Monitoring and Sustainability	Rating	Moderate				
Risk Description: Information on project indicators may not be regularly collected; this could affect adequate reporting of the results	**Risk Management:** A Results Framework has been developed which specifies the indicators that will be monitored. In addition, during the implementation period, the IMA will submit semi-annual reports to the Bank that would identify the progress made and issues that need attention. Consultants will support the IMA and as needed the Bank will provide guidance to ensure that the project objective is met.					
	Resp: Client	Status: In Progress	Stage: Both	Recurrent: ☑	Due Date:	Frequency: CONTINUOUS
Other (Optional)	Rating	Moderate (with risk mitigation measures)				
Risk Description: Financial Management procedures not followed, which can affect implementation	**Risk Management:** A number of measures have been taken to manage the risk. These measures include proper operations of project accounting software, use of a Financial Management Manual which includes the fund flow arrangements, and regular audit of the project					
	Resp: Client	Status: In Progress	Stage: Both	Recurrent: ☑	Due Date:	Frequency: CONTINUOUS
Other (Optional)	Rating	Moderate (with risk mitigation measures)				
Risk Description: Procurement procedures not followed, which can affect implementation	**Risk Management:** A number of measures are in place to address procurement risk. These include: hiring qualified firms to carry out project preparation activities, appointing qualified procurement staff, mobilizing qualified staff for bid evaluation of major works, requesting bid evaluation committee to sign a Code of Conduct declaration to carry out their activities, protecting bids and proposals after they are submitted to the IMA, employing a qualified firm to carry out construction supervision, and improving the procurement record keeping system.					
	Resp: Client	Status: In Progress	Stage:	Recurrent: ☑	Due Date:	Frequency: CONTINUOUS

6. Overall Risk
Overall Implementation Risk: Substantial
Risk Description: The Overall Implementation risk is considered to be substantial given the risks associated with institutional capacity, governance, social and environmental issues that may come up for the project. Construction in urban areas takes time and to address the above risks a number of measures have been considered: (a) the land acquisition process and consultation with the stakeholders have already begun to ensure that the project affected people are aware and that they support the project; (b) the site for the wastewater treatment plant and the routing for the interceptor have been chosen to minimize disruption for the city; and (c) a pipe jacking method is being considered for the interceptor construction where the pipe would be pushed under the ground through shafts which would minimize open excavation causing less inconvenience for the citizens.

Annex 5: Implementation Support Plan

VIETNAM: Second Ho Chi Minh City Environmental Sanitation Project

Strategy and Approach for Implementation Support

1. The Implementation Support Plan (ISP) for the HCMC ES2 project has been developed based on the nature of the project and its risk profile. It outlines the approach the Bank will take to support HCMC's efforts to implement the project and manage key risks to achieve results and attain project objectives. The ISP aims to make implementation support to the client more flexible and efficient, and focuses on implementation risk mitigation measures which are mainly related to challenges in construction in an urban setting. The implementation support provided by the Bank will also address other issues such as those linked to technical matters, financial management, and procurement.

2. The project will have a Project Operational Manual (POM), prepared and implemented by the IMA. The POM will provide overall guidance on project implementation and will include information such as the detailed project description, financing plan, roles and responsibilities for implementing agencies, the role of the Bank during implementation, key actions required to meet the project development objectives, the schedule of procurement actions, and the monitoring and evaluation arrangements. The Bank will supervise how well implementation is being carried out and will provide guidance on implementation arrangements.

3. The Bank's Hanoi office has staff that can address matters in a range of areas, including: technical, social safeguards, environmental safeguards, procurement, and financial management. Additional support would be provided from the Bank's office in Washington, DC. Furthermore, as needed, the Bank will hire specialized consultants to advise on wastewater management issues.

Implementation Support Plan

4. The Bank has set out its implementation support plan for the project. As most of the Bank's staff for this project team are based in Hanoi, the Bank will be able to provide constant advice and guidance to the entities that will implement the project. In addition, semi-annual project supervision would be carried out. The plan for implementation support is summarized below:

(a) ***Technical inputs***. Engineering inputs are required to review construction plans, bid documents, and bid evaluation reports. The Bank will ensure that it has adequate technical capacity in its team. During construction and commissioning, technical supervision will be provided to ensure that technical contractual obligations are met. The team's engineer will conduct regular site visits during project implementation, and involve technical specialists as needed.

(b) ***Fiduciary requirements and inputs***. Training will be provided by the Bank's FM specialist and the procurement specialist before the commencement of project implementation. The team will support the IMA's FM and procurement specialists.

The Bank's FM specialist and the procurement specialist are both based in the country office to provide timely support. Supervision of FM and procurement matters will be carried out semi-annually as part of the project supervision plan.

(c) ***Social safeguards***. The social safeguards specialist will ensure that land to be acquired under the project is done so in line with the Bank's policies and procedures and those laid out in the safeguards documents. The social safeguards specialist will provide training to the staff that will implement the project and provide regular guidance to counterparts on project implementation. As needed, the social specialist will involve other social safeguard specialists to provide guidance on land acquisition matters.

(d) ***Environmental safeguards***. The environmental safeguards specialist will ensure that environmental procedures followed are in line with the Bank's policies and those procedures laid out in the safeguards documents. Given that the project has environmental benefits, the specialist will ensure that the targeted benefits materialize in a timely manner and that timely training and advice are provided to counterparts on project implementation. As needed, the environmental specialist will involve other specialists to provide guidance on environmental matters and environmental safeguards.

5. The main focus in terms of implementation support is summarized below. It is anticipated that during the first year, significant support will be required from the task team and selected specialists. The Bank's support during that first year of implementation will focus on procurement of the large contracts. Thereafter, the focus will be on timely implementation of the project and meeting the project objectives. Decentralized implementation support will be carried out for this project, with members of the Task Team primarily based in the country office. The core staff skill mix required is summarized below (Table A5.1). The information provided is on an annual basis. In addition to the needs outlined in the matrix below, other specialists (e.g., financial specialists) may be drawn upon to support project implementation as needs arise.

Table A5.1: Task team skills mix requirements for implementation support

Skills Needed	***Number of Staff Weeks***	***Number of Trips***	***Comments***
Wastewater Engineer	10	Field trips as required	Country office-based
Environmental Specialist	4	Field trips as required	Country office-based
Social Specialist	4	Field trips as required	Country office-based
Procurement Specialist	4	Field trips as required	Country office-based
Financial Management Specialist	2	Field trips as required	Country office-based
Task Team Leader	10	2	Based in Washington, DC

Annex 6: Economic and Financial Analyses

VIETNAM: Second Ho Chi Minh City Environmental Sanitation Project

Economic Analysis

Context

1. The second phase of the project (HCMC ES2) proposes to make environmental improvements by: (a) preventing discharge of untreated wastewater to the Saigon River by transferring the wastewater to another location where it would be treated before being discharged to the Dong Nai River; and (b) developing a sewerage network in certain areas D2 and transferring the wastewater to the treatment plant. Currently, in this area, the untreated wastewater ends up in water bodies due to lack of proper sewers and treatment facilities.

2. In qualitative terms, the positive externalities of improved environment and reduced health risks are largely due to the reduction of pollution being discharged to the Saigon River and the water bodies in the D2 area. However, these benefits are difficult to quantify. Thus, a cost-effectiveness approach has been used for the economic analysis.

Construction of WWTP and the Interceptor

3. While the first phase of the project (HCMC ES1) made improvements in the NLTN area, the untreated wastewater collected from the catchment now discharges to the Saigon River. Activities under HCMC ES2 will eliminate the discharge of untreated wastewater to the Saigon River. Water quality modeling carried out as part of the Environmental Impact Assessment illustrates that the quality of Saigon River will improve in the vicinity of the current discharge point of untreated wastewater.

4. There are regulatory requirements in Vietnam for the wastewater to meet effluent standards. These standards are based on environmental considerations and are being applied in HCMC as the city increases its efforts to improve the quality of surface water. The wastewater collected in the NLTN basin will have to meet this regulatory standard and as a result treatment of the wastewater is needed. The project has been designed in way to ensure that least cost options are being considered. Specifically, at the feasibility study stage, multiple technical options for wastewater treatment that would meet the regulatory requirements were considered. At the bidding stage, following Bank procurement procedures, the DBO operator that would be able to meet the effluent standards would be considered technically responsive. However, the DBO contractor that provides the lowest life cycle cost (combination of capital costs and net present value of operating cost) for a technically responsive bid will be awarded the contract. This way, cost effectiveness of treatment will be ensured.

Construction of the Sewerage in the District 2 Area

5. The inclusion of District 2 under the scope of the proposed HCMC ES2 will help to improve the environmental conditions in three zones of the district which do not have a sewerage system. Out of eight zones, these three zones were considered priorities, as there is an existing

population in these areas. A poverty mapping was carried out for the project and these areas have 78% of the poor households of the D2 area.

6. District 2 comprises 5,018 ha of land and had 140,829 inhabitants in 2012, making it one of the less densely populated areas of Ho Chi Minh City. It is located near the central business area of District 1, just across and east of the Saigon river. Given its proximity to the central part of HCMC, the population is steadily growing in the district. With the influx of the population there is need for basic infrastructure such as roads, water, and sewers. The project supports the development of District 2 through the construction of sewers which will allow the area to be used more for residential and business purposes. There are also parts of the district that flood during high tides as the water from the rivers flows back to the streets through drains. One-way valves will be installed in the drains in some areas to prevent this type of flooding during high tides.

7. The focus of the project in District 2 is on three populated areas (Thao Dien, Binh An and Binh Trung) to provide better services to the citizens. Wastewater from these areas is collected and discharge to nearby water bodies, including the Saigon River. By collecting the wastewater from these areas and transferring it to the wastewater treatment plant that will be constructed under the project, there would be an overall environmental improvement in the area. In addition, measures would be taken in these areas to prevent flooding during high tides when water from the river backs up into the streets through the sewer lines.

8. To build the sewers, there are two options and they were considered in detail for all the three areas: (a) build separate sewers for rain water and wastewater; or (b) build combined sewers and/or interceptors to collect the wastewater from households. The lower cost option was chosen in each of the areas to ensure cost effectiveness. In the Thao Dien area, as most of the houses have connections to combined sewers, the lower cost option was to ensure that the wastewater from the households do not reach Saigon River. The main investments, therefore, are to build a collection system that would stop the discharge of wastewater to the Saigon River and transfer the wastewater to the treatment plant built under the project. In the South Thao Dien area, it is more cost effective to install separated systems and that approach would be followed. On the other hand, in the Binh Trung area, it is more cost effective to build combined systems which would be supported under the project.

Financial Analysis

9. The capital costs for the Project are US$495 million and primarily cover construction and equipment costs with a portion dedicated to resettlement, contingencies, VAT, and project implementation. The project is funded through an IBRD loan of US$250 million, an IDA credit of US$200 million, and grant funding of US$45 million from HCMC to cover the remainder of the capital expenditures.

10. Currently the Ho Chi Minh City People's Committee (HCMC PC) is the owner of all sanitation and flood management network assets. The wastewater and flood management activities are carried out by the Steering Committee of Flood Control (SCFC), which is responsible for operating existing wastewater treatment plants in the city. For this project, a decision has been taken by HCMC authorities that:

- *For the implementation stage of the project*, the IMA will be in charge of carrying out the investments. It has carried out the first phase of this project and is familiar with Bank procedures, which will facilitate timely implementation. The IMA will also sign the contract with the DBO firm. During the design and construction phases of the contract, the IMA will supervise the contractor. During the operational phase of the contract, the IMA will seek technical inputs from SCFC as needed.

- *The operational phase of the treatment plant has two parts.* In the first part, when the DBO contract is underway, the private sector will be operating the plant under a contract with the IMA (for at least five years, with provisions to extend the operating period of the contract). During this time, SCFC will provide technical assistance to the IMA and also will be responsible to ensure that adequate environmental fee is collected through the water tariffs to pay the DBO contractor. As per established procedures in HCMC, the Saigon Water Company (SAWACO) collects an environmental fee as part of the water tariff. This fee is transferred to the PC which, in turn, provides the funds to SCFC. The second part will start after the DBO contract expires, when SCFC will operate the plant and will also be responsible for ensuring that the environmental fee is adequate to cover costs.

11. The revenues transferred to SCFC for wastewater operations are driven by two government decrees: Decree 88 and Decree 25. Decree 88 requires full cost recovery of the operations and maintenance (O&M) portion for wastewater management and sanitation. However, the provisions of the decree have not been used by the HCMC authorities so far, since the environmental fee collected through SAWACO has been sufficient to support the wastewater operations of the city. However, in the future, as more wastewater plants are in operations, the wastewater management costs will increase and HCMC will have to take measures to finance the increased cost.

12. Decree 25 sets the current pricing and charge dedicated to wastewater treatment. Under this decree, SAWACO is required to transfer 10 percent of the total clean water charges collected in the entire city to support SCFC's activities. Of this 10 percent, 1 percent is retained by SAWACO as a collection fee. The objective of such a tariff is to ensure that SCFC generates sufficient revenues so it can be financially autonomous and be in a position to deliver consistent, uninterrupted service to consumers regarding wastewater management.

SCFC Budget and Financials

13. SCFC's operating costs are split into three groups: (a) priority one - wastewater management costs which cover direct (e.g., electricity, treatment chemicals, waste disposal, maintenance, and pumping station costs) and indirect (e.g., salaries and collection fees) operating costs related to wastewater treatment plants; (b) priority two - principal and interest on all outstanding loans related to wastewater treatment projects; and (c) priority three – expenses related to flood management.

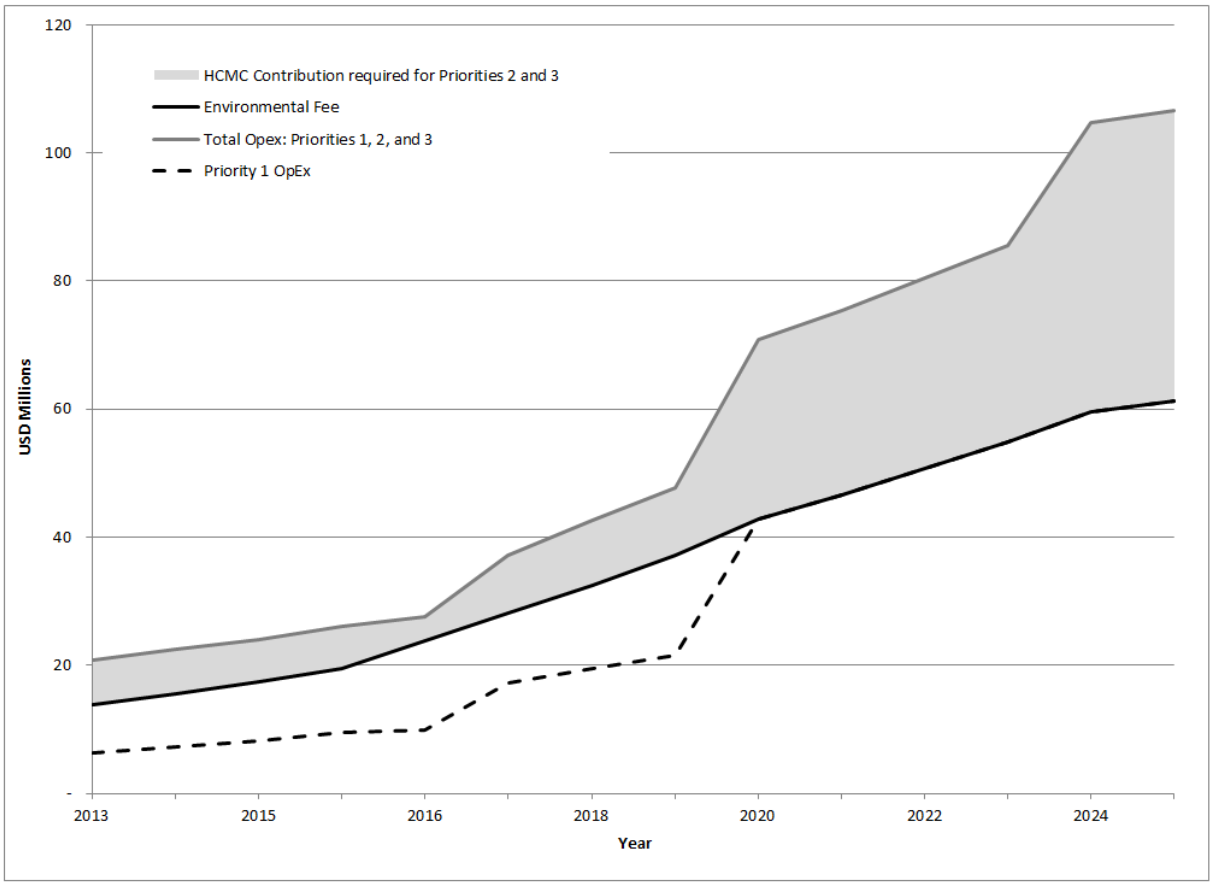
14. Historically, SCFC has had sufficient revenues from the environmental fee (10 percent of water tariffs) to cover wastewater related expenditures (priority one). This trend is expected to continue to about 2020 when the new wastewater treatment plant comes on line. However, in the past, SCFC has received funding from HCMC to cover part of debt service and the flood management expenditures (priorities two and three). As the flood management and wastewater management are different types of expenditures, a separation of accounts within SCFC will facilitate a better understanding on the cost recovery mechanism: wastewater operations should be funded by tariffs while the flood management expenditures should be supported by HCMC's budget given the public good nature of the activity.

15. Figure A6.1 below indicates the sources and uses of funds of SCFC. Additional details are shown in Table A6.1. The assumptions for the projections are:

- *Revenues*: The environmental fee was calculated assuming combined water tariffs based on a 4 percent affordability level of average household incomes in the Ho Chi Minh City area. In addition, a contribution from HCMC in the form of an operating subsidy has been assumed to cover any funding shortfalls for both wastewater and flood management operations. Capital expenditure for the project is assumed to be funded from the IBRD loan, the IDA credit, and contributions from HCMC.

- *Expenses*: Operating costs cover both direct and indirect expenses for existing and new wastewater operations and debt service. Flood management costs are assumed to grow at 5 percent per year from current levels until 2020; 3 percent until 2030; and leveling out at 2 percent thereafter. The capital expenditure for the project is assumed to match the schedule on the use of funds from IBRD, IDA, and HCMC. As the IDA funds are passed on as grants to HCMC, there is no debt service assumed for these funds. For the IBRD funds, a term of 28 years with a 10 year grace period is assumed along with applicable interest, Front End Fee, and Commitment Charge on the unwithdrawn balance.

Figure A6.1: Sources and uses of funds of SCFC



Project financial risks and mitigation measures

16. There are two financial risks to the project: (a) during the construction phase, the timely provision of the counterpart funds by HCMC to the IMA (US$45 million); and (b) during the operations phase, the availability of sufficient funds at SCFC to cover its cost for flood and wastewater management (including sufficient payment to the DBO contractor). The projections on sources and uses of funds indicate that: a) between now and 2020, the environmental fee will be sufficient to cover wastewater management operations; however, additional financial support would be needed from HCMC to cover debt service obligations and flood management operations; and b) after 2020, the existing structure of the environmental fee (based on cost recovery) will not be sufficient to cover wastewater management operations (priority one).

17. Historically, HCMC has provided contributions to SCFC to cover operating gaps. For instance, in 2012 the contribution was US$7.5 million, representing about 0.07 percent of the city's budget (about US$10.29 billion in 2012). While the contribution is marginal relative to HCMC's total budget revenues, there is risk that sufficient funds will not be transferred to SCFC from HCMC given the city's competing financial obligations. In particular, it would be

important to pay the DBO contractor on time to support sustainable operations of the treatment plant.

18. To support the project, wastewater fees (currently 10 percent of water tariffs) would have to increase to support the investments. It is estimated that due to the project and interventions in other catchment areas, the cost of wastewater management will increase about 4.5 times between 2016 and 2021 (US$9.5 million to US$42.8 million). To account for this increase in costs, tariffs have to increase as the revenues from wastewater tariffs as they are currently structured will not be adequate to cover the wastewater expenditures. Thus, the following actions will be necessary:

- Wastewater tariffs will have to be increased to levels sufficient to cover wastewater management operating costs – priority one. The affordability of tariffs to the population was assessed, taking into account that no more than 4 percent of the household income should be spent on water and sanitation. The required increase of wastewater tariffs from US$0.05/$m^3$ (2014) to US$0.11/$m^3$ (2021) is affordable. The combined water and wastewater tariffs projected out to 2022 will be affordable to all residents of the project area, with combined bills representing around 1 and 2.9 percent of average and poor household incomes, respectively. For this affordability analysis, an average income of US$295/month (or about US$2.5/capita/day) was used for poor households, based on the information from HCMC. To support the increase in tariffs, the IEC campaigns will help to highlight the importance of sanitation and the associated costs related to collecting and treating wastewater.

- An additional financial contribution from HCMC PC to cover related debt service and flood management expenditures (priorities 2 and 3); and in case the wastewater revenues are not sufficient, HCMC PC would also have to contribute towards priority 1 expenditures to meet operating costs.

19. To address the financial viability of project, the legal agreements will specify that:

- Within a year of project effectiveness, SCFC will maintain two separate accounts: one for flood management and the one for wastewater management to ring fence the two operations. This will facilitate the goal of increasing cost recovery for wastewater management through tariffs; and also help to define the amount of public support needed for flood protection measures.

- Every year, SCFC will submit its financial statements to the Bank and demonstrate how its costs would be recovered through contributions from HCMC and through tariffs.

- HCMC will facilitate timely increase of wastewater tariffs to ensure cost recovery.

- HCMC will provide the necessary financial support that is needed to meet investment and operating costs of the project.

Table A6.1: SCFC sources and uses of funds, 2013-2025

Year		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Construction Phase														
Uses of Funds														
Total CapEx (including VAT and Financing Costs)	**USD Million**	**-**	**-**	**2.00**	**11.50**	**46.25**	**109.25**	**143.00**	**125.25**	**57.75**	**-**	**-**	**-**	**-**
Sources of Funds														
World Bank Disbursement Schedule (IBRD and IDA)	USD Million	-	-	2.00	6.50	38.25	101.25	135.00	117.25	49.75	-	-	-	-
HCMC Contribution for Component 5	USD Million	-	-	-	5.00	8.00	8.00	8.00	8.00	8.00	-	-	-	-
Total CapEx Funds:	**USD Million**	**-**	**-**	**2.00**	**11.50**	**46.25**	**109.25**	**143.00**	**125.25**	**57.75**	**-**	**-**	**-**	**-**
Operating Phase														
Priority 1 Sources and Uses of Funds:														
NLTN Project OpEx	USD Million	-	-	-	-	-	-	-	-	11.90	12.72	13.62	14.20	14.63
Other WW Operating Costs	USD Million	6.26	7.19	8.27	9.51	9.98	17.16	19.44	21.48	30.92	33.83	37.09	40.74	44.85
Total Priority 1 Costs	**USD Million**	**6.26**	**7.19**	**8.27**	**9.51**	**9.98**	**17.16**	**19.44**	**21.48**	**42.81**	**46.55**	**50.71**	**54.94**	**59.47**
Total Funding For Priority 1: Environmental Fee (Wastewater Tariffs)	**USD Million**	**13.87**	**15.56**	**17.46**	**19.59**	**23.75**	**28.06**	**32.54**	**37.19**	**42.81**	**46.55**	**50.71**	**54.94**	**59.47**
Priority 2 and 3 Sources and Uses of Funds:														
NLTN Project Debt Service	USD Million	-	-	-	0.07	0.59	2.22	4.74	7.24	8.63	9.02	9.34	9.61	23.74
Other Outstanding Loans	USD Million	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43
Priority 2 (Debt Service - Principal + Interest)	USD Million	3.43	3.43	3.43	3.49	4.01	5.65	8.16	10.67	12.05	12.44	12.76	13.04	27.17
Piority 3 (Flood Management)	USD Million	11.19	11.80	12.39	13.01	13.66	14.34	15.06	15.51	15.98	16.46	16.95	17.46	17.98
Total Priority 2 and 3 Costs	**USD Million**	**14.61**	**15.23**	**15.82**	**16.51**	**17.67**	**19.99**	**23.22**	**26.18**	**28.03**	**28.90**	**29.72**	**30.50**	**45.15**
Environmental Fee (if in excess of Priority 1 costs)	USD Million	7.61	8.37	9.19	10.08	13.76	10.90	13.10	15.71	-	-	-	-	-
Additional HCMC Tax Revenue Required to cover Priorities 2 and 3	USD Million	7.00	6.86	6.63	6.42	3.91	9.09	10.12	10.47	28.03	28.90	29.72	30.50	45.15
Total Funding for Priority 2 and 3	**USD Million**	**14.61**	**15.23**	**15.82**	**16.51**	**17.67**	**19.99**	**23.22**	**26.18**	**28.03**	**28.90**	**29.72**	**30.50**	**45.15**
SCFC Operations and Tariff Structure														
Water Volume	Million/m3	330	337	344	351	358	365	372	380	387	391	395	399	403
Wastewater Tariff	USD/m3	0.04	0.05	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15
Wastewater Revenue	USD Millions	13.87	15.56	17.46	19.59	23.75	28.06	32.54	37.19	42.81	46.55	50.71	54.94	59.47

Affordability Assessment for Average Income		**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Household Water Consumption (125 l/c/d)	m3/month	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25
Combined Water and Wastewater Tariff	USD/month	0.46	0.51	0.56	0.61	0.65	0.69	0.73	0.76	0.80	0.83	0.86	0.89	0.92
Average Water and Wastewater Bill	USD/month	6.58	7.24	7.96	8.76	9.30	9.87	10.46	10.89	11.35	11.77	12.20	12.65	13.11
Average Income per Capita (2)	VND Millions/capita/year	183.22	201.54	211.62	222.20	233.31	244.97	257.22	270.08	283.59	297.77	312.66	328.29	344.70
Average Household Income (3.8 people/household)	USD/month	716.48	788.13	827.54	868.92	912.36	957.98	1,005.88	1,056.17	1,108.98	1,164.43	1,222.65	1,283.79	1,347.97
Percentage of Income for Water and Wastewater Bill (Average)	**%**	**0.92%**	**0.92%**	**0.96%**	**1.01%**	**1.02%**	**1.03%**	**1.04%**	**1.03%**	**1.02%**	**1.01%**	**1.00%**	**0.98%**	**0.97%**

Affordability Assessment for Low Income (Poor)		**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Household Water Consumption (125 l/c/d)	m3/month	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25
Combined Water and Wastewater Tariff	USD/m3	0.46	0.51	0.56	0.61	0.65	0.69	0.73	0.76	0.80	0.83	0.86	0.89	0.92
Average Water and Wastewater Bill	USD/month	6.58	7.24	7.96	8.76	9.30	9.87	10.46	10.89	11.35	11.77	12.20	12.65	13.11
Poor Income per Capita (1)	VND Millions/capita/year	65.32	71.86	75.45	79.22	83.18	87.34	91.71	96.29	101.11	106.16	111.47	117.05	122.90
Low-Income Household Income (3.8 people/household)	USD/month	255.45	280.99	295.04	309.80	325.29	341.55	358.63	376.56	395.39	415.16	435.91	457.71	480.59
Percentage of Income for Water and Wastewater Bill (Low Income - 1st Quintile)	**%**	**2.58%**	**2.58%**	**2.70%**	**2.83%**	**2.86%**	**2.89%**	**2.92%**	**2.89%**	**2.87%**	**2.83%**	**2.80%**	**2.76%**	**2.73%**

Annex 7: Project Map

VIETNAM: Second Ho Chi Minh City Environmental Sanitation Project