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Report No: PAD1724

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT AND
INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT PAPER

ON A

PROPOSED ADDITIONAL LOAN

IN THE AMOUNT OF US$69 MILLION

AND A

PROPOSED ADDITIONAL CREDIT

IN THE AMOUNT OF SDR 35.3 MILLION
(US$50 MILLION EQUIVALENT)

TO THE

SOCIALIST REPUBLIC OF VIETNAM

FOR THE

VIETNAM URBAN WATER SUPPLY AND WASTEWATER PROJECT

May 5, 2016

Water Global Practice
East Asia And Pacific Region

CURRENCY EQUIVALENTS
(Exchange Rate Effective April 30, 2016)

Currency Unit	=	Vietnamese Dong (VND)
VND 22,300	=	US$1
US$ 1.41733	=	SDR 1

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
BIWASE	Binh Duong Water Supply, Sewerage, and Environment Company
BOD	Biochemical Oxygen Demand
CPMU	Central Project Management Unit
DA	Designated Account
DED	Detailed Engineering Design
EA	Environmental Assessment
EIRR	Economic Internal Rate of Return
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
GoV	Government of Vietnam
GRS	Grievance Redress Service
HCMC	Ho Chi Minh City
JICA	Japan International Cooperation Agency
MOC	Ministry of Construction
MOF	Ministry of Finance
MPI	Ministry of Planning and Investment
O&M	Operation and Maintenance
PDO	Project Development Objective
PMU	Project Management Unit
PPC	Provincial People's Committee
PPMU	Provincial Project Management Unit
PSP	Private Sector Participation
RF	Results Framework
RPF	Resettlement Policy Framework
TA	Technical Assistance
TOR	Terms of Reference
VUWSW	Vietnam Urban Water Supply and Wastewater Project
WSC	Water Supply Company
WWTP	Wastewater Treatment Plant

Regional Vice President:	Victoria Kwakwa
Country Director (Acting):	Achim Fock
Senior Global Practice Director (Acting):	Jennifer J. Sara
Practice Manager:	Ousmane Dione
Task Team Leaders:	Lixin Gu and Vinh Quang Nguyen

SOCIALIST REPUBLIC OF VIETNAM

Vietnam Urban Water Supply and Wastewater Project

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ADDITIONAL FINANCING DATA SHEET

Vietnam

Additional Financing for Vietnam Urban Water Supply and Wastewater Project (P156678)

EAST ASIA AND PACIFIC

GWA02

Basic Information - Parent			
Parent Project ID:	P119077	Original EA Category:	B - Partial Assessment
Current Closing Date:	30-Dec-2016		

Basic Information - Additional Financing (AF)			
Project ID:	P156678	Additional Financing Type (from AUS):	Cost Overrun/ Scale Up
Regional Vice President:	Victoria Kwakwa	Proposed EA Category:	B
Country Director:	Achim Fock	Expected Effectiveness Date:	29-August -2016
Senior Global Practice Director:	Jennifer J. Sara	Expected Closing Date:	31-Dec-2019
Practice Manager/Manager:	Ousmane Dione	Report No:	PAD1724
Team Leader(s):	Lixin Gu, Vinh Quang Nguyen		

Borrower				
Organization Name	Contact	Title	Telephone	Email
State Bank of Vietnam	Le Minh Hung	Governor	+84 4 38268771	vanphong@sbv.gov.vn

Project Financing Data - Parent (URBAN WATER SUPPLY AND WASTEWATER-P119077) (in US$, millions)

Key Dates

Project	Ln/Cr/TF	Status	Approval Date	Signing Date	Effectiveness Date	Original Closing Date	Revised Closing Date
P119077	IDA-49480	Effective	24-May-2011	13-Jul-2011	07-Oct-2011	30-Dec-2016	30-Dec-2016
P119077	TF-56904	Closed	08-Mar-2007	08-Mar-2007	08-Mar-2007	02-Nov-2008	02-Oct-2010

Disbursements

Project	Ln/Cr/TF	Status	Currency	Original	Revised	Cancelled	Disbursed	Undisbursed	% Disbursed
P119077	IDA-49480	Effective	US$	200.00	200.00	0.00	132.00	49.43	66.00
P119077	TF-56904	Closed	US$	1.00	0.80	0.20	0.80	0.00	100.00

Project Financing Data - Additional Financing Vietnam Urban Water Supply and Wastewater Project - Additional Financing (P156678) (in US$, millions)

[X] Loan [ ] Grant [ ] IDA Grant

[X] Credit [ ] Guarantee [ ] Other

Total Project Cost:	142.0	Total Bank Financing:	119.0
Financing Gap:	0.00		

Financing Source - Additional Financing (AF)	**Amount**
BORROWER/RECIPIENT	23.0
International Bank for Reconstruction and Development (IBRD)	69.0
International Development Association (IDA)	50.0
Total	142.0

Policy Waivers

Does the project depart from the CAS in content or in other significant respects?	No
Explanation	
Does the project require any policy waiver(s)?	No
Explanation	

Team Composition

Bank Staff

Name	Role	Title	Specialization	Unit
Lixin Gu	Team Leader (ADM Responsible)	Sr. Infrastructure Specialist	Infrastructure Specialist	GWADR
Vinh Quang Nguyen	Team Leader	Sr. Water & Sanitation Spec.	Water & Sanitation Specialist	GWASE
Chau-Ching Shen	Financial/Disbursement Officer	Sr. Finance Officer	Finance Officer	WFALN
Demilour Reyes Ignacio	Team Member	Program Assistant	Program Assistant	GWADR

Farah Hussain	Financial Specialist	Sr. Financial Specialist	Financial Specialist	FABKK
Hung Sy Pham	Team Member	Water & Sanitation Spec	Water & Sanitation Specialist	GWADR
Jong Ho Ahn	Team Member	Sr. Water Resource Specialist	Water Resource Specialist	GWADR
Kien Trung Tran	Procurement Specialist	Senior Procurement Specialist	Procurement Specialist	GGODR
Linh Thi Thuy Tran	Team Member	Team Assistant	Team Assistant	EACVF
Ly Thi Dieu Vu	Environment Specialist	Consultant	Environment Specialist	GEN02
Mai Thi Phuong Tran	Financial Management Specialist	Sr. Financial Management Specialist	Financial Management Specialist	GGODR
Nina Masako Eejima	Counsel	Sr. Counsel	Counsel	LEGES
Nghi Quy Nguyen	Social Safeguards	Social Development Specialist	Social Development Specialist	GSURR
Rumana Kemer Abubeker	Team Member	Consultant	Monitoring and Evaluation	GWADR
Regassa Namara	Economist	Sr. Water Economist	Economist	GWADR
Sing Cho	Team Member	Sr. Water & Sanitation Spec	Water & Sanitation Specialist	GWADR

Extended Team

Name	Title	Location
Chris Bane	Consultant	Vietnam

Locations

Country	First Administrative Division	Location	Planned	Actual	Comments
Vietnam	Tinh Nghe An	Tinh Nghe An		X	
Vietnam	Tinh Ninh Binh	Tinh Ninh Binh		X	
Vietnam	Tinh Thanh Hoa	Tinh Thanh Hoa		X	
Vietnam	Tinh Quang Tri	Tinh Quang Tri		X	
Vietnam	Tinh Quang Ninh	Tinh Quang Ninh		X	
Vietnam	Tinh Lam Dong	Tinh Lam Dong		X	
Vietnam	Tinh Kien Giang	Tinh Kien Giang		X	
Vietnam	Thu Do Ha Noi	Thu Do Ha Noi		X	
Vietnam	Tinh Binh Duong	Tinh Binh Duong		X	

Vietnam	Tinh Binh Phuoc	Tinh Binh Phuoc		X	
Vietnam	Tinh Quang Nam	Tinh Quang Nam		X	

Institutional Data

Parent (URBAN WATER SUPPLY AND WASTEWATER - P119077)

Practice Area (Lead)

Water

Contributing Practice Areas

Cross Cutting Topics

[ ] Climate Change

[ ] Fragile, Conflict & Violence

[ ] Gender

[ ] Jobs

[ ] Public Private Partnership

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	Sanitation	50		
Water, sanitation and flood protection	Water supply	48		
Public Administration, Law, and Justice	Public administration-Water, sanitation and flood protection	2		
Total		100		

Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%
Urban development	City-wide Infrastructure and Service Delivery	74
Environment and natural resources management	Pollution management and environmental health	26
Total		100

Additional Financing Vietnam Urban Water Supply and Wastewater Project - Additional Financing (P156678)

Practice Area (Lead)

Water

Contributing Practice Areas

Social, Urban, Rural and Resilience Global Practice

Cross Cutting Topics

[X] Climate Change

[ ] Fragile, Conflict & Violence

[X] Gender

[ ] Jobs

[ ] Public Private Partnership

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	General water, sanitation and flood protection sector	90		
Public Administration, Law, and Justice	Public administration-Water, sanitation and flood protection	10		

Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%
Urban development	City-wide Infrastructure and Service Delivery	100
Total		100

Consultants (Will be disclosed in the Monthly Operational Summary)

Consultants Required? Consulting services to be determined.

I. Introduction

1. This project paper seeks the approval of the World Bank Group (WBG) Board of Executive Directors for an additional financing (AF) that includes an IDA credit in the amount of SDR 35.3 million (US$50.0 million equivalent) and an IBRD loan in the amount of US$69.0 million to the Socialist Republic of Vietnam for the Vietnam Urban Water Supply and Wastewater Project (VUWSWP) (P119077, Cr-4948-VN).

2. The proposed AF will finance costs associated with (a) a project cost overrun in the amount of US$20 million due to the appreciation of the U.S. dollar against the special drawing right (SDR); (b) a scaling-up of activities under the environmental sanitation component--adding a US$92 million wastewater and drainage subproject for Binh Duong, a province under the current VUWSWP; and (c) an expansion of the US$7 million technical assistance (TA) component to the Ministry of Construction (MOC) for the preparation of the Mekong Delta water supply investment to be financed by the World Bank.

3. The AF comprises (a) a minor reformulation of project subcomponents under Subcomponent 1B - Environmental Sanitation and Subcomponent 2A - MOC Institutional Strengthening and Project Monitoring; (b) modifications to the Results Framework (RF) to include the scale-up activities under the wastewater and drainage program in Binh Duong Province and activities under the MOC TA; and (c) a closing date extension of 36 months, from December 30, 2016 to December 31, 2019, which will allow for the completion of new activities proposed under the environmental sanitation and TA subcomponents.

II. Background and Rationale for Additional Financing in the Amount of US$119 million

Country and Sector Context

4. **Vietnam is one of the fastest urbanizing countries in the East Asia and Pacific region, with the share of urban populations expected to grow to 50 percent by 2025.** Rapid urban growth which is largely due to rural-urban migration, is fueling economic growth. While the highest rates of migration occur in larger cities such as Ho Chi Minh City (HCMC), Da Nang, and Hanoi, medium-size cities also play an important role in Vietnam's urbanization process. Vietnam's urban areas are classified[1] into the following six groups: (a) two national special cities (Hanoi and HCMC); (b) three national first-class cities (Hai Phong, Da Nang and Can Tho); (c) ten provincial first-class cities (Da Lat, Vinh, Nam Dinh, Hue, and so on); (d) ten provincial medium-size second-class cities (Tam Ky, Ninh Binh, and so on); (e) 30 provincial medium-size third-class towns (Dong Xoai, Uong Bi, Bim Son, Dong Ha, and so on); and (f) 600 small district towns. Approximately 45 percent of the urban population lives in medium-size cities (of second and third classes) comprising 100,000–300,000 people. These medium-size cities and towns often lag behind larger urban areas (of special and first classes) in terms of access to basic services while they are rapidly growing due to their proximity to larger urban areas, such as HCMC and Hanoi. The government considers these areas critical to the development and implementation of an urban

[1] According to the government's Decree No. 42/2009/ND-CP, the six urban area classifications are based on the size of population; percentage of population engaged in nonagricultural activities; availability of urban infrastructure such as piped water supply, drainage, and wastewater services; and so on.

strategy that will ensure the establishment of an equitable system of cities, independent of size and location.

5. **The government's policy framework for urbanization is the Master Plan for Urban Development in Vietnam to 2025 and Vision to 2050.** This plan puts strong emphasis on Vietnam's urban transition, with a well-structured understanding of the role Vietnam's cities play in integrating with the regional and global economy. The main objective of the master plan is to achieve balanced and strategic growth, through the establishment of a national urban system consisting of urban centers of various size and type distributed throughout the country. The plan envisages the development of medium and small urban areas as development hubs within larger urban areas and provinces.

6. **While urban areas remain the main engines of growth for Vietnam's economy, the challenge of developing infrastructure and providing adequate urban services remains.** There are 78 medium-size cities in Vietnam that have a population of more than 100,000. An estimated 30 million people—roughly 34 percent of the population—live in these cities. Out of this population, approximately 5.7 million people do not have access to adequate water services and 18 million[2] people do not have access to adequate wastewater services. Even for those who have access to these services, there is a critical need to improve the quality of services--for continuity, reliability, and supply (water quality).

7. **Water source degradation is threatening the security of water supply**, particularly in areas vulnerable to overexploitation and environmental degradation from human activities and climate change. This could potentially reverse the rate of access to safe water supply. A key area of concern is the economically significant Mekong Delta region, which is highly vulnerable to climate change induced weather extremes and sea level rises. An average sea level rise of 1 m is projected to inundate nearly 39 percent of the Mekong Delta, affecting around 35 percent of its 17.4 million (2012) population. Coastal facing provinces in the delta are already suffering from saline intrusion of surface water and groundwater sources, leading to a significant reduction in freshwater sources.

8. **The demand for better services is increasing as the urban population is growing at the rate of 4 percent per year.** For the urban water and wastewater sector alone, Vietnam would need to spend an estimated US$1.8 billion per year until 2020 to provide quality services and meet the government's targets as set out in the Master Plan for Urban Development (by 2025 more than 90% of urban population will have access to water supply and wastewater services). By 2020, about 45 million people are expected to live in urban areas, posing a further challenge to national efforts to ensure the provision of high quality urban services. Basic services such as water supply, improved sanitation, and wastewater collection and treatment are particularly lagging in local towns and cities with an urban population of between 50,000 to 100,000 people. Improved access to such infrastructure services would not only spur economic growth, but also improve the environment, reduce risks to human health due to contamination from wastewater, and allow urban areas to adapt to climate change through well-designed drainage systems.

[2] Ministry of Construction Report at the Vietnam Development Partnership Forum, June 2015.

Vietnam Urban Water Supply and Wastewater Project

9. **The original VUWSWP was designed to respond to key urban development challenges focusing on assuring water supply and wastewater needs of selected urban areas in Vietnam**. The US$200 million IDA loan (SDR 126.14 million) was approved in May 2011 and has been effective since October 2011, with the original plan to be completed by December 2016. The project sponsors seven water supply and seven wastewater subprojects in 10 provinces, with an average population size of 100,000 in the urban centers targeted.

10. The project development objective (PDO) is to increase access to sustainable water services and environmental sanitation in selected urban areas in the project provinces. This is being achieved through two components:

(a) **Component 1**: Investments and Project Implementation (US$232.4 million) that includes seven subprojects under Subcomponent 1A - Water Supply and seven subprojects under Subcomponent 1B - Environmental Sanitation, each implemented by the provinces

(b) **Component 2**: Technical Assistance (US$3.8 million), that includes Institutional Strengthening and Project Monitoring implemented by the MOC under Subcomponent 2A and Improving the Efficiency of Investments and Operations undertaken by the Ministry of Planning and Investment (MPI) under Subcomponent 2B

Project Implementation and Current Performance

11. **The project has been rated Satisfactory and Moderately Satisfactory on both the PDO and implementation progress (IP) throughout the project lifespan.** The project is performing well and progress is on track in all 14 subprojects. As of the February–March 2016 supervision mission, overall physical progress advanced to 91 percent and actual disbursements stood at US$144.8 million (70 percent). No major safeguards issues have been noted and the project is in compliance with all loan and legal covenants, with the exception of one covenant where it is required for the water supply companies (WSCs) to maintain a working ratio of not more than 0.9. As of a July 2015 supervision mission, three WSCs' working ratios were above the 0.9 ratio. In 2016, however, the WSCs have been in full compliance with the covenant, as the biennial water tariff increase took effect and agreed remedial actions have been taken.[3]

- **Water supply subprojects (Subcomponent 1A, US$109.5 million).** Progress under the works contracts is going well, with physical progress at 98 percent. Two water supply subprojects have been completed and the remaining five will be completed before the project closing date. To date, 62,712 households have benefited from new water connections, exceeding the end target of 42,628 beneficiary households.

[3] Binh Duong Province has been in compliance all the years since the project started preparation and implementation.

- **Wastewater subprojects (Subcomponent 1B, US$122.9 million).** Works contracts and construction are going well, with physical progress at 83 percent. Based on the implementation schedules for the signed contracts, the wastewater works will be completed by the original closing date, December 30, 2016. The wastewater intervention has so far benefited 99,340 households in urban areas, with an end target of 213,051 beneficiary households. It is expected this target will be met by the scheduled project closing date.

- **Technical Assistance (Component 2, US$3.8 million).** Overall implementation progress under the TA component is on track. TA activities supporting institutional strengthening and project monitoring under Subcomponent 2A are progressing well. TA activities aimed to improve the efficiency of investments and operations under Subcomponent 2B have been successfully completed.

12. **Project finance status.** Due to the appreciation of the U.S. dollar against the SDR, especially in the period from late 2014 throughout 2015, a budget shortfall has emerged. By April 2015, the financing gap was US$20 million, reaching US$24 million in July 2015 and US$ 23 million in April 2016. As a result, available financing under the project has been reduced from US$200 million in 2011 to US$177 million in April 2016. The design and contracting works of the subprojects were based on conversion rates at the time of project approval. As a result, the project is currently facing cost overruns. These lack of available financing may put project owners at risk of failure to process payments for completed works and prevent completion of planned works under Component 1. This would have an adverse effect on project results and development impact.

13. In August 2015, the Government of Vietnam (GoV) therefore requested an AF in the amount of US$20 million taking in account of about US$ 3-4 million of saving from contracts implementation. The AF will provide funds to complete all activities envisaged under the original scope of the operation and ensure development objectives are met. At the same time, the GoV proposed two additional project components: (a) an additional subproject (under Subcomponent 1B) of environmental sanitation for Binh Duong Province and (b) an additional TA activities for the MOC under Subcomponent 2A.

Rationale for Additional Financing (US$119.0 million)

14. The proposed AF amount is US$119 million, made up of an IDA credit of US$50 million and an IBRD loan of US$69 million. The proposed AF will support the following activities:

(a) **Cost overrun in the amount of US$20 million from IDA for the VUWSWP.** Recovering cost overrun associated with the appreciation of the U.S. dollar, allowing for the completion of remaining activities specified under the water supply and environmental sanitation subcomponents of the original project. With this additional funds, the project's cost in terms of US$ remains unchanged.

(b) **Scaling-up of Subcomponent 1B - Environmental Sanitation - to add the Binh Duong Wastewater and Drainage Program, in the amount of US$92 million (US$23 million by IDA, US$69 million by IBRD).** Building the wastewater and

drainage systems in Binh Duong Province, specifically in Di An Town. Binh Duong, is one of the seven water supply subprojects under Component 1A of the VUWSWP. The AF will be used for the newly proposed wastewater and drainage program expansion in the province and will thus enhance the overall project impact.

(c) **Additional TA to the MOC (US$7 million IDA).** Developing Mekong Delta water supply investment to be financed by the Bank. The TA supports the MOC in the preparation and development of priority investments in water sector, specifically regional water supply investments in six Mekong Delta provinces and the city of Can Tho, aimed to address emerging threats to secure water supply sources and ensure adequate water supply to the population. The funds will be used to fund the preparation of a feasibility study report, detailed engineering design (DED) and bidding documents, environmental and social safeguards reports, provide institutional development support to related provinces in the region, and fund related MOC project management activities.

15. The provision of additional funds to support the aforementioned activities is critical for project implementation and success. While in the original project design there was a very small contingency provisioned for covering fluctuation of exchange rates during project implementation, such contingency appeared to be insufficient during project implementation due to unforeseen increase in value of US$ against SDR. The devaluation of SDR against US$ caused a cost overrun of project cost in terms of US$, which was about US$ 24 million in July 2015 and US$ 23 million in May 2016. Taking in account some savings in amount of US$ 3-4 million during project implementation, recovery of the cost overrun, in the amount of US$20 million, will enable the VUWSWP to complete activities and achieve the PDO. The AF is further justified given Binh Duong's exceptional performance under the implementation of the VUWSWP water supply subproject. The province completed its water supply subproject two years ahead of the plan, with good quality, good project management, and in full compliance with the working ratio and other legal covenants throughout the project implementation. Furthermore, Binh Duong has satisfactorily implemented two similar wastewater projects financed by the Japan International Cooperation Agency (JICA). As the line ministry responsible for national urban water and sanitation services, the TA to the MOC will support the ministry in developing water supply investments.

16. The proposed wastewater and drainage program in Binh Duong is designed to provide improved drainage and sanitation services in Di An Town, which is the main industrial hub for the province and the region. It will also improve the environment in Di An Town by reducing water pollution into the surrounding Saigon and Dong Nai Rivers. These two rivers are the main water supply sources for millions of inhabitants, including in HCMC, one of the most populated cities in Vietnam. Over 63 percent of the population in Di An Town are migrant laborers residing in a congested, flood- and disease-prone environment. While they are vital to the local economy, the laborers are highly vulnerable to these environmental hazards and lack access to proper sanitation services. Sanitation-related morbidity affects their income through increased health care expenditure and reduced labor productivity. Improvements in wastewater and drainage services will thus contribute to the twin goals of eradicating absolute poverty and enhancing shared prosperity.

17. The following three options were considered to address the needs described above: (a) the provision of an AF of US$20 million only—to cover cost overruns and complete the original project activities; (b) the preparation of a follow-up US$92 million stand-alone project for Binh Duong; and (c) the provision of an AF in amount of US$119 million, to cover the cost overrun, finance the scaling up Subcomponent 1B (adding an environmental sanitation subproject in Binh Duong Province), and additional TA to the MOC. Among these options, the third one, the combined AF, was found to be the most efficient and cost-effective way to respond to the above needs and demands. Specifically, the AF (a) enables the completion of activities under the original project; (b) capitalizes on Binh Duong's proven effective implementation capacity and arrangements, which have generated satisfactory results under the ongoing VUWSWP; (c) saves time and cost associated with project preparation while maintaining the momentum of the results achieved to date; and (d) facilitates the MOC in achieving its mandates for water sector development.

18. The proposed AF is consistent with Vietnam's Country Partnership Strategy (CPS) covering FY12–FY16. The AF is aligned with the PDO of the original project and the activities to be financed are consistent with the project's original components. The AF is also in line with Vietnam's orientations for developing urban water supply, drainage, and wastewater services toward year 2025, where the government intends to (a) increase coverage of water supply service to 100 percent by 2020 for the cities of grade III[4] and above; (b) reduce flooding in urban areas and rehabilitate existing drainage systems; and (c) expand drainage coverage to 80 percent of the population by 2020 as well as increase coverage of wastewater collection and treatment to 60 percent of the respective population by 2020.

Profile of Binh Duong Province, Di An Town

19. **Binh Duong is a province located in the southeast of Vietnam, approximately 25 km from HCMC, with an estimated total population of 1.9 million**. Di An Town is located in the southern part of Binh Duong bordering the Dong Nai and Saigon Rivers, with a total area of about 60 km^2 and a population of 380,000. Because of its special location as a gateway from HCMC to Binh Duong, Di An Town is home to many local and international industries and continues to attract foreign investments and migrants seeking job opportunities. Among its population, 63 percent are migrants from the Mekong Delta and central and northern Vietnam. Land use in Di An Town is mainly for industrial and urban development purposes and 100 percent of the town's inhabitants are categorized as urban population. In recent years, Di An achieved an average economic growth of 15 percent per year and has served as an economic engine for the province and the main contributor to the provincial and state budget.

20. **Sandwiched between the Saigon and Dong Nai Rivers, water sources for millions of people, the establishment of a water pollution control scheme in Di An Town is a major priority for the provincial government**. Because of rapid urbanization, the infrastructure in Di An Town, particularly wastewater and drainage systems, has deteriorated, causing frequent flooding and severe water pollution. Of the 60 km^2, 20 percent of the area drains into the Saigon

[4] According to the government's classification by its Decree 42/2009/ND-CP, grades III, IV, and V cities have a population size ranging from 4,000 to 150,000, nonagricultural workers constitute at least 65 percent of total population in the inner city, and the cities require some infrastructure.

River and 80 percent drains into the Dong Nai River. While industrial zones have their own wastewater treatment facilities, domestic wastewater discharges directly into the rivers without being treated. River monitoring data collected from 2007–2011 indicates the water quality in the two rivers is suboptimal and needs improvement. As one of the main pollution sources, Di An Town needs to build an integrated wastewater treatment and drainage system to improve its environment and protect these rivers that millions of inhabitants rely on for their livelihood.

21. **The proposed wastewater and drainage expansion is among Binh Duong's strategic priorities.** This project is consistent with the provincial and county urban planning[5] focused on the development of drainage and wastewater services in urban areas. The Government set forth targets to reduce floods in urban areas by 80% compared to the year 2009, as well as collect and treat 60 % of wastewater generated in the cities and towns of class III and above by the year 2020. This project also falls under high priorities of the Government[6], and Binh Duong province that focus on collection and treatment of wastewater generated from residential and industrial areas locating in the basin of Dong Nai River to protect the river from pollution.

22. **Currently, there are two WWTPs funded by JICA**. The JICA-I WWTP is in operation in Thu Dau Mot City, with a capacity of 17,650 m^3 per day, designed to support 20,000 connections (it is currently serving 14,500 households). JICA-II is under construction and is expected to start operation by 2017, with a capacity of 17,000 m^3 per day in Thuan An Town and southern Thu Dau Mot City, serving about 19,587 and 11,198 households, respectively. The Bank-financed WWTP will serve about 187,000 people (40 percent of the total 450,000 forecasted population in Di An Town by 2025). Together with the two JICA WWTPs, the proposed AF in Di An Town will enable Binh Duong Province to collect and treat wastewater throughout the southern part of the province, ultimately improving the environment in the area and the water quality in the two rivers.

23. **Binh Duong Province has demonstrated its commitment and capacity in the current VUWSWP.** Project preparation and feasibility studies are completed and the coordination between the provincial authorities and line ministries is commendable. The province has proven it can effectively implement the project, showing outstanding project implementation performance under the current VUWSWP, and strongly engaging in the project preparation process, where 30 percent of the DED and bidding documents and the terms of reference (TOR) for construction supervision services have already been finalized.

Profile of the Southern Mekong Delta

24. **The Mekong Delta encompasses 12 percent of Vietnam's land area**. The area is intensely cultivated and is one of the most productive regions in Asia. The delta area in Vietnam comprises 12 provinces and one city, with a population of about 17.4 million (2012). The southern part of the delta comprises six provinces and one city: An Giang, Hau Giang, Soc Trang, Bac Lieu, Ca Mau, and Kien Giang and the city of Can Tho. The population of the area is about 9.1 million (2012) or roughly 10 percent of the population of Vietnam.

[5] Decision No. 1930/QD-TTg, dated November 20, 2009, from the Prime Minister on the orientation for development of drainage in urban and industrial areas of Vietnam for the period up to year2025 with a vision into year 2050
[6] Decision No. 1942/QD-TTg dated October 29, 2014, from the Prime Minister on the planning drainage and wastewater treatment for residential and industrial zones in Dong Nai river basin for the period up to year 2030

25. **Water suppliers in the six provinces and Can Tho City do not produce and distribute adequate volumes of water to meet demand**. Current production is estimated at about 860,000 m^3 per day. Drinking water requirement is projected to reach about 1.7 million m^3 per day by 2020. The problem is exacerbated by serious water resources degradation and constraints. Surface water resources in the downstream provinces near the coast (Hau Giang, Soc Trang, Bac Lieu, and Ca Mau) already suffer from saline intrusion and alum contamination. These provinces now almost fully rely on groundwater as the source of drinking water. Exploitation of this resource beyond its recharging capacity has resulted in a falling groundwater table, aggravated saline intrusion, and land subsidence. Available data confirms a growing trend of saline intrusion both in inland advancements and in increased concentration, threatening Can Tho, An Giang, and Kien Giang Provinces.

Project Components

26. The PDO remains unchanged and the scope of activities to be financed under the proposed AF remains within the framework of the current VUWSWP provinces. The newly added subproject under Subcomponent 1B, the Di An Town Wastewater and Drainage Program, is similar to the other seven wastewater subprojects under the VUWSWP. The activities included under the AF are described below.

Component 1: Investments and Project Implementation (US$112 million)

Part *1A: Ongoing subprojects (US$20 million)*

- **Water Supply.** Completion of existing project activities in Ninh Binh, Tam Ky, Da Lat, Dong Xoai, and Phu Quoc subprojects. The other two subprojects in Uong Bi and My Phuoc have been completed (detailed activities and costs are given in annex 2, Table 2.1).

- **Environmental Sanitation.** Completion of existing project activities in Ninh Binh, Bim Son, Thai Hoa, Dong Ha, Tam Ky, Da Lat, and Dong Xoai subprojects (detailed activities and costs are given in annex 2, Table 2.1).

Part *1B: Di An Wastewater and Drainage Subproject (US$92 million)*

- Construction of wastewater and drainage systems in Di An Town (detailed activities and costs are given in annex 2, Table 2.2).

Component 2: Technical Assistance (US$7 million)

- Preparation of Mekong Delta water supply investment, specifically, the regional water supply security investments in the six Mekong Delta provinces of An Giang, Hau Giang, Soc Trang, Bac Lieu, Ca Mau, and Kien Giang and the city of Can Tho. Funds will be used for the preparation of a feasibility study, DED and bidding documents, environmental and social safeguards reports, institutional development for the related provinces in the region, and related MOC project management activities (detailed activities and estimated costs are given in annex 2, Table 2.3).

27. **The AF retains the proven institutional and implementation arrangements of the ongoing project, with slight adjustment to Di An Town subproject implementation.** For the new Di An Town subproject, the Binh Duong Water Supply, Sewerage, and Environment Company's Project Management Unit (BIWASE's PMU) will be responsible for the implementation while the project ownership remain under the Binh Duong Provincial People's Committee (PPC). Under the original project, BIWASE was a project owner for a water supply subproject and BIWASE's PMU was the project management unit (PMU) that implemented the water supply subproject. With strong capacity demonstrated during implementation of the water supply subproject, BIWASE's PMU is upgraded to be a provincial PMU directed by Binh Duong PPC but not by BIWASE, though its name remained unchanged as BIWASE's PMU. Once the construction is completed, BIWASE will be responsible for the operation and maintenance (O&M) of the wastewater system and the local government in Di An Town will be responsible for the O&M of the drainage system. Given BIWASE's PMU strong capacity and outstanding track record demonstrated while implementing the water supply subproject, the implementation of the additional activities under the AF are expected to be completed within a three-year time frame, from January 1, 2017 to December 31, 2019.

28. **The AF will retain the same safeguards category B as the original project and project preparation and implementation apply the same approach as in the original project.** Two additional safeguards policies are triggered in the AF, namely Physical Cultural Resources (OP/BP 4.11) and OP 7.50/BP - International Waterways. An exception to riparian notification, as allowed by the Bank policy OP 7.50 - International Waterways, has been granted for the scaling-up activities supported by this AF. In accordance with OP 4.11, a Chance Find Procedure has been prepared and included in the Environmental and Social Management Plan of Binh Duong subproject to address cases where artifacts exposed during the excavation of considerable amount of earthworks under the AF subproject. The other potential social and environmental impacts of the proposed additional activities are of similar to those of the original project.

29. **The overall risk associated with the project, including the proposed additional activities, is Moderate**. The overall risk of the original VUWSWP was rated High given the project has 14 subprojects spreading out across the country. It was also the first time for the local cities, with weak institutional capacity, implemented a Bank project. While the implementation of these subprojects are coming to an end, the overall risk associated with the project implementation is lowered to moderate since March 2015. The proposed investment activities for Binh Duong Province would not pose any additional risks, given that (a) the AF adds only one environmental sanitation subproject under Component 1B, which in nature is the same as the other seven wastewater subprojects in the original project; (b) the implementing entity, BIWASE's PMU, has demonstrated impressive project implementation performance as a PMU that implemented the water supply project under the current VUWSWP; and (c) BIWASE's PMU also gained significant experience from implementing the two JICA-financed projects of similar size and technology in the province.

30. **Gender.** The project is gender informed at two levels: analysis and gender-disaggregated monitoring and evaluation data. The socioeconomic survey (at project and subproject level) analyzed several gender aspects, including (a) participation of women in the decision-making process for obtaining a household connection and (b) meaningful consultation with women during project implementation. The reports confirmed that while there is a clear interest of women in

participating in the household connection decision-making process, their involvement is still relatively limited. In addition, it is necessary to ensure that female-headed households have equal access to project benefits. During project implementation, implementing agencies will develop appropriate monitoring and evaluation tools to monitor a gender-disaggregated database of project beneficiaries (PDO indicator) and intended beneficiaries who are aware of project information and project investment (intermediate results indicators).

31. **Citizen engagement.** Community participation and beneficiary engagement is sought throughout implementation under the project. A beneficiary satisfaction survey will be conducted at project start and completion to gauge improvements and satisfaction rate in water supply, drainage, and wastewater services in the project targeted area. In line with the original project activities, the project will carry out additional beneficiary satisfaction surveys for the new wastewater and drainage program in Binh Duong Province at the project beginning and completion and report on this indicator in the RF.

32. **Screening for climate and disaster risks.** The team has conducted a screening for climate change and disaster risks as required for IDA17 operations. The project's overall exposure to identified hazards is presented in table 1. To address the identified risks, various actions have been taken for project preparation that included (a) a more careful study on changes of rain patterns and water levels at discharge points in designing drainage systems and (b) an additional provision on designed capacity of sewerage and wastewater treatment facilities. The project was requested to conduct further consultations and dialogues with related stakeholders during implementation—in order to enhance their capacity in responding to the increased risks.

Table 1. Overall Exposure to Identified Hazards

Hazard	Current	Future
Extreme temperature	Slightly Exposed Low Potential Impact Low Risk	Moderately Exposed Moderate Potential Impact Moderate Risk
Extreme precipitation and flooding	Slightly Exposed Low Potential Impact Low Risk	Moderately Exposed Moderate Potential Impact Moderate Risk
Sea level rise	Moderately Exposed Moderate Potential Impact Moderate Risk	Highly Exposed High Potential Impact High Risk

III. Proposed Changes

Summary of Proposed Changes

33. The AF comprises (a) modifications of the RF; (b) a minor reformulation of the project components (under Subcomponent 1B - Environmental Sanitation and Subcomponent 2A - Institutional Strengthening and Project Monitoring); (c) a closing date extension for 36 months; (d) disbursement estimated associated with the AF and extended closing date; and (e) institutional arrangement for implementation with introducing the Binh Duong PPC as the new project owner for the Di An subproject.

Change in Implementing Agency	Yes [ ] No [X]
Change in Project's Development Objectives	Yes [ ] No [X]

Change in Results Framework	Yes [X] No [ ]
Change in Safeguard Policies Triggered	Yes [X] No [ ]
Change of EA category	Yes [ ] No [X]
Other Changes to Safeguards	Yes [ ] No [X]
Change in Legal Covenants	Yes [ ] No [X]
Change in Loan Closing Date(s)	Yes [X] No [ ]
Cancellations Proposed	Yes [ ] No [X]
Change in Disbursement Arrangements	Yes [ ] No [X]
Reallocation between Disbursement Categories	Yes [ ] No [X]
Change in Disbursement Estimates	Yes [X] No [ ]
Change to Components and Cost	Yes [X] No [ ]
Change in Institutional Arrangements	Yes [X] No [ ]
Change in Financial Management	Yes [X] No [ ]
Change in Procurement	Yes [X] No [ ]
Change in Implementation Schedule	Yes [X] No [ ]
Other Change(s)	Yes [ ] No [X]

Development Objective/Results

Project's Development Objectives

Original PDO

34. To increase access to sustainable water services and environmental sanitation in selected urban areas in the project provinces.

Change in Results Framework

Explanation:

35. Modifications to the RF include revisions to outcome indicators related to (a) the inclusion of a core sector indicator 'Direct Project beneficiaries' (of which female %); (b) inclusion of volume of biochemical oxygen demand (BOD) mass removed intermediate indicator for the new activity; (c) adjustments to original targets to reflect expanded scope of water supply, wastewater, and drainage services under the parent project; (d) scaling-up of the environmental sanitation component for new activity under Subcomponent 1B; and (e) inclusion of the MOC TA component for the Mekong water supply investment project preparation. These adjustments do not require any modification to the original PDO.

Compliance

Change in Safeguard Policies Triggered

Explanation:

36. The safeguard policies to be triggered under the AF include Environmental Assessment, Physical Cultural Resources (OP4.11), Involuntary Resettlement, and Projects on International Waterways (OP7.50).

37. OP 4.11 is applicable to the AF Project as the Binh Duong subproject involves significant amount of earth work at the wastewater treatment plant and along the pipelines. Chance find procedure has been developed and included in the Environmental Management Plan to address the cases where artifacts are exposed during the excavation of earthwork.

38. OP 7.50 is triggered under the AF Project as the treated wastewater from the proposed wastewater treatment plant in Di An Town and stormwater from improved drainage will be discharged to a local canal which finally flow into the Dong Nai River, a tributary of the Saigon River. The Saigon River is an international river with one of its tributaries originating in Cambodia. However, considering that (a) the Dong Nai River runs exclusively within Vietnam; (b) Vietnam is the lowest downstream riparian of the Saigon River; and (c) the project does not cause any harm to other riparian states, an exception to the riparian notification allowed under paragraph 7(c) of OP 7.50 has been granted by the Bank.

Current and Proposed Safeguard Policies Triggered:	**Current (from Current Parent ISDS)**	**Proposed (from Additional Financing ISDS)**
Environmental Assessment (OP) (BP 4.01)	Yes	Yes
Natural Habitats (OP) (BP 4.04)	No	No
Forests (OP) (BP 4.36)	No	No
Pest Management (OP 4.09)	No	No
Physical Cultural Resources (OP) (BP 4.11)	No	Yes
Indigenous People (OP) (BP 4.10)	No	No
Involuntary Resettlement (OP) (BP 4.12)	Yes	Yes
Safety of Dams (OP) (BP 4.37)	Yes	Yes
Projects on International Waterways (OP) (BP 7.50)	No	Yes
Projects in Disputed Areas (OP) (BP 7.60)	No	No

Covenants - Additional Financing (Vietnam Urban Water Supply and Wastewater Project - Additional Financing - P156678)

Source of Funds	**Finance Agreement Reference**	**Description of Covenants**	**Date Due**	**Recurrent**	**Frequency**	**Action**
		Binh Duong will introduce 15% surcharge on the water supply bill as wastewater tariff to replace the current 10% environmental protection fee.	July 1, 2019	☐		

Conditions

Source Of Fund	**Name**	**Type**

Description of Condition

Risk	
Risk Category	**Rating (H, S, M, L)**
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Moderate
6. Fiduciary	Moderate
7. Environment and Social	Moderate
8. Stakeholders	Low
9. Other	
OVERALL	Moderate

Finance

Loan Closing Date - Additional Financing (Vietnam Urban Water Supply and Wastewater Project - Additional Financing - P156678)

Source of Funds	Proposed Additional Financing Loan Closing Date
	31-Dec-2019

Loan Closing Date(s) - Parent (URBAN WATER SUPPLY AND WASTEWATER - P119077)

Explanation:

39. The project closing date will be extended for three years, from December 30, 2016 to December 31, 2019 to enable completion of the newly proposed activities under the environmental sanitation component and TA activities for the MOC.

Ln/Cr/TF	Status	Original Closing Date	Current Closing Date	Proposed Closing Date	Previous Closing Date(s)
IDA-49480	Effective	30-Dec-2016	30-Dec-2016	31-Dec-2019	30-Dec-2016
TF-56904	Closed	02-Nov-2008	02-Oct-2010		02-Oct-2010, 01-Mar-2011

Allocations - Additional Financing (Vietnam Urban Water Supply and Wastewater Project - Additional Financing - P156678)

Source of Fund	Currency	Category of Expenditure	Allocation	Disbursement % (Type Total)
			Proposed	Proposed
IBRD	US$	Work, goods	69.00	90.00
		Consulting services	0.00	100.00
		Total:	69.00	

IDA	US$	Works, goods	35.00	90.00
		Consulting, non-consulting services, Training and Workshops	15.00	100.00
		Total:	50.00	

Components

Change to Components and Cost

Explanation:

40. The changes encompass Subcomponent 1B by adding the Di An Town wastewater and drainage subproject and a new Subcomponent 2C: Water Sector Priority Investment Support.

Current Component Name	Proposed Component Name	Current Cost (US$, millions)	Proposed Cost (US$, millions)	Action
Subcomponent 1A: Water Supply	Subcomponent 1A: Water Supply	97.60	106.60	Revised
Subcomponent 1B: Environmental Sanitation	Subcomponent 1B: Environmental Sanitation	106.50	233.50	Revised
Subcomponent 2A: Institutional Strengthening and Project Monitoring	Subcomponent 2A: Institutional Strengthening and Project Monitoring	2.30	2.30	No change
Subcomponent 2B: Improving the Efficiency of Investments and Operations	Subcomponent 2B: Improving the Efficiency of Investments and Operations	1.50	1.50	No Change
Subcomponent 2C: Water Sector Priority Investment Plan	Subcomponent 2C: Water Sector Priority Investment Support	0.00	7.30	New
	Total:	207.90	351.20	Revised

Other Change(s)

Implementing Agency Name	Type	Action
Ninh Binh Water Supply	Implementing agency	No change
Dong Xoai Water Supply	Implementing agency	No change
My Phuoc Water Supply	Implementing agency	Changed to Binh Duong wastewater PMU
Phu Quoc Water Supply	Implementing agency	No change
Uong Bi Water Supply	Implementing agency	No change

Bim Son Wastewater	Implementing agency	No change
Dong Ha Wastewater	Implementing agency	No change
Ninh Binh Wastewater	Implementing agency	No change
Thai Hoa Wastewater	Implementing agency	No change
Da Lat Wastewater	Implementing agency	No change
Tam Ky Water Supply	Implementing agency	No change
Dong Xoai Wastewater	Implementing agency	No change
MOC	Implementing agency	No change
MPI	Implementing agency	No change
Tam Ky Wastewater	Implementing agency	No change

Change in Institutional Arrangements

Explanation:

41. For the new Di An Town wastewater and drainage subproject, the Binh Duong PPC is the project owner and the existing BIWASE's PMU for the water supply subproject under the VUWSWP is upgraded to be a provincial PMU under the PPC, though its name remains unchanged as BIWASE's PMU. This change reflects that for the AF, Binh Duong PPC is project owner, but not BIWASE. However, the existing project implementing agency (BIWASE's PMU) is employed for project implementation.

Change in Financial Management

Explanation:

42. The risk to the project financial management is assessed as Moderate, reduced from Substantial of the existing project because (a) all Central Project Management Units (CPMUs) and Provincial Project Management Units (PPMUs) have adequate experience in managing Bank projects, with acceptable past performance; (b) project implementation arrangement will be downsized after year 1, when all ongoing subprojects are completed and the project has only 2 PMUs at the MOC and Binh Duong; (c) the Binh Duong PMU is the best performer in the existing project and has met all financial management requirements for project implementation.

43. Regarding fund flow, the Binh Duong PMU, which will execute the new wastewater and drainage subproject with a significant amount of US$92 million in 3 years, will open two separate designated accounts (DA) – one for IDA credit and one for IBRD loan to receive the funds from the Bank for the implementation of this subproject. There will be also a new DA for MOC's CPMU to receive the funds for implementation of project component 2C.

Change in Procurement

Explanation:

44. Procurement for the proposed AF shall be carried out in accordance with the Bank's 'Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers', dated January 2011, revised July 2014 (referred to as the Procurement Guidelines) and 'Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers', dated January 2011, revised July 2014 (the Consultant Guidelines). While the applicable methods of procurement remain unchanged, the National Competitive Bidding procedures set forth in the original Financing Agreement shall be appropriately revised to reflect the new changes and modifications in the national Procurement Law that became effective since July 2014.

Change in Implementation Schedule
Explanation:
45. The implementation schedule is revised to reflect the scale-up of activities and extended closing date from December 30, 2016 to December 31, 2019.

IV. Appraisal Summary

Economic and Financial Analysis

46. While a part of the proposed AF is requested to recover the funding shortage because of the depreciation of the SDR against the U.S. dollar, the original project costs presented in US dollars of the ongoing subprojects remain unchanged. Thus, no additional economic and financial analyses are required for the cost overrun part of the original project. However, additional economic and financial analyses were carried out for the new Binh Duong wastewater subproject. The results of the economic analysis are done separately for each of the project components and for the overall project, summarized in Table 2 (detailed analysis is provided in annex 4). The analysis was done using two discount rate assumptions. The 6 percent discount rate assumption corresponds to the recent Bank directives regarding discount rates for use in economic analysis. The project is economically viable when analyzed as a whole as well as component by component. This result resonates with the original results of the parent project analysis and other comparable projects in Vietnam. The results of the analysis are robust, given that not all of the possible benefits of the project were included because of the difficulty in quantification and valuation. The economic viability of the wastewater component (and the overall project) is quite sensitive to the realized number of connections or degree of utilization of the capacity to be created. Within the project framework, about 6,000 to 8,000 connections are planned and budgeted out of the possible 20,000 connections. The economic analysis was done under the assumption of full utilization of the capacity to be created. In doing so, the additional cost of the remaining connections was included at a rate of US$250 per connection.

Table 2. Summary Results of the Economic Analysis

Indicators	Wastewater Systems		Drainage Systems		Overall Project	
	6%	10%	6%	10%	6%	10%
Present value of benefits (US$, millions)	172.1	100.90	86.75	54.70	258.80	155.60
Present value of costs (US$, millions)	47.89	43.60	34.93	30.30	82.80	73.90
Net present value (US$, millions)	124.20	57.40	51.82	24.40	176.00	81.80
Benefit cost ratio	3.59	2.32	2.48	1.80	3.12	2.10
Economic internal rate of return (%)	19.70	19.70	18.90	18.90	19.40	19.40

Financial Sustainability

47. The financial analysis focused on (see annex 4 for details)

(a) assessing the performance of BIWASE and the Di An Town PPC, which is responsible for maintenance and operation of wastewater and drainage infrastructure, respectively, to ensure the sustainability of sanitation and flood protection services; and

(b) evaluating the affordability of the estimated wastewater tariff, especially for low- and middle-income households, who constitute about 56.73 percent of the entire beneficiary population.

48. The current (2012 to 2014) financial performance of BIWASE is acceptable as assessed by all of the relevant financial indicators considered such as Profit after Tax, Operating Ratio, Leverage Ratio, and Cash Flow Profitability Ratio, with the exception of the Debt Service Coverage Ratio. BIWASE's debt service problem, which was observed during 2012 to 2014, is mainly due to the prevailing low water tariff. The water tariff has been adjusted upwards beginning in 2015 and the financial performance projections for BIWASE from 2015 to 2030 now show a positive trend.

49. The affordability of the recommended wastewater tariff was assessed for low- and middle-income beneficiary households. For middle-income households, who represent about 53 percent of the population, the proportion of the monthly wastewater tariff in the total household income is about 0.1 percent. The corresponding value for low-income households, who represent a mere 3.73 percent of the population, is about 0.7 percent. However, the wastewater tariff is only 15 percent of the domestic water tariff. The combined effect of the wastewater tariff and water tariff on household income was also analyzed. The combined water and wastewater tariffs constitute only about 1 percent of the average monthly income of the middle-income households, which is affordable. However, for low-income households, the water and environmental fee becomes about 7 percent to 8 percent of their monthly income.

50. Currently, BIWASE has monthly revenues of about VND 7 billion (equivalent to about US$ 313,206 thousand) for wastewater, including VND 3 billion (equivalent to about US$ 139,558 thousand) collected from 10 percent of water supply surcharge on domestic water use and VND 4 billion (equivalent to about US$ 179,457 thousand) collected from environmental protection fee on nondomestic water use. The annual cost of the JICA-I O&M is about VND 20 billion (equivalent to about US$ 894,854 thousand) and there is sufficient revenue to cover the O&M cost at this stage. However, according to the financial analysis, the current revenue level can only be sustained until 2022 given that the JICA-II WWTP will begin operation in 2017 and the Bank-financed WWTP in Di An Town will begin in 2019. To ensure the financial sustainability of the three wastewater systems, a wastewater tariff will be applied from July 1, 2019 under the government's Decree No. 80/2014 to replace the current 10 percent environmental fee. The initial charge of the wastewater tariffs will be a 15 percent surcharge on the water supply bill, with adequate provision for increasing the tariff in later years. The wastewater tariffs will be collected by BIWASE as its revenue for wastewater services provision.

Technical Analysis

51. For the ongoing VUWSWP, most of the proposed civil works for the distribution network and construction of service networks, with household connections in five of the seven project cities/towns (Ninh Binh, Tam Ky, Da Lat, Dong Xoai, and Phu Quoc) are nearing completion. For the wastewater subprojects, the works entail completion of wastewater and drainage activities in seven subprojects: Ninh Binh, Bim Son, Thai Hoa, Dong Ha, Tam Ky, Da Lat, and Dong Xoai, which were halted due to the shortage of funds.

52. The proposed AF will support improvement of wastewater and drainage services in Di An Town. Currently, Di An Town has a combined sewerage system, which is used for both storm- and waste-water. While the wastewater generated from industrial parks in the town is collected and treated under strict control of the provincial Department of Environment and Natural Resources (DONRE), there is no wastewater treatment facility in Di An Town for domestic wastewater. The combined sewerage system is incomplete and causes flooding during the rainy season and pollutes the environment. Untreated domestic wastewater currently discharges into the Dong Nai River, contaminating the water resource that serves millions of inhabitants.

53. The project proposes to construct a number of primary drains, which will be supplemented by secondary and tertiary drains constructed by the town under government-financed programs. This is expected to reduce the flood risk in several areas with a storm of 10-year return period. The new drains are either in the form of reinforced box culverts or open canals with revetment of banks. The project also proposes to construct a complete wastewater collection and treatment system—at the initial stage—for four core wards of the town, namely Di An, Tan Dong Hiep, Dong Hoa, and An Binh. The wastewater system includes a tertiary network with house connections, secondary and primary transmission lines with lifting pumping stations, and a WWTP with an initial capacity of 20,000 m^3 per day. The WWTP will use advanced sequencing batch reactor technology to treat domestic wastewater to meet the category A national standards of effluent water before discharging into the Dong Nai River. Similar design is applied in the two JICA-financed projects in Binh Duong.

54. Based on the feasibility study and basic designs prepared, the proposed technical solutions are appropriate for these works and are within the capacity of the BIWASE PMU to implement. There is also a provision to employ a number of qualified consultants to assist the PMU in the design and construction supervision during project implementation.

55. For the proposed Mekong regional water supply investments, given the threat to the security of water supply discussed earlier, the six provinces and Can Tho face a twin problem: (a) difficulties in expanding their water supply services in response to increasing demand and (b) the increasing risk of failure of existing water supply systems as sources continue to deteriorate. It is imperative that more secure alternative sources for water supply be sought to diversify sources and achieve security of water supply for the population in the area, which is projected to reach 10.7 million by 2020. A prefeasibility study commissioned by the MOC, completed in October 2014, concludes that the most viable future water supply for the region is through a regional/inter-provincial water supply scheme, with water sourced from the Hau River, sufficiently upstream to be safe from salinity issues for the foreseeable future. Further assessments and analysis are needed, which will be supported through the feasibility and other studies proposed under this AF. This will

include assessing the appropriate scope, phasing, financing plan, and institutional setup of the scheme and the viability and sustainability of its operations. If these are confirmed, detailed engineering designs and other required assessments, for example, environmental and other safeguards assessments, will follow.

Social Analysis

56. The original project had triggered social safeguard policy, OP 4.12 - Involuntary Resettlement and the implementing agencies are in compliance with the requirements. At the time of initial AF appraisal, land acquisition and compensation activities were nearly completed in all subprojects. The independent monitoring report confirmed that implementing agencies have made significant efforts to fully implement the requirements of the Resettlement Policy Framework (RPF) as well as the approved Resettlement Plans. The community consultation and information disclosure were carried out properly. Affected households and local residents living in the project areas agreed and supported project implementation. One pending issue that requires close monitoring and particular attention is compliance with all provisions set forth in the project's RPF, especially the usage of the project's threshold in determining severely affected households (20 percent of agricultural land) rather than the government's threshold (30 percent of agricultural land). Moving forward, the Bank will (a) continue to perform due diligence reviews as part of future supervision missions and (b) ensure that this will also be subject to evaluation of an independent monitoring consultant as part of its current assignment.

57. As in the original project, OP 4.12 - Involuntary Resettlement remains triggered under the AF, because of the construction of the Di An Town wastewater and drainage subproject that necessitated some land acquisitions and relocations. A Resettlement Plan has been prepared in accordance with OP 4.12, the project's RPF, and the latest regulation of Vietnam. The project will acquire land either temporarily or permanently for the construction of (a) WWTPs, (b) pumping stations, and (c) pipeline networks. The estimated area to be acquired in this project is 1,506 m^2 for 7 pumping stations and 68,226 m^2 for a WWTP. The pipelines will be constructed in the rights-of-way of existing roads, so only public land will be affected. The project will necessitate permanent land acquisitions of about 57 households, 3 firms, and 5 organizations. Twenty households will be physically relocated. The project will also temporary affect 258 households that operate small businesses along the roads. The estimated budget for compensation is VND 151.6 billion. A portion of the resettlement activities (mainly for a WWTP) are currently being conducted as part of a separate activity approved by the Binh Duong PPC. The Resettlement Plan, in addition to its conventional contents, consists of a dedicated section for analyzing completed activities and applicable policies in comparison with OP 4.12. This section also contains recommendations to ensure full compliance with the Bank's social safeguard policy. The Resettlement Plan prepared for the Di An subproject was publicly disclosed on December 30, 2015 (at project level and at the InfoShop).

Environmental Analysis

58. Environmental performance of the original project has been moderately satisfactory and is being closely monitored by an independent consultant and the Bank. Particularly, the Binh Duong subproject is notable for good environmental performance with regard to the construction of the My Phuoc water treatment plant, which was completed under the original project. The subproject

has been well managed and closely supervised by the BIWASE PMU and their construction supervision consultant.

59. For the AF wastewater and drainage program in Di An Town, in accordance with OP 4.01, an Environmental and Social Impact Assessment (ESIA), which also includes an Environmental and Social Management Plan (ESMP), has been prepared.

60. Overall, the ESIA concludes that the project would bring significant positive impact once it starts operation as the drainage system will address the frequent flooding problems caused by rain in the main parts of Di An Town, and domestic wastewater will be collected and treated. Collection and treatment of domestic wastewater will help improve environmental sanitation conditions in Di An Town and prevent untreated municipal wastewater from entering the Dong Nai River, which is the main water source for HCMC and Dong Nai Province. However, there are some potential negative impacts and risks that may arise during the construction and operation phase such as (a) loss of existing vegetation cover; (b) change in landscape; (c) interruption in normal living order of some people living near construction sites; (d) increased level of noise, dust, vibration; (e) risk of accidents; (f) disturbance to traffic and communities caused by concentration of workers; and (g) bad odors generated from the wastewater treatment process.

61. The potential negative social and environmental impacts of the construction works are deemed to be short term and reversible and can even be avoided and managed through implementation of mitigation measures. The issues related to wastewater treatment system operations are mostly long term and manageable. The Environmental Assessment (EA) was prepared in coordination with the feasibility study and proposed adequate environmental mitigation measures as well as integrated environment friendly, greening solutions, and landscaping for the engineering design, construction, and operation phases:

- Compensate and arrange resettlement sites for affected households.
- Mine clearance shall be done before site clearance at the WWTP.
- A 10 m wide green corridor will be created around the boundary of the WWTP. The units that generate the most odors, such as the intake or sludge drying bed, shall be located at least 30 m from the nearest residential house in accordance with Vietnamese standard QCVN 01:2008/BXD (applicable to WWTPs that have biological treatment and odor treatment units but without sludge drying lagoon) and contained in a building; odor shall be collected and treated.
- Top soil at the treatment plant shall be retained at the green corridor, and the remaining will be used for tree planting elsewhere. Excavated materials for drainage and sewer construction shall be reused for refill as much as possible. The rest will be either transported to refill the holes in borrow pits for ground levelling or part of the excavated materials will be used for covering the waste at the Nam Binh Duong landfill.
- Install automatic wastewater quality monitoring system at the WWTP.

- During the operation phase, workers will be trained on workplace safety and provided with adequate protective clothing. Sludge shall be transported to a composting plant.

- Provide training for workers on workplace health, safety, and environment; implement good site management practice to manage construction impacts.

- Implement construction mitigation measures such as providing safety and environmental training for the workers; covering the trucks during transportation and good site management; providing regular maintenance of construction plants and equipment; reinstating the sites after construction; reusing excavated materials for levelling and practice recycling; contracting an authorized dealer to collect and handle hazardous wastes, such as used oil and fuels, or returning them to the suppliers; maintaining good communication with local authorities and communities, and so on. The International Finance Corporation's guidelines on environmental, health, and safety should be applied.

62. The ESMP clearly laid out the arrangements for the implementation, monitoring, and supervision of the mitigation measures. Compensation and support to households affected by land acquisition shall be arranged by the PMU. Explosive material clearance at the WWTP will be conducted before construction commencement. Relevant environmental terms and clauses will be included into the TOR for engineering design, construction, and construction supervision contracts. The detail engineering design consultant shall incorporate relevant mitigation measures, greening, landscaping, and environment-friendly solutions specified in the Environmental Management Plan into the engineering proposal and cost estimation. The contractor shall be responsible for implementing the mitigation measures during the construction phase. The costs for implementing the mitigation measures during the construction phase shall be included in the construction contract value. The TOR and value of the construction supervision contract shall also include (a) providing training on health, safety, and environment for the contractors, including HIV/AIDS training/awareness raising for the workers; (b) environmental quality monitoring and report preparation for submission to the Ministry of Environment and Natural Resources/Department of Environment and Natural Resources and the Bank during preconstruction and construction; and (c) day-to-day monitoring and supervision of the contractor's environmental performance, providing them with guidance and direction to carry out corrective actions and address complaints. The PMU will be responsible for ensuring that the subproject is in compliance with the Bank's safeguard policies and Vietnamese environmental management legislations.

63. The affected communities were consulted for the draft ESIA and ESMP. The final draft EA was disclosed locally and at the InfoShop on December 30, 2015.

64. The AF triggers OP 7.50 – Projects on International Waterways. The treated wastewater from the proposed wastewater treatment plant (WWTP) in Di An Town and stormwater from improved drainage will be discharged first to the Cai Cau and then to Tan Van canal, which in turn flows into the Dong Nai River. The Dong Nai River is connected to the Saigon River before discharging into the South China Sea. The Dong Nai River runs exclusively within Vietnam while the Saigon river is considered as an international waterway with one of its tributaries originating in Cambodia and Vietnam is the lowest downstream riparian of the Saigon River. The ESIA

prepared for wastewater and drainage program in Di An Town indicates that the project will only have negligible impacts on the Dong Nai River water quantity and quality during implementation and operation. In addition, the Dong Nai River joins the Saigon River at about 20 km downstream of the proposed WWTP, it can be concluded that the proposed subproject only has negligible impacts on the quality and quantity of water in the Saigon River.

65. Considering that (i) the Dong Nai River runs exclusively within Vietnam; (ii) Vietnam is the lowest downstream riparian of the Saigon River; and (iii) the project does not cause any harm to other riparian states, an exception to the riparian notification allowed under paragraph 7(c) of OP 7.50 applies to the project and has been granted.

Fiduciary: Procurement

66. The project's current procurement performance is assessed as satisfactory. The project implementing agencies have adequate capacity to carry out the AF procurement and they have gained significant knowledge and experience with Bank procurement. It is further noted that BIWASE, the agency who is responsible for the implementation of the vast majority of the procurement workload under the AF is one of the best performers. A detailed Procurement Plan for outstanding contracts including those under Di An Town subproject has been prepared and found acceptable by the Task Team. Procurement for the AF shall follow the Procurement and Consultant Guidelines dated January 2011, revised July 2014. All applicable methods of procurement remain unchanged. However, the National Competitive Bidding procedures set forth in the original Financing Agreement shall be appropriately revised to reflect the new changes and modifications in the national Procurement Law that became effective since July 2014.

Risk

67. The level of risk associated with the implementation of the original project was downgraded from High to Moderate in March 2015 based on the level of project completion. Given the addition of only one environmental sanitation subproject under Subcomponent 1B and the experience gained from implementing the two JICA-financed projects as well as the proven track record of the PMUs, this new activity under the AF does not add new risk to the project. Thus, the overall risk of the project is expected to be remain Moderate.

V. World Bank Grievance Redress

68. Communities and individuals who believe they are adversely affected by a Bank-supported project may submit complaints to existing project-level grievance redress mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address project-related concerns. Project-affected communities and individuals may submit their complaint to the Bank's independent Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank noncompliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the Bank's attention and Bank management has been given an opportunity to respond. For information on how to submit complaints to the Bank's corporate GRS, visit http://www.worldbank.org/GRS. For information on how to submit complaints to the Bank's Inspection Panel, visit www.inspectionpanel.org.

Annex 1: Results Framework and Monitoring

Country: Vietnam

Project Name: Additional Financing for Vietnam Urban Water supply Wastewater Project

Results Framework

Project Name:	Vietnam Urban Water Supply and Wastewater Project - Additional Financing (P156678)			Project Stage: Additional Financing	Status: DRAFT
Team Leader(s):	Lixin Gu	Requesting Unit:	EACVF	Created by:	
Product Line:	IBRD/IDA	Responsible Unit:	GWA02	Modified by:	
Country:	Vietnam	Approval FY:	2016		
Region:	EAST ASIA AND PACIFIC	Lending Instrument:	Investment Project Financing		
Parent Project ID: P119077		Parent Project Name:	URBAN WATER SUPPLY AND WASTEWATER (P119077)		

Project Development Objectives

Original Project Development Objective - Parent:

To increase access to sustainable water services and environmental sanitation in selected urban areas in the project provinces

Proposed Project Development Objective - Additional Financing (AF):

Results

Core sector indicators are considered: Yes

Results reporting level: Project Level

Project Development Objective Indicators

Status	Indicator Name	Core	Unit of Measure		Baseline	Actual(Current)	End Target
Revised			Number	Value	0	62,712.00	65,872.00

	Number of new piped household water connections resulting from project interventions	☒		Date	22-Apr-2011	28-Feb-2016	30-Dec-2016
				Comment			
New	Direct project beneficiaries	☒	Number	Value	0	0	450,382
				Date	22-Apr-2011	28-Feb-2016	31-Dec-2019
				Comment			
New	Female beneficiaries	☒	Percentage Subtype Supplemental	Value	51	51	51
Revised	Number of people in urban areas who have improved sanitation due to the project (core)	☐	Number	Value	0	99,340.00	312,051.00
				Date	22-Apr-2011	15-Aug-2015	31-Dec-2019
				Comment			
Revised	Increase in the satisfaction rate of beneficiaries	☐	Percentage	Value	72.00	No data	80.00
				Date	30-Aug-2014	28-Feb-2016	31-Dec-2019
				Comment			
No change	Increase in satisfaction rate of beneficiaries of water supply service	☐	Percentage Subtype Breakdown	Value	83.60	No data	90.00
				Date	30-Aug-2014	28-Feb-2016	31-Dec-2016
				Comment			
No Change	Increase in satisfaction rate of beneficiaries of drainage and wastewater service	☐	Percentage Subtype Breakdown	Value	60.40	No data	70.00
				Date	30-Aug-2014	28-Feb-2016	30-Dec-2016
				Comment			
New	Increase in satisfaction rate of beneficiaries of wastewater and drainage services in Di An Town	☐	Percentage Subtype Breakdown	Value	TBD		TBD
				Date	28-Feb-2016	28-Feb-2016	31-Dec-2019
				Comment	A survey will be conducted at project start using the same methodology that has been used in the		A survey will be conducted at project start using the same methodology that has been

					original project.		used in the original project.
No change	Financial sustainability of water companies	☐	Text	Value	Working ratio < 0.9	Working ratio < 0.9	Working ratio < 0.9
				Date	22-Apr-2011	28-Feb-2016	30-Dec-2016
				Comment			

Intermediate Results Indicators

Status	Indicator Name	Core	Unit of Measure		Baseline	Actual(Current)	End Target
Revised	Increase in the volume of water sold annually	☐	1,000 m^3	Value	0.00	57,996.00	21,731.00
				Date	22-Apr-2011	28-Feb-2016	30-Dec-2016
				Comment			
New	Preparation of Mekong Delta water supply investment	☐	Text	Value	No	No	Yes
				Date	28-Feb-2016	28-Feb-2016	31-Dec-2019
				Comment			
			Supplemental				
Revised	Areas benefiting from increased drainage coverage and flood protection measures	☐	Hectare	Value	0.00	6,725.00	12,618.00
				Date	22-Apr-2011	28-Feb-2016	31-Dec-2019
				Comment			
No change	Development of a sector database	☐	Text	Value	None available	The sector database has been developed	Database available
				Date	22-Apr-2011	28-Feb-2016	20-Jan-2016
				Comment			
No change	Ministerial decision on criteria for selecting projects for private sector participation (PSP)	☐	Text	Value	Not available	Completed and available	Available
				Date	22-Apr-2011	28-Feb-2016	30-Jun-2014
				Comment			
No change	Development of a PSP toolkit	☐	Text	Value	Not available	Completed and available	Available

				Date	22-Apr-2011	28-Feb-2016	30-Jun-2014
				Comment			
New	Volume of BOD mass removed by WWTP (Di An Town) constructed under the project	☐	kg/day	Value	0	425	1,020
				Date	28-Feb-2016	28-July-2018	31-Dec-2019
				Comment			
			Supplemental				

Indicator Definition

1. **Number of new piped household water connections resulting from project interventions.** The number of new household connections made and either financed directly from the project costs OR financed from other funding sources but benefited from the additional production capacity or new distribution networks financed from project costs.

2. **Number of people in urban areas who have improved sanitation due to the project.** The number of people living in the project areas, where the drainage and wastewater services are provided from the project costs. It includes people who are protected from designed floods as well as people connected to improved drains/sewers.

3. **Direct project beneficiaries.** This indicator captures the total number of people who directly benefited from the project, that is, people provided with access to improved water sources under the project and people provided with access to improved sanitation facilities under the project. The total number is aggregated based on people who benefited from water supply service by multiplying new piped household water connections with average family size and people who benefited from improved sanitation.

4. **Female beneficiaries: percentage of females among the total number of beneficiaries.** This is taken from the socioeconomic surveys or beneficiary satisfactory surveys.

5. **Increase in satisfaction rate of beneficiaries of water supply service.** Rate of positive respondents to question on water supply service in beneficiary satisfaction surveys.

6. **Increase in satisfaction rate of beneficiaries of drainage and wastewater service.** Rate of positive respondents to question on drainage and wastewater service in beneficiary satisfaction surveys.

7. **Financial sustainability of water companies.** Average value of working ratio of all project participating WSCs. The definition of working ratio is presented in the Financing Agreement.

8. **Increase in the volume of water sold annually.** The increased volume of water sold in the current year in comparison with the previous year.

9. **Preparation of Mekong Delta water supply investment.** Feasibility study prepared and approved by the competent authorities of the government for the Mekong water security project.

10. **Areas benefiting from increased drainage coverage and flood protection measures.** The area protected from the designed floods and defined by using hydraulic modeling.

11. **Development of a sector database.** Publishing on website the performance sector database of water supply and wastewater utilities.

12. **Ministerial decision on criteria for selecting projects for PSP.** Availability of the MPI minister's decision approving the criteria.

13. **Development of a PSP toolkit.** Toolkit developed and endorsed by MPI's leaders.

14. **Volume of BOD mass removed by WWTP (Di An Town) constructed under the project.** Monitored by comparing the influent and effluent level of BOD removed by the Di An Town wastewater treatment facilities.

Annex 2: Detailed Description of Modified Activities and Revised Project Cost

Proposed Additional Works for Additional Financing

Subcomponent 1A: Water Supply

1. **Uong Bi Water Supply.** No AF required and the project was completed without full utilization of the allocated funds due to reduction in scope of works, with the remaining unused balance of US$2.9 million.

2. **Ninh Binh Water Supply**

- Distribution network and house connections in Phuc Thanh, Van Giang ward
- Distribution network and house connections in Van Giang ward
- Distribution network and house connections in Ninh Khanh, Dong Thanh, and Nam Thanh ward
- Distribution network and house connection in Ninh Nhat ward
- Transmission line, distribution network for the Tam Coc - Bich Dong area
- Supervisory Control and Data Acquisition system
- Expected results: 4,500 new house connections and reduction of losses in the network from 41 percent to 27 percent

3. **Tam Ky Water Supply**

- Distribution networks and house connections in 6 communes around Tam Ky City
- Replacing old steel pipes and 1,000 water flowmeters in Tam Ky City
- Supervisory Control and Data Acquisition system
- Equipment for laboratory, water flowmeter verification, and special trucks
- Expected results: 1,500 new house connections

4. **Da Lat Water Supply**

- Distribution networks (13.2 km of DN100–200) and 1,850 house connections
- Expected results: 1,850 house connections

5. **My Phuoc Water Supply.** No AF required

6. **Dong Xoai Water Supply**

- Distribution networks (40.9 km of DN63–DN355) and 2,990 house connections
- Expected results: 2,990 house connections

7. **Phu Quoc Water Supply**

- Distribution network in Duong Dong and An Thoi (19.61 km of DN50–DN250) and 3,050 house connections
- Expected results: 3,050 house connections

Subcomponent 1B: Environmental Sanitation

1. **Ninh Binh Wastewater.** For both cost overrun and additional works

- Contract variation orders due to change in locations of sewers and embankment methods
- Covering aerobic ponds

2. **Bim Son Wastewater**

- Sewers (2.5 km), pumping station, tertiary network in Dong Son ward
- Drains (4 km of D600–2,000) in Dong Son, Phu Son, Ba Dinh, Ngoc Trao, and Bac Son wards

3. **Thai Hoa Wastewater**

- O&M equipment for Thai Hoa Urban and Environment Management Company
- Drains along N2 road (320 m), sewers in residential areas (700 m), tertiary sewers and house connections in resettlement areas, Ly Thuong Kiet, and 19/5 roads

4. **Dong Ha Wastewater (DHWW)**

- Variation orders of the signed contract
- Pending package DHWW-10 (O&M equipment)
- Pending package DHWW-07.3 (Con River's embankment)

5. **Tam Ky Wastewater**

- Service network and house connection in Phan Boi Chau and Phan Chu Trinh areas

- Combined sewers, Combined Sewer Overflows (CSOs) in Phan Boi Chau and Phan Chu Trinh areas
- Drains in Phuoc Hoa ward
- Drains in Nguyen Van Troi area
- Drains in Hoa Huong ward

6. **Da Lat Wastewater (DLWW)**

- Sewers and house connections under contract DLWW-06

7. **Dong Xoai Wastewater**

- Sewers (18.1 km), pumping stations (3 stations), service network, and house connections in Tan Dong ward
- Sewers (4.838 km), service network, and house connections in Tan Binh, Tan Xuan, Tan Phu, and Tan Thien wards
- Service network and house connections in the ongoing project areas

8. **Di An town wastewater and drainage**

- Primary drains (box culverts and open canals): 10 km
- Primary and secondary sewers: 52 km
- Tertiary sewers: 120 km
- House connections: 6,000
- Lifting pumping station for wastewater: 7
- Pressurized sewers: 7.8 km
- WWTP: Capacity of 20,000 m^3/day
- O&M equipment and consultancies

Subcomponent 2C: Technical Assistance

- Surveys and conducting feasibility study, DED, and bidding documents for the Mekong regional water supply security investment
- Preparation of safeguard documents for proposed investments

- Capacity building for participating provinces
- Financial audit

Table 2.1. Revised Cost for the Ongoing Water Supply and Wastewater Subprojects

Name of subprojects	Original Cost (US$, millions)	Original Financing (US$, millions)		Actual Financing (US$, millions)		Proposed AF (US$, millions)		Updated project cost with AF (US$, millions)	
		IDA	Counter part funding	IDA	Counter part funding	IDA	Counter part funding	IDA	Counter part funding
A. Water supply subprojects									
1. Uong Bi	13.3	11.4	1.9	9.2	1.9	0.0	0.0	9.2	1.9
2. My Phuoc	24.8	22.3	2.6	22.3	2.6	0.0	0.0	22.3	2.6
3. Ninh Binh	14.0	12.5	1.5	8.4	1.1	4.0	0.4	12.4	1.5
4. Tam Ky	13.6	12.0	1.6	10.7	1.4	1.3	0.1	12	1.5
5. Da Lat	15.2	13.4	1.7	11.8	1.5	1.3	0.1	13.1	1.6
6. Dong Xoai	15.8	13.8	1.9	12.7	1.8	1.1	0.1	13.8	1.9
7. Phu Quoc	12.9	10.7	2.2	10.2	2.0	0.5	0.1	10.7	2.1
Subtotal A	***109.5***	***96.1***	***13.4***	***85.3***	***12.3***	***8.2***	***0.8***	***93.5***	***13.1***
B. Wastewater subprojects									
1. Ninh Binh	19.8	16.5	3.3	14.4	3.2	2.1	0.2	16.5	3.4
2. Bim Son	11.8	9.8	1.9	8.3	1.5	1.3	0.1	9.6	1.6
3. Dong Ha	17.1	12.5	4.6	11.2	4.1	1.3	0.1	12.5	4.2
4. Thai Hoa	16.5	12.8	3.6	11.3	2.9	1.1	0.1	12.4	3.0
5. Tam Ky	21.7	17.7	4.0	15.2	3.5	2.5	0.3	17.7	3.8
6. Dong Xoai	17.5	15.1	2.5	12.4	2.0	2.5	0.3	14.9	2.3
7. Da Lat	18.6	16.5	2.1	13.9	1.6	1.0	0.1	14.9	1.7
Subtotal B	***122.9***	***100.9***	***22.0***	***86.7***	***18.8***	***11.8***	***1.2***	***98.5***	***20.0***
Total	**232.4**	**197.0**	**35.4**	**172.0**	**31.1**	**20.0**	**2.0**	**192.0**	**33.1**

Table 2.2. Investment Cost for the Construction of Wastewater System and Drainage System in Di An Town, Binh Duong Province

No.	Items	Cost and Financing (US$, millions)		
		World Bank	Counterpart	Total
I	Drainage	26.8	3.3	30.1
II	Wastewater	45.4	8.2	53.6
III	Consultancies	7.6	2.0	9.6

No.	Items	Cost and Financing (US$, millions)		
		World Bank	Counterpart	Total
IV	Project running costs	0.0	9.0	9.0
V	Compensation	0.0	0.5	0.5
VI	Contingencies	12.0	0.0	12.0
	Total	**92.0**	**23.0**	**115.0**

Table 2.3. Investment Cost for the TA Component to the MOC

No.	Works	Cost and Financing (US$, millions)		
		World Bank	Counterpart	Total
1	Preparation of feasibility study for the Mekong Region Water Supply Security Project	6.0	0.0	6.0
2	Preparation of safeguard documents for the Mekong Region Water Supply Security Project	0.47	0.0	0.47
3	Institutional arrangement for the Mekong Region Water Supply Security Project	0.5	0.0	0.5
4	Auditing	0.03	0.0	0.03
5	PMU running costs	0.0	0.3	0.3
	Total	**7.0**	**0.3**	**7.3**

Annex 3: Revised Institutional and Implementation Arrangements

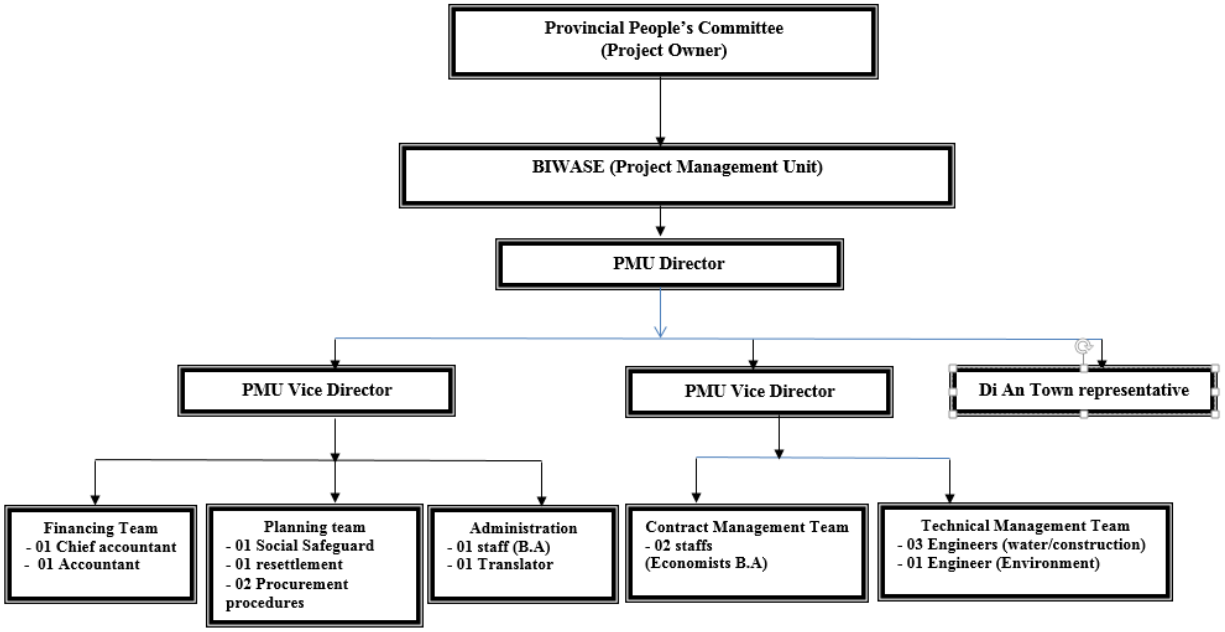
Implementation Arrangement

1. The existing institutional arrangement of ongoing subprojects under the VUWSWP remains unchanged. Under the original project, for water supply subprojects, provincial WSCs are project owners and the project implementing agencies are PMUs appointed by the project owners for day-to-day project management. These PMUs will continue implementation of the proposed AF, except BIWASE's PMU and Uong Bi's PMU since the implementation of these original subprojects has been fully completed. There are on-lending agreements signed between the provincial WSC and the Ministry of Finance (MOF) for financing the investments. These on-lending agreements may need to be amended if the committed amount of subloans were presented in Vietnamese Dong (VND) to reflect any change rate between US$ and VND for the purpose of implementing the AF. For wastewater subprojects, the PPCs assign the city/town people's committees as project owners. These project owners appoint PMUs to run the day-to-day project operations. These PMU will continue implementation of the proposed AF. There are project implementation agreements signed between respective PPCs and the MOC that regulates the overall project implementation. These implementation agreements do not require amendment for implementing the AF.

2. The existing PMU of the MOC (MOC CPMU) will continue its assigned functions as project coordinator and providing project implementation support under the ongoing VUWSWP until completion of the ongoing subprojects. Under the AF, the MOC CPMU will implement the newly proposed TA with an additional activity for financial audit of the Di An wastewater and drainage project.

3. For the Di An Town wastewater and drainage subproject, the Binh Duong PPC is the project owner. For project implementation, Binh Duong PPC will upgrade and use existing BIWASE's PMU, which also implemented the water supply subproject under the current VUWSWP. Under this new arrangement, the experienced BIWASE's PMU will be directly managed by the Binh Duong PPC A subloan agreement will be signed between MOF and Binh Duong PPC for financing the Di An towns wastewater and drainage subproject. The organization chart for this arrangement is presented in Figure 3.1.

Figure 3.1. Organizational Chart and PMU Arrangement



Financial Management

4. The existing PMUs of the current Urban Water Supply and Waste Water Project will continue to manage the AF, including the MOC CPMU: provincial PPMUs for wastewater and WSCs' PPMUs for water supply. The existing PMU under BIWASE will be strengthened by adding representatives from the Di An City People's Committee—a beneficiary of the project. The project implementation performance, in general, and financial management performance, in particular, of the CPMU and PPMUs under the existing project are rated moderately satisfactory and meet the Bank's requirement on financial management at both the central and provincial levels.

5. The key financial management actions to be carried forward from the existing project to this AF are the following: (a) the Project Operations Manual with detailed financial management guidelines is to be updated; (b) qualified and experienced financial management staff in all levels of the PMUs are to be retained from the existing project to this AF; (c) the internal audit function arranged by the CPMU for the existing project will also cover activities of the AF; (d) adequate budget allocation is required for both official development assistance and counterpart funding for project implementation by all related PPCs; and (e) annual project financial statements and external audit are to be consolidated by the MOC CPMU for all project activities, including the Binh Duong wastewater treatment component.

6. The flow of funds for the existing MOC's TA and existing subprojects PMUs will be channeled through the existing DAs at the MOC that are set up under the existing project, with the ceiling revised to be based on two (2) quarter' forecast: one account for the MOC activities and one account for the MOC to provide funds to provinces. Ongoing subprojects' PMUs will also use the existing subaccount to receive the AF fund transferred from the MOC. These existing DAs will be closed as soon as the original Credit (Cr. 4948VN) is closed. For the new MOC's TA financed from the AF, a new DA will be created for channeling the funds.

7. The Binh Duong PMU, which will execute the new wastewater treatment subproject with a significant amount of US$92.0 million in three years, will open two separate DAs, one for IDA credit and one for IBRD loan to receive funds from the Bank for the implementation of this subproject. All projects accounts are opened/ maintained in U.S. dollars at commercial banks acceptable to the Bank.

8. The MOC CPMU will be responsible for (a) project annual financial statements, external audit, and internal audits for the whole existing project and the AF, including the new subproject in Binh Duong; (b) management of the DA providing funds to the ongoing subproject PMU's accounts; (c) interim financial report for the MOC and ongoing subprojects; and (d) financial management of activities implemented by the MOC.

9. The ongoing subproject PPMUs will continue to be entirely responsible for the financial management function of the activities implemented, including expenditures approval, contract management and payments, maintenance of accounting records, and working with auditors/inspectors. The Binh Duong PMU, besides those functions, will also be responsible for the interim financial report of the new subproject in Binh Duong. For the AF, the MOF will on-lend and on-grant to the Binh Duong PPC who will use the Binh Duong PMU as the PPC's representative to manage the project; therefore, the entity financial statements of BIWASE are not required.

10. The risk to the project financial management is assessed as Moderate, reduced from Substantial for the existing project, because (a) the CPMU and all PPMUs have got adequate experience in managing the Bank projects with acceptable past performance; (b) project implementation arrangement will be downsized after year 1, when all ongoing subprojects are completed and the project has only 2 PMUs at the MOC and Binh Duong; and (c) the Binh Duong PMU is the best performer in the existing project and has met all financial management requirements for project implementation.

Disbursements

11. The primary disbursement method will be advances and replenishment. Funds will be channeled through the DAs and subaccounts opened at acceptable commercial banks. The flow of funds for the MOC and existing subprojects' PMUs will be channeled through the existing DAs at the MOC that are set up under the existing project, with the ceiling revised to be based on two (2) quarters' forecast: one account for the MOC activities and one account for the MOC to provide funds to provinces. Ongoing subprojects' PMUs will also use the existing subaccount to receive the AF fund transferred from the MOC. The Binh Duong PMU will open two new DAs, one for IDA and the other for IBRD, with ceiling based on forecast of two quarters to receive funds from the Bank for the implementation of the new wastewater treatment subproject in Binh Duong.

12. Supporting documentation required for documenting eligible expenditures paid from the DAs are Statement of Expenditures and Records. The frequency for reporting eligible expenditures paid from the DA is quarterly. The Reimbursement, Special Commitment, and Direct Payment disbursement methods will also be available. Reimbursements will also be documented using Statement of Expenditures and Records. Direct Payments will be documented by Records. The

Minimum Application Size for Reimbursement, Special Commitment, and Direct Payments will be US$100,000.

13. The project will have a disbursement deadline date (final date on which the Bank will accept applications for withdrawal from the recipient or documentation on the use of credit proceeds already advanced by the Bank) four months after the closing date. This 'grace period' is granted to permit orderly project completion and closure of the credit and loan accounts through the submission of applications and supporting documentation for expenditures incurred on or before the closing date. Bank financing of this AF is detailed in Table 3.1. Counterpart funds of around US$23 million will finance project expenditures not being financed by the Bank, such as staff costs, operating costs, land acquisition and compensation, site clearance/de-mining, technical review/appraisal, and so on and part of civil works and goods.

Table 3.1. Allocation of Loan and Credit Proceeds

Category	Amount of the Financing Allocated (expressed in US$)	Amount of the Loan Allocated (expressed in US$)	Percentage of Expenditures to be Financed (inclusive of taxes)
1. Sub-loans under Part 1(a)(i) of the project	8,200,000	None	90% of goods and works; 100% of consultants' services
2. Sub-grants under Part 1(b)(i) of the project	11,800,000	None	90% of goods and works; 100% of consultants' services
3. Sub-loan under Part 1(b)(ii) of the project	23,000,000	69,000,000	90% of goods and works; 100% of consultants' services
4. Consulting services, non-consulting services, trainings and workshops under Part 2(c) of the project	7,000,000	None	100%
Total	**50,000,000**	**69,000,000**	

Procurement

14. The project's current procurement performance is assessed as satisfactory and the related risks are rated as Moderate. The project implementing agencies have adequate capacity to carry out the AF procurement and they have gained significant knowledge and experience with Bank procurement. It is further noted that BIWASE, the agency who is responsible for the implementation of the vast majority of the procurement workload under the AF is one of the best performers. A detailed Procurement Plan (refer to the Attachments) for outstanding contracts including those under Di An Town subproject has been prepared and found acceptable by the Task Team.

15. Procurement for the AF shall be carried out in accordance with the World Bank's *"Guidelines: Procurement of Goods, Works and Non-Consulting Services Under IBRD Loans, IDA Credits & Grants by World Bank Borrowers"* dated January 2011, revised July 2014 and *"Guidelines: Selection and Employment of Consultants Under IBRD Loans, IDA Credits & Grants by World*

Bank Borrowers" dated January 2011, revised July 2014. All the applicable methods of procurement under the original project remain unchanged for the AF except that the National Competitive Bidding procedures set forth in the original Financing Agreement shall be appropriately revised to reflect the new changes and modifications in the national Procurement Law that became effective since July 2014.

Annex 4: Economic Analysis

Background

1. The AF focuses on improvements in wastewater and drainage systems in Di An Town of the Binh Duong Province. In 2014, the total population of the town was estimated to be 387,552, over 63 percent of which are migrant laborers. Di An Town is one of the few localities with fast economic growth (15 percent to 20 percent) in the Binh Duong Province. This growth momentum lasted for over 10 years, making the area a preferred destination for migrants, but there was no commensurate improvement in the sewerage and drainage system of the town. At present, many areas in Di An Town are exposed to floods, which is affecting the town's livelihood. The average household size of the resident population is about four people.

2. The vast majority of the migrant population lives in a congested environment of about 15 people per household. The laborers, while vital to the local economy, are vulnerable, have low to middle income, and lack access to proper sanitation services. They are exposed to skin and intestinal diseases, which ultimately contribute to increased work absence and reduced income. The population currently uses many forms of sanitation works, including septic and semi-septic tanks and permeable toilet and toilet tanks.

3. The parent project also addresses these issues in many towns of Vietnam. The town-by-town economic analysis of the parent project revealed that the project was economically feasible.[7] The economic internal rate of return (EIRR) ranged from 6.3 percent for Dong Xoai to 13.9 percent for Da Lat Town for the water supply component of the project. For the environmental sanitation component, the EIRR was 9.6 percent for Dong Ha and Tam Ky Towns and 13.7 percent for Ninh Binh Town.

4. Generally, analysis of the economics of alternative sanitation options in Vietnam shows impressive economic returns to sanitation interventions.[8] According to this research, wet pit latrines are by far the cheapest option. However, the use of pit latrines in a densely populated urban setting of Vietnam embodies significant negative externalities such as pollution of groundwater and neighborhoods. Septic tanks with no post-treatment have a benefit-cost ratio of 3.6. Sanitation options evaluated with improved off-site wastewater management (that is, sewerage with treatment) had a benefit-cost ratio of 2.7.

Methodology

5. The general approach of the cost-benefit analysis adopted is incremental cost-benefit analysis in which the net benefits of the project are compared to the net benefits of the without project scenario. First, the analysis was conducted for each of the two project components, namely the wastewater and the drainage system improvement components. Second, a combined cost-benefit analysis was performed to assess the overall economic viability of the project. The financial and economic costs of the project are depicted in Table 4.1. The economic costs were derived from the financial costs by (a) removing taxes that are considered to be transfer payments, (b) differentiating

[7] See the original Project Appraisal Document.
[8] The Economic Returns of Sanitation Interventions in Vietnam. Water and Sanitation Program: Research Brief (2011).

the costs into tradable costs and non-tradable costs, and (c) applying conversion factors. The conversion factors were 0.94 and 0.91, respectively, for the wastewater and drainage system improvement components, with an overall average of 0.92. The adjustments made ensured that the costs reflect the true economic value of the resources employed in the project. The O&M costs were estimated based on the prevailing standards in Vietnam.

Table 4.1. Financial and Economic Costs by Project Component (US$, millions/year)

Items	Wastewater Systems		Drainage Systems		Total	
	Financial	Economic	Financial	Economic	Financial	Economic
Construction	50.22	46.81	33.47	30.03	83.70	76.83
Equipment	1.74	1.70	0.31	0.30	2.05	2.00
Land	0.31	0.28	0.20	0.18	0.52	0.46
Project management	1.85	1.80	1.20	1.17	3.05	2.98
Consultancy services	5.18	5.03	3.37	3.27	8.55	8.30
Total	59.31	55.62	38.56	34.95	97.89	90.58
O&M costs	2.72	2.55	0.58	0.55	3.30	3.10

Source: Adapted from consultant's report.

Wastewater Systems: Benefits and Beneficiaries

6. The major beneficiaries of the wastewater management system are the local and migrant people in Di An Town. The total number of beneficiaries at full capacity of the infrastructure is about 20,000 households. The majority of the beneficiaries are expected to be the poor migrant laborer households. However, only about 6,000 to 8,000 households are expected to be connected to the system within the project's planned time frame and resources.

7. The benefits of the wastewater treatment system include (a) savings in public and household health expenditure; (b) reduced mortality; (c) avoided cost of septic tank construction, sludge emptying, and cleaning; (d) increased labor productivity; (e) reuse of treated sludge for agriculture; (f) improved urban sanitation and landscape; and (g) reduced pollution of surface and groundwater resources. Even though these are real benefits, quantification and valuation of some may be difficult. Therefore, the project benefits were estimated based on the following readily quantifiable aspects.

8. **Reduction in household health expenditure.** On average, households spend about US$37.3 per year per person for health care services, which is equivalent to 7 percent of the household income. A survey among the beneficiaries indicates that households can save about 70 percent of health care costs each month if wastewater systems are built. Thus, the estimated household health expenditure saving is equivalent to US$26.2 per year per capita.[9]

9. **Avoided cost of septic tank construction and cleaning.** On average, the beneficiaries spend about US$478 to US$637 for constructing septic tanks, which can last for 15 to 20 years once developed. In addition, households spend about US$48 every three years for cleaning their septic

[9] JICA.

tanks. Thus, on average, households can save about US$57.4 per year, if they are connected to the sewerage system.[10]

10. **Increased labor productivity.** This is related to health care cost saving. Reduced illnesses means that the number of sick days or work interruptions days will also reduce. Access to wastewater management service can reduce the number of sick days by 1 day in a year, which is a conservative estimate. This is equivalent to increasing labor productivity by US$17.8 per person per year.

Drainage Systems: Benefits and Beneficiaries

11. There are many flood-prone spots in Di An Town. The current project focuses specifically on the central areas of the town and people; businesses and services located in this area are the major beneficiaries. The expected benefits from the drainage improvement are many and varied. The major benefits include (a) reduced mortality and morbidity; (b) reduced vehicular and human traffic disruptions, including highways and railways; (c) avoided or reduced property damage costs; (d) avoided disruption of economic activities; (e) avoided damage to the bases and surface of roads; (f) household direct and indirect cost savings; and (g) appreciation of property values such as land value.

12. In the present case, the benefit was estimated based on estimated direct and indirect household cost savings and appreciation of land value. Direct costs include monetary damages or costs that households have to bear in preventing, coping with, and mitigating the effects of flooding. The direct costs also include investments and material purchases that households make to ex ante minimize the effect of flooding. These costs are estimated to be about US$2 per household per flood event.[11] Indirect costs are basically opportunity costs incurred by households due to flooding, such as loss of income due to loss of grocery revenues or loss of wages. The total indirect cost from flooding is estimated to be US$43.7 per household. The total direct and indirect damage cost without the project is about US$62.8 per household per flood event. The improved drainage system is assumed to save 80 percent of this total cost. The potential savings at household level can substantially cover the imposed increase (five percent on top of water bill) associated with introducing wastewater tariff instead of environmental protection fee.

13. Another benefit of flood protection intervention is appreciation of the value of land. A preliminary assessment showed that the average price of land in the project area is approximately US$255 per m^2. After project implementation, land prices within 0 m to 20 m distance from the roadside will increase to US$414.2 per m^2 and land price for areas within 21 m to 100 m distance from the roadside will increase to US$318.6 per m^2. It was reported that the extent of land within 0 m to 20 m distance from the roadside in the project area is 96,000 m^2, while area within 21 m to 100 m from the roadside was estimated to be 384,000 m^2. The total annualized value of land appreciation is estimated to be US$2,027.7 for the entire project area.

[10] JICA.
[11] Consultant's report based on International Institute for Environment and Development (IIED), 2013.

Results of the Economic Analysis

14. The results of the economic analysis conducted separately for each of the project components and for the overall project are summarized in Table 4.2. The analysis was done using two discount rate assumptions. The 6 percent discount rate assumption corresponds to the recent Bank directives regarding discount rates for use in economic analysis. The project is economically viable when analyzed overall and component by component. This result agrees with the results of the analysis for the parent project and other comparable projects in Vietnam.

Table 4.2. Summary Results of the Economic Analysis

Indicators	Wastewater Systems		Drainage Systems		Overall Project	
	6%	10%	6%	10%	6%	10%
Present value of benefits (US$, millions)	172.10	100.90	86.75	54.70	258.80	155.60
Present value of costs (US$, millions)	47.89	43.60	34.93	30.30	82.80	73.90
Net present value (US$, millions)	124.20	57.40	51.82	24.40	176.00	81.80
Benefit-cost ratio	3.59	2.32	2.48	1.80	3.12	2.10
EIRR (%)	19.70	19.70	18.90	18.90	19.40	19.40

15. The magnitude of economic indicators displayed in Table 4.2 is robust considering that not all of the possible benefits of the project were included due to difficulty of quantification and valuation. The analysis for the wastewater component was done assuming the full utilization of the capacity to be created. Obviously, the economic viability of the wastewater component (and the overall project) is quite sensitive to the realized number of connections or degree of utilization of the capacity created. Within this project framework, only about 6,000 to 8,000 connections are planned and budgeted for out of the possible 20,000 connections.

Financial Sustainability Analysis

Wastewater Tariff, BIWASE O&M Budget and Environmental Budget Balance of Binh Duong Province

16. In principle, O&M costs can be recovered through the environmental fees and through wastewater tariff. The former can be as much as 10 percent of the water bill. The wastewater tariff required for sustainably operating and maintaining the new infrastructure is estimated based on the national principle for price determination and regulations.[12] According to this decree, the wastewater tariff is determined on the basis of full O&M cost recovery for optimal O&M of stormwater and wastewater infrastructure. The principle also stipulates the possibility of subsidy when revenues from drainage and wastewater services are lower than the actual cost. The pricing method is applied according to Circular No.14/2014/TT-BTC of the MOC:

$$G = Z + (Z * P),$$

where G = wastewater treatment price including profit margin; Z = wastewater treatment price; P = profit margin.

[12] The principle is contained in Decree 80/2014/ND-CP of the GoV on drainage and wastewater treatment and Circular No. 04/2015/TT-BXD of the MOC on guiding implementation of some of the articles of the decree.

17. The calculated wastewater tariff in 2015 prices is VND 5,137 per m^3 of wastewater discharged (Table 4.3). In a similar project financed by JICA, the tariff was set at VND 5,200 per m^3. This tariff needs occasional revision and adjustment to ease the effect of inflation.

Table 4.3. Estimated Wastewater Tariff to Cover O&M Costs of Wastewater Treatment System

Item	Unit	2015	2020	2025
Estimated wastewater flow	Thousand m^3/year	3,197	4,081	7,512
Total O&M cost	VND, millions/year	15,644	19,931	27,796
Wastewater tariff	VND/m^3	4,893	4,884	3,700
Rated profit (5% of sale)	VND/m^3	245	244	185
Total waste water tariff	VND/m^3	5,137	6,128	3,885

18. In practice, BIWASE obtains budget allocations for O&M from the Binh Duong Province, which generates the funds through an environmental fee levied on the drinking water tariff (currently 10 percent of the water fee). To ensure availability of sufficient funds to cover O&M costs of the wastewater treatment system, the environment fee will need to be substituted by wastewater tariff with an increase from 10 percent to 15 percent of the water tariff from 2020 onwards. This scenario will result in a significant positive environmental budget balance (Table 4.4).

Table 4.4. Environmental Budget Balance over O&M Budget of BIWASE (VND, millions)

Items	2015	2016	2017	2018	2019	2020	2025	2030
O&M expenditures	16,702	23,345	34,671	68,733	127,022	157,584	348,664	540,201
Existing environmental budget	104,000	0	0	0	0	0	0	0
Annual environmental revenue	7,000	71,112	82,186	84,823	95,001	152,002	399,424	607,019
Total environmental revenue	111,000	71,112	82,186	84,823	95,001	152,002	399,424	607,019
Environmental budget balance	94298	142,064	189,579	205,668	173,648	168,066	128,500	322,557

Note: O&M cost for collecting and treatment of wastewater estimated based on the wastewater tariff determined in Table 4.3.

Affordability Analysis

19. The affordability of the recommended wastewater tariff was assessed for low- and middle-income beneficiary households (Table 4.5). For middle-income households, who represent about 53 percent of the population, the proportion of monthly wastewater tariff in the total household income is about 0.1 percent. The corresponding value for low-income households, who represent a mere 3.73 percent of the population, is about 0.7 percent. However, it has to be underlined that

the wastewater tariff is only 15 percent of the domestic water fee. The combined effect of the wastewater tariff and water tariff on household income was also analyzed. The combined water and wastewater tariff is still only about 1 percent of the average monthly income of the middle - income households, which is affordable. However, for low-income households, the water and wastewater tariff becomes about 7 percent to 8 percent of their monthly income. Table 4.5. Results of Affordability Analysis

Particulars	Unit	2016	2017	2018	2019	2020	2025	2030
Persons per household	Persons	5.13	5.13	5.13	5.13	5.13	5.13	5.13
Average household income	VND, thousands	11,966	13,761	15,825	18,198	20,928	42,094	84,666
Consumption	Lpcd	91	92	93	95	96	110	120
Average consumption	m^3/month	14.0	14.2	14.4	14.6	14.8	16.9	18.5
Average household wastewater tariff	VND/month	11,555	13,132	13,323	15,134	24,556	39,531	54,096
Proportion of wastewater tariff in household income	%	0.1	0.1	0.08	0.08	0.12	0.09	0.06
Persons per household	Persons	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Average household income	VND, thousands	1,935	2,226	2,560	2,944	3,385	6,809	13,695
Consumption	Lpcd	91	92	93	95	96	110	120
Average consumption	m^3/month	16.3	16.6	16.8	17.0	17.3	19.8	21.6
Average household bill (wastewater tariff)	VND/month	13,515	15,359	15,582	17,701	28,721	46,235	63,270
Proportion of wastewater tariff in household income	%	0.7	0.7	0.6	0.6	0.8	0.7	0.5

Source: Adapted from consultant's report.

Financial Performance of BIWASE With and Without Project

20. Past financial performance provides a glimpse of BIWASE's capability to handle service improvement and expansion through additional financial inputs sourced internally and through external financing activities. Consequently, financial projections are prepared to evaluate the impact of new project inputs on overall financial viability and sustainability (Table 4.6). The analysis of the existing financial situation of BIWASE over the period 2012 to 2014 shows that

the company's financial performance is good, as depicted by all of the financial indictors except for the debt service coverage ratio, which is normally expected to be 1.2 or more. The reasons for the poor performance of BIWASE with respect to the debt service coverage ratio are the following: (a) during this period, the water tariff was very low and (b) the company borrowed heavily from commercial sources during this period.

Table 4.6. Actual and Projected Financial Performance of BIWASE

Indicators	2012	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Profit after tax (VND, million)	89,479	99,741	142,737	-	-	-	-	-	-	-	-
Operating ratio	0.42	0.49	0.53	0.52	0.52	0.51	0.51	0.52	0.52	0.51	0.49
Debt service coverage ratio	1.10	0.96	0.80	8.58	9.19	9.90	10.58	11.34	11.94	25.78	37.05
Cash flow profitability ratio	0.78	0.64	0.59	-	-	-	-	-	-	-	-
Leverage ratio	0.36	0.37	0.36	-	-	-	-	-	-	-	-

Financial Performance of Di An Town People's Committee

21. Di An Town's People's Committee is expected to cover the O&M expenditures for drainage systems. The analysis of the financial performance (budget balance) of Di An Town indicates that the People's Committee is in good financial shape to not only cover the O&M costs but also cover the counterpart fund of the project.