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The World Bank

Report No: ICR0000793

IMPLEMENTATION COMPLETION AND RESULTS REPORT  
(IDA-32110 TF-24899)

ON A

CREDIT

IN THE AMOUNT OF SDR 59.4 MILLION  
(US\$ 80.5 MILLION EQUIVALENT)

TO THE

SOCIALIST REPUBLIC OF VIETNAM

FOR

THE THREE CITIES SANITATION PROJECT

June 25, 2009

Urban Development Unit  
Sustainable Development Program in Vietnam  
East Asia and Pacific Region

## CURRENCY EQUIVALENTS

Currency Unit = Vietnamese Dong

VND 13,800 = US\$1.00	December 1999 - Appraisal
VND 16,100 = US\$1.00	September 2007
US\$ 1.3567 = SDR 1.00	March 1999 - Negotiations
US\$ 1.5652 = SDR 1.00	January 2009- Completion

## FISCAL YEAR

January 1 – December 31

## ABBREVIATIONS AND ACRONYMS

AusAID	=	Australian Agency for International Development
BOD	=	Biochemical Oxygen Demand
CAS	=	Country Assistance Strategy
CMC	=	Construction Management Consultant
DANIDA	=	Danish International Development Agency
DCA	=	Development Credit Agreement
ERR	=	Economic Rate of Return
EIA	=	Environmental Impact Assessment
EMP	=	Environmental Management Plan
FINNIDA	=	Finnish Department of International Development Cooperation
IDA	=	International Development Association
JICA	=	Japanese International Cooperation Agency
JBIC	=	Japanese Bank for International Cooperation
M&E	=	Monitoring and Evaluation
MPI	=	Ministry of Planning and Investment
MOC	=	Ministry of Construction
MOF	=	Ministry of Finance
MONRE	=	Ministry of Natural Resources and Environment
NPV	=	Net Present Value
O&M	=	Operations and Maintenance
PAD	=	Project Appraisal Document
PC	=	People's Committee
PDO	=	Project Development Objective
PMU	=	Project Management Unit
PSP	=	Private Sector Participation
RAP	=	Resettlement Action Plan
RPF	=	Resettlement Policy Frameworks
SADCO	=	Sewerage and Drainage Company (in Haiphong)
SBD	=	Standard Bidding Documents
SBV	=	State Bank of Vietnam
SS	=	Suspended Solids
SWM	=	Solid Waste Management
URENCO	=	Urban Environmental Company (in Danang and Quang Ninh)
WDSSMP	=	Water Supply, Drainage, Sewerage and Sanitation Management Program
WWTP	=	Waste Water Treatment Plant
WU =		Women's Union

Vice President:	James W. Adams
Country Director:	Victoria Kwakwa
Sector Manager:	Hoonae Kim
Project Team Leader:	Hung Duy Le
ICR Team Leader:	Hung Duy Le

**SOCIALIST REPUBLIC OF VIETNAM  
THREE CITIES SANITATION PROJECT**

**TABLE OF CONTENT**

<b>Data Sheet</b> .....	<b>iv</b>
A. Basic Information.....	iv
B. Key Dates .....	iv
C. Ratings Summary .....	iv
D. Sector and Theme Codes .....	v
E. World Bank Staff.....	v
F. Results Framework Analysis .....	vi
G. Ratings of Project Performance in ISRs .....	viii
H. Restructuring (if any).....	ix
I. Disbursement Profile .....	ix
<b>1. Project Context, Development Objectives and Design</b> .....	<b>1</b>
<b>2. Key Factors Affecting Implementation and Outcomes</b> .....	<b>4</b>
<b>3. Assessment of Outcomes</b> .....	<b>9</b>
<b>4. Assessment of Risk to Development Outcome:</b> .....	<b>13</b>
<b>5. Assessment of World Bank and Borrower Performance</b> .....	<b>13</b>
<b>6. Lessons Learned</b> .....	<b>14</b>
<b>7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners</b> ..	<b>15</b>
<b>Annexes</b> .....	<b>16</b>
Annex 1: Project Costs and Financing.....	16
Annex 2: Outputs by Component .....	17
Annex 3: Economic and Financial Analysis.....	20
Annex 4: World Bank Lending and Implementation Support/Supervision Processes .	23
Annex 5: Beneficiary Survey Results .....	25
Annex 6: Stakeholder Workshop Report and Results .....	26
Annex 7: Summary of Borrower's PCRs and/or Comments on Draft ICR .....	27
Annex 8: Comments of Co-financiers and Other Partners/Stakeholders .....	30
Annex 9: List of Supporting Documents .....	32
Annex 10: Danish Trust Fund for Quang Ninh Sub-Project .....	33
MAPs .....	40

<b>A. Basic Information</b>			
Country: Vietnam		Project Name:	THREE CITIES SANITATION PROJECT
Project ID:	P051553	L/C/TF Number(s):	IDA-32110,TF-24899
ICR Date:	06/25/2009	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	SOCIALIST REPUBLIC OF VIETNAM
Original Total Commitment:	XDR 59.4M	Disbursed Amount:	XDR 51.9M
<b>Environmental Category: A</b>			
<b>Implementing Agencies:</b> Project Management Unit Haiphong Sub-project Project Management Unit Quang ninh sub-project Project Management Unit Danang sub-project			
<b>Cofinanciers and Other External Partners:</b> Finnish Department of International Development Cooperation (FINNIDA) Danish International Development Agency (DANIDA) Australian Agency for International Development (AusAid)			

<b>B. Key Dates</b>				
Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	01/07/1998	Effectiveness:		01/31/2000
Appraisal:	01/29/1999	Restructuring(s):		12/24/2003
Approval:	05/18/1999	Mid-term Review:		09/26/2003
		Closing:	06/30/2005	06/30/2008

<b>C. Ratings Summary</b>			
<b>C.1 Performance Rating by ICR</b>			
Outcomes:	Satisfactory		
Risk to Development Outcome:	Moderate		
Bank Performance:	Satisfactory		
Borrower Performance:	Satisfactory		
<b>C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)</b>			
Bank	Ratings	Borrower	Ratings
Quality at Entry:	Moderately Satisfactory	Government:	Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Satisfactory

<b>Overall Bank Performance:</b>	Satisfactory	<b>Overall Borrower Performance:</b>	Satisfactory
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### C.3 Quality at Entry and Implementation Performance Indicators

Implementation Performance	Indicators	QAG Assessments (if any)	Rating
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA):	None
DO rating before Closing/Inactive status:	Moderately Satisfactory		

### D. Sector and Theme Codes

	Original	Actual
<b>Sector Code (as % of total Bank financing)</b>		
Flood protection	43	49
Other industry	6	18
Sanitation	1	3
Sewerage	27	22
Solid waste management	23	8
<b>Theme Code (as % of total Bank financing)</b>		
Environmental policies and institutions	23	23
Municipal finance	22	22
Municipal governance and institution building	11	11
Other urban development	22	22
Pollution management and environmental health	22	22

### E. Bank Staff

Positions	At ICR	At Approval
Vice President:	James W. Adams	Jean-Michel Severino
Country Director:	Victoria Kwakwa	Andrew D. Steer
Sector Manager:	Hoonae Kim	Keshav Varma
Project Team Leader:	Hung Duy Le	Alan Coulthart
ICR Team Leader:	Hung Duy Le	
ICR Primary Author:	Richard M. Beardmore	
	Julia Shane Li	

## F. Results Framework Analysis

### Project Development Objectives (from Project Appraisal Document)

(a) sustained improvements to public health, and (b) increased economic development, by reducing the incidence of flooding; upgrading the urban environment; and developing more efficient and financially sustainable sanitation and drainage companies (SDCOs) in Danang, Haiphong and Quang Ninh Province (Halong City and Cam Pha).

### Revised Project Development Objectives (as approved by original approving authority)

No revisions to the PDO were made.

#### (a) PDO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
<b>Indicator 1 :</b>	Reduction in water-related and vector borne diseases # annual cases treated and deaths arising from: diarrhea, dysentery, cholera, typhoid, and malaria in phuongs by the project (cases)			
Value quantitative or Qualitative)	Danang: 4051; Quang Ninh: 239	No target set	N/A	Danang: 1661; Quang Ninh: 251
Date achieved	12/31/2002	12/31/2002	09/26/2003	12/31/2006
Comments (incl. % achievement)	These diseases have been on the decline since 2002. More sanitary environment created by project interventions played a role. The extent of this role cannot be determined precisely because many external factors influenced the outcome.			
<b>Indicator 2 :</b>	Increase in the number of tourist nights and annual income arising from tourism in Danang, Halong and Haiphong (visitors/VND billion).			
Value quantitative or Qualitative)	DN: 460K visitors VND167bn; QN (Halong): 2.3mn visitors VND543bn; HP: 1.45mn visitors	No target set	N/A	DN: 770K visitors VND286bn; QN (Halong): 3.1mn visitors VND2.117bn; HP:2.96mn visitors
Date achieved	12/31/2002	12/31/2002	09/26/2003	12/31/2006
Comments (incl. % achievement)	Increased by 69% in DN and 113% in Halong and by 100% in HP. Revenue increased by similar margins. The cleaner environment certainly made the project cities more attractive for tourists but many external factors impacted tourism trends.			

#### (b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
<b>Indicator 1 :</b>	Solid waste management: annual weight of waste delivered to disposal sites			

	(T/year)			
Value (quantitative or Qualitative)	Danang: 100,000 T p.a.; Halong: 25,000 T/p.a.; Cam Pha 10,000 T/p.a.	Danang: 170,000T/p.a.; Halong: 50,000 T/p.a.; Cam Pha: 24,000 T/p.a.	N/A	Danang: 180,145T/p.a.; Halong: 120,500 T/p.a.; Cam Pha: 65,660 T/p.a.
Date achieved	03/31/1999	12/31/2007	09/26/2003	10/18/2008
Comments (incl. % achievement)	Exceeded targets in Danang, Halong and Cam Pha by 6%, 140% and 170%. This was due to more efficient operation of the URENCOs under the project; staff management skills improved and the agencies procured new vehicles.			
<b>Indicator 2 :</b>	Revolving funds for new or improved on-site septic tanks and toilets facilities (number of loans)			
Value (quantitative or Qualitative)	Danang: 0; Haiphong: 0; Quang Ninh: 0	Cumulative figures: Danang: 13,000; Haiphong: 8,000; Quang Ninh: 10,000; Total: 31,000. Component completed	N/A	Danang: 13,055; Haiphong: 14,948; Quang Ninh: 8,608
Date achieved	12/31/1999	01/31/2006	09/26/2003	12/31/2006
Comments (incl. % achievement)	The component progressed quickly and all funds were lent to households by June, 2004.			
<b>Indicator 3 :</b>	Private sector participation: percentage of solid waste collection and septic tank emptying by private contractor			
Value (quantitative or Qualitative)	Danang SW: 12% & volume of sludge=25%; Haiphong: SW=n.a. & volume of sludge=10%; Quang Ninh: SW=13% & volume of sludge=n.a.	Danang SW=30% & volume of sludge=45%; Haiphong volume of sludge=55%; Quang Ninh: SW=35% & volume of sludge=35%	No revision	Danang SW=0% & volume of sludge=100%; Haiphong volume of sludge=15%; Quang Ninh: SW=100% & volume of sludge=0%
Date achieved	12/31/1999	10/10/2007	09/26/2003	12/31/2008
Comments (incl. % achievement)	Danang contracted out all sludge removal and treatment and private sector (PS); participation quadrupled. Haiphong PS sludge removal increased by 50% but did not meet target values. Quang Ninh's use of private contractors increased dramatically.			
<b>Indicator 4 :</b>	Drainage: annual duration of flooding in hours and depth per flooding occurrence in 10 locations (example Quang Ninh)			
Value (quantitative or Qualitative)	N/A	No target set	20-40 mm deep; 30-200 minutes	10-20 mm deep; 15-20 minutes
Date achieved	12/31/1999	09/26/2003	10/31/2003	06/30/2008
Comments (incl. % achievement)	Initial results observed in Haiphong and Danang are similar. Most systems have been in operation for about one year and therefore output values should be consistently monitored.			

<b>Indicator 5 :</b>	Institutional strengthening of sanitation service providers: percentage of O&M and vehicle/equipment depreciation costs recovered as user fees (% of costs recovered from revenue)			
Value (quantitative or Qualitative)	HP: 0%; Halong: 37%; Cam pha:28%; DN: 80%	HP: 101%; Halong: 108%; Cam pha:81%; DN: 145%	HP: 100%; Halong: 83%; Cam pha:83%; DN: 100%	HP: 48%; Halong: 42%; Cam pha:42%; DN: 52%
Date achieved	03/31/1999	08/31/1999	10/31/2003	06/30/2007
Comments (incl. % achievement)	Cost recovery in 2007 did not meet targets because PCs were unable to approve tariff increases. In Danang the % of costs recovered in 2007 was less than the baseline because of a rise in operating costs, caused by higher service levels.			
<b>Indicator 6 :</b>	Sewers and sewage treatment: reduced biochemical oxygen demand, suspended solids and fecal coliform levels in receiving waters (BOD mg/l)			
Value (quantitative or Qualitative)	N/A	No target set	No target set	Danang: 68; Quang Ninh: 8
Date achieved	12/31/1999	12/31/1999	09/26/2003	12/31/2008
Comments (incl. % achievement)	Measurement of water qualities at Quang Ninh's tidal gates showed a reduction in BOD from 80 mg/l to 8 mg/l. The average at all three sites was 13/mg/l, meeting the national standard of 25 mg/l. Trial runs of the wastewater systems were positive.			

## G. Ratings of Project Performance in ISRs

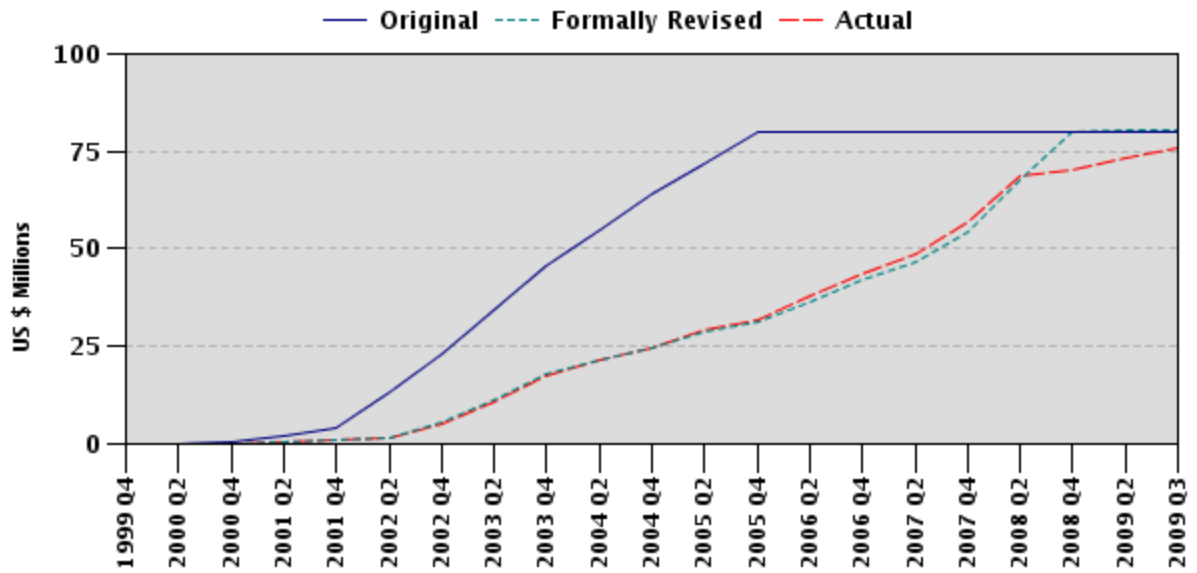
No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	06/14/1999	Satisfactory	Satisfactory	0.00
2	12/21/1999	Satisfactory	Satisfactory	0.00
3	06/21/2000	Satisfactory	Satisfactory	0.00
4	12/20/2000	Satisfactory	Satisfactory	0.30
5	06/20/2001	Satisfactory	Satisfactory	0.60
6	12/27/2001	Satisfactory	Satisfactory	1.39
7	05/06/2002	Satisfactory	Satisfactory	4.32
8	10/08/2002	Satisfactory	Satisfactory	7.14
9	06/05/2003	Satisfactory	Unsatisfactory	14.01
10	12/24/2003	Satisfactory	Satisfactory	21.05
11	06/14/2004	Satisfactory	Satisfactory	24.68
12	12/21/2004	Satisfactory	Satisfactory	28.53
13	06/17/2005	Satisfactory	Moderately Satisfactory	31.27
14	01/09/2006	Satisfactory	Moderately Satisfactory	37.89
15	06/09/2006	Satisfactory	Unsatisfactory	42.24
16	10/18/2006	Moderately Satisfactory	Unsatisfactory	46.72
17	06/27/2007	Moderately Satisfactory	Moderately Satisfactory	57.15
18	12/22/2007	Moderately Satisfactory	Satisfactory	68.13
19	03/28/2009	Satisfactory	Satisfactory	75.70
20	04/24/2009	Satisfactory	Satisfactory	75.70



## H. Restructuring (if any)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
12/24/2003		S	S	21.05	

## I. Disbursement Profile



# 1. Project Context, Development Objectives and Design

## 1.1 Context at Appraisal

**1.1.1 Country Background:** Vietnam's urban population increased rapidly during the 1990s. The Doi Moi (renovation) program of 1987 sparked a decade of growth and the ensuing rapid urbanization caused pressure on inadequate sanitation, drainage, sewerage and water supply services. Environmentally sensitive areas were threatened by industrialization and urbanization. At the time of appraisal, these pressures were expected to increase as Vietnam's percentage of urban residents, representing about 20% of the population, was still lower than developing nations' standards. This reflected earlier government policies that had favored rural areas and led to low urban growth rates from 1975 until the beginning of *Doi Moi*. The prospect of continued rapid urbanization called for higher investment in water supply and sanitation. Private sector participation in infrastructure was low and urban managerial capacity needed strengthening in order for urban infrastructure provision to become more efficient.

**1.1.2 Government Strategy:** The Government's sanitation sector strategy was developed with assistance from UNDP/World Bank in 1990 and the updated with support from the Finnish Government in 1995/96. The strategy diagnosed under-investment in sanitation works, low coverage and lack of wastewater treatment facilities, as well as excessive subsidies of sanitation recurrent costs and an ineffective administrative structure. In response the sector strategy sought to: (i) rehabilitate existing networks and facilities; (ii) develop policies and institutions to promote a more market oriented system; (iii) develop, through public education, a better awareness of the importance of more effective sanitation services; and (iv) gradually phase out subsidies and replace them with user charges. The strategy included measures to decentralize septage and solid waste collection to the local level, commercialize public utilities and encourage greater cost recovery by the Urban Environmental Companies (URENCOS) and Sewerage and Drainage Companies (SADCOs).

**1.1.3 Rationale for Bank Involvement:** The project supported the World Bank's Country Assistance Strategy (CAS: 2001-2006) to raise productivity through urban infrastructure by making the project cities more competitive, improving their "livability" and enhancing their "bankability."<sup>2</sup> It also supported the reform of state owned enterprises by requiring the agencies responsible for sanitation and drainage to recover a greater proportion of their costs and to increase private sector participation. The project supported the Government's sectoral policies of decentralization, increased private sector participation, and movement towards commercialization of the SADCOs and URENCOS by introducing user charges and strengthened management. The project was the first Bank financed sanitation project in Vietnam and one of the earliest projects to invest in the urban sector, and to be implemented at the sub-national level. It was also one of the first projects to comprehensively address environmental sanitation issues for urban cities and introduce commercial practices in the urban sanitation companies.

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<sup>2</sup> In Vietnam water supply is a provincial government responsibility. Each province has a public sector sewage and drainage company. In Danang and Quang Ninh they are known as URENCOS. In Haiphong the service provider is known as SADCO. Haiphong and Danang are cities with provincial status. Quang Ninh is a province in which the project supported the two main cities: Halong and Cam Pha. Haiphong, Danang and Quang Ninh are referred to collectively as "the cities" throughout the ICR.

## **1.2 Original Project Development Objectives (PDO) and Key Indicators**

The project development objectives were: (a) sustained improvements to public health; and (b) increased economic development, by reducing the incidence of flooding; upgrading the urban environment; and developing more efficient and financially sustainable sanitation and drainage companies (SADCOs) in Danang, Haiphong, and Quang Ninh Province (Halong City and Cam Pha).

**1.2.1** The approved indicators for measuring the PDO were:-

- Reduction in the incidence of water related and vector borne diseases – annual cases treated and deaths from diarrhea, dysentery, cholera, typhoid, and malaria in phuongs (wards) covered by the project; and
- Increase in the number of tourist nights and annual income from tourism in Quang Ninh (Halong City) and Danang

**1.2.2** Outcome indicators measured solid waste management, flooding duration, loans lent for sanitation improvement, cost recovery of sanitation companies, the impact of sewerage on water quality, and private sector participation in the sanitation companies. (see Section F, Result Framework Analysis, for details.)

## **1.3 Revised PDO (as approved by original approving authority) and Key Indicators, and reasons/justification**

The Project Development Objective was not changed. However, the task team realized that the number of residents benefitting from project interventions was a key measure of project impact. Therefore, data on beneficiaries was added as one of the key "implicit" indicators used to evaluate project progress.

## **1.4 Main Beneficiaries**

**1.4.1** The project helped generate public benefits to the cities' economies and private benefits to individual households in some specific areas. The public benefits included reduction in the incidence of waterborne diseases and increased production due to reduced flooding and the avoidance of flood damage. Reduced flood damage to roads and other infrastructure services has resulted in lower economic opportunity costs, maintenance and rehabilitation costs. The improved city environments and reduced pollution has also benefited the important tourist industry in Quang Ninh (Halong City) and Danang. Sanitation improvements are more likely to be sustainable because the URENCO/SADCOs capacity to operate and maintain the facilities has been improved.

**1.4.2** The project enabled 1.7 million people in Danang, Haiphong, and Quang Ninh to benefit from reliable drainage, sewage treatment, solid waste management and on-plot sanitation. At appraisal, the number of beneficiaries was estimated at 1.3 million and the substantial increase in number of residents who actually benefited from the project is largely a result of the expansion of the project to additional areas, using savings achieved in the first round of contracting. Because sanitation improvements were implemented on a city-wide scale, most project components did not target specific socio-economic groups. However, the revolving fund and community mobilization programs focused on lower income households who lacked adequate sanitation facilities.

**Table 1.1 Estimated Numbers of Residents Benefiting from Improved Urban Services**

City	Drainage	Sewerage and Sewage Treatment	Solid Waste Management	Revolving Fund Sanitation	Total Beneficiaries
Haiphong	350,000	350,000	na	34,000	639,000
Danang	256,000	540,000	224,000	52,000	738,000
Quang Ninh	435,000	193,000	330,000	56,000	361,000
TOTAL					1,738,000

Source: City PCRs

### 1.5 Original Components (\$ 119.53mn approved/ \$ 119.17 mn actual)

The project had five components with similar subprojects in Danang City, Haiphong City and Quang Ninh Province (Halong City and Cam Pha Town) as follows:-

#### **Component 1: Drainage** (\$44.31 mn/\$58.32 mn)

In areas where regular flooding occurred, existing drains were rehabilitated and new drains were constructed.

#### **Component 2 Sewerage and Sewage Treatment** (\$32.56 mn/\$27.96 mn)

The component improved the urban environment and reduced pollution by intercepting and treating sewage flows.

#### **Component 3: Solid Waste Management** (\$23.06 mn/\$8.01 mn) (Danang and Quang Ninh)

The project improved the collection and safe final disposal of solid waste through investment in trucks, other equipment, environmental service centers and sanitary landfills. In Haiphong solid waste was improved through assistance from the Japanese Bank for International Cooperation. The funds for this component were less than at appraisal due to lower than expected bid prices and the decision to pay for large works in Quang Ninh from the DANIDA trust fund.

#### **Component 4: Institutional Development and Construction Management** (\$16.6 mn/\$21.77 mn)

This component improved the management and efficiency of the SDCOs and URENCOs. Technical assistance and training helped the cities establish technically and financially viable service companies. The project also provided technical assistance to the cities for construction management. FINNIDA, DANIDA and AUSAID provided assistance to Haiphong, Quang Ninh and Danang respectively.

#### **Component 5: Revolving Funds for Household Sanitation Facilities** (\$3 mn/\$3.10 mn)

Revolving funds in each city assisted low income households to construct or improve septic tanks, basic toilet hardware, and sewerage connections. The component was planned and implemented in a participatory manner and included a sanitation and environmental education campaign to inform the community of the linkages between health, environmental conditions, and sanitation. Eligible households received loans of up to VND 2,000,000 (USD150) to fund sanitation improvement. The revolving funds are still in operation under Government management.

### 1.6 Revised Components

There were no revisions of any project components, except for the scaling up of the civil works as explained in Section 1.7 below.

## **1.7 Other Significant Changes**

**1.7.1 DCA Amendment:** The DCA was amended in February 2006 to use savings of USD\$27.4 million which had accrued due to cost savings from competitive bidding and the appreciation of the SDR. The savings were used to expand the scale of the investments in a second phase of the project (considered as Phase II in participating cities). The largest additional works included: i) in Quang Ninh: expanded drains in Halong City, Cam Pha Town and construction of Ha Khanh new wastewater treatment plant in Hon Gai area, a densely populated administrative area of Ha Long City; ii) in Danang: more drainage and interceptor sewers; and iii) in Haiphong: construction/ rehabilitation of Phuong Luu Lake (22ha), Cat Bi Lake (3ha), more drainage and interceptor sewers. The cancelation of a part of the savings was done at the request of the Borrower.

**1.7.2 Nine (9) Years Implementation:** The DCA was amended twice to extend the closing dates. The original closing date was June 30, 2005 and the first extension of two years (until June 30, 2007) was granted to allow for the completion of additional works funded by the Credit savings in all 3 cities. The second extension of one year (until June 30, 2008) was approved only for Quang Ninh Sub-project so that the construction of Ha Khanh new WWTP could be completed and operated. This plant is very important in improving environmental protection for the World Heritage Halong Bay.

## **2. Key Factors Affecting Implementation and Outcomes**

### **2.1 Project Preparation, Design and Quality at Entry**

**2.1.1 Soundness of background analysis:** The background analysis adequately addressed the conditions in Vietnam at the time of appraisal and incorporated lessons learned from relevant Vietnam projects. The rationale for the Bank's intervention was based on projected growth in urban areas, and increasing pressure on urban environmental infrastructure. This analysis was sound and project interventions to improve the urban environment have proved timely and relevant. Decisions to adopt a relatively straightforward project design, choose project cities experienced with implementing World Bank projects and carefully select the type of bidding documents showed a prudent attention to lessons learned from previous Bank projects. The financial analysis correctly demonstrated the need for tariffs to increase in order to cover O&M costs.

**2.1.2 Adequacy of project design:** The design of the project was inadequate in terms of specifying PDOs and the PDO indicators. The direct impact of the project on the increase in tourism and reduction in the incidence of water-borne disease was difficult to measure and they were impacted by circumstances outside of the control of the project. Improvements in these indicators cannot be solely attributed to project interventions. The intermediate outcome indicators which quantified solid waste removal, flooding reduction, funds lent for household sanitation, cost recovery, water pollution and private sector participation, were appropriate and adequately captured the improvements in the urban environment that were the focus of the project as well as aspects of the project (such as cost recovery) that were less successful. Had the task team included more expertise in M&E, the team would like have chosen a lower level of development indicators. For example, development indicators focused on the number of households benefitting from the different components of the project would have both demonstrated the project's effectiveness and been relatively simple to monitor. In addition, a simpler indicator structure would have enabled the PMUs to focus more attention on the quality

of the data. This design flaw is partially due to less Bank focus on M&E at the time of appraisal. The TT did consider amending the DCA at the mid-term review to rectify this flaw, but concluded that scarce supervision resources were better spent on more urgent operational matters.

**2.1.3** The project design adequately incorporated lessons learned from other Vietnam projects. First, the project design was kept simple to avoid overwhelming a relatively new borrower. The five components of the project covered the basic set of core urban services and were implemented in a coordinated and integrated manner. Second, the project was confined to cities which had been beneficiaries of the World Bank water supply project in an attempt to capitalize on the experience of the implementing agencies and deepen the environmental management capacity of these cities. Third, the project acknowledged the need for appropriate bidding documents and adopted small separate goods and works contracts with which the implementing agencies were familiar. This approach led to improvements in the procurement process, although issues did arise because of differences between the Bank's Standard Bidding Documents (SBD) and government's standard contracts. Fourth, the move to decentralize approvals to the lowest level was consistent with Vietnam policy direction. Decentralization has been a slow process and the government approval procedures continued to be a challenge under the project, although the situation improved during the later years of the project. Despite the difficulties encountered, a different approach would have run counter to Government policy and would have caused greater problems.

**2.1.4 Adequacy of government's commitment:** The Government demonstrated a strong commitment to the project through the timely provision of counterpart funds, the establishment of capable PMUs and willingness to issue legislation to move towards cost recovery. At the local and community level, public participation was a key feature of the project design process. The Women's Union's role in managing the revolving fund component, and the participatory manner in which that component was designed and implemented, are particularly good example of clients' commitment to the project

**2.1.5 Assessment of Risks:** Risks relating to cost recovery and procurement were adequately identified during preparation and specific measures were taken to mitigate them. The most substantial risks identified relate to achieving adequate cost recovery. The main risk was the local government's failure to implement agreed tariff increases in a timely manner. Consumers' possible refusal to pay for services was an associated risk. The risks were mitigated by relating charges to affordability, phasing in increases in tariffs over time, and raising community awareness about the benefits of improved sanitation. A second major risk was the possibility that procurement process, with its complicated approval procedures, could delay project implementation. To mitigate this risk, the project adopted a number of methods including smaller simpler contracts, raising the problem of delays in annual portfolio performance discussions, supervising procurement more intensely in the earlier stages of the project, and organizing procurement workshops.

Overall, quality at entry is rated as “moderately satisfactory”.

## **2.2 Implementation**

**2.2.1** The project design and institutional structure were important factors leading to satisfactory outcomes. The chosen components covered the core urban services and to generate positive impact on the urban environment. The PMUs had adequate administrative, financial and technical capacity and additional staff was recruited as needed. Project physical targets were mostly met or exceeded, the quality of construction was good and the project benefitted 400,000

more households than anticipated at appraisal. All project cities gained experience in implementing Bank financed projects. Government counterpart funds were provided in a timely manner. At the mid-term review, the Bank team demonstrated responsiveness toward the borrower's priorities and was proactive in addressing problems. Unused funds from the first round of bidding were reallocated to a Phase II project.

**2.2.2** Difficulties in implementation and the long implementation period were due to delays from the Phase 2 Project, challenges of decentralization, commercialization and rapid urbanization. The large scale of the works constructed under Phase 2 required a new round of planning, design and construction. The delay was compounded by high inflation in Quang Ninh in late 2007 and 2008. Delays created by protracted approval procedures are common in infrastructure investment in Vietnam. Decentralization to provincial level was not always accompanied by the necessary approval authority which further delayed approving project designs, processing contracts and making payments to contractors. Rapid urban growth led to changing conditions in the project cities and design changes became unavoidable. All major design changes required new government approval and some of the changes required new site acquisition, always a lengthy process. Despite these challenges it is notable that in the later stages of the project the time required for bid processing was significantly reduced. Another implementation difficulty was the continuing inability of the URENCOs to recover costs for wastewater and solid waste collection. The task team addressed the problem at the midterm review by requesting the PPCs to increase charges to the levels agreed at project negotiations. However, tariffs were not increased sufficiently due to the legal framework governing the project cities. The uneven performance of some civil works contractors caused delays. In some cases contractors had difficulty understanding the Bank requirements for environmental safeguards, and proper practices for managing a construction site. In other cases, State Owned Enterprise contractors had difficulty mobilizing sufficient resources. Finally, insufficient household connections to sewers have hampered the overall efficiency of the sewage systems.

Overall Implementation is rated “satisfactory.”

### **2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization**

**2.3.1 M&E Design:** The design of the M&E system and PDO indicators (decrease in communicable disease and increase in tourism) were set at too high a level and subject to influence by factors external to the project. Collection of data for these indicators also relied on outside agencies which further complicated the problem. The intermediate outcome indicators reflected output from each of the project components and were a reasonable choice. A review of the indicators by a regional operations team around 2006 concluded that the project would be better served by replacing the PDOs with indicators that reflected the number of beneficiaries of the various interventions. The task team considered officially amending the PDOs but concluded that, given the short time remaining in the project, resources would be better spent addressing other operational issues. Instead, the task team collected data on beneficiaries and reported them in the ISRs. The M&E design could also have been improved by assigning target values for all indicators.

**2.3.2 M&E Implementation:** The PMUs were responsible for monitoring the key performance indicators and data related to each of the intermediate PDO indicators were collected from a variety of sources. Some data collection activities were carried out on a contract basis by provincial government and local departments. Data were recorded in PMU's centralized database and original data were kept in the Environmental Monitoring System EMS archive. In general, the PMU's effort to collect data for the EMS was well done. However for some indicators, data was not collected regularly. The EMS collected data on the following aspects:-

- Water and sediment quality monitoring
- Flooding data including rainfall, level of floodwater, water level in lakes and channels and tide information
- Groundwater level monitoring
- Health indicators
- Solid waste and septic tank collection and disposal
- Household sanitation improvements as described in Revolving Fund.

**2.3.3 M&E Utilization:** The aspects of the M&E system that were most useful to project management were the outcome indicators. These indicators provided a thorough overview of project progress in each component and data on cost recovery and private sector participation focused TT attention on these issues. Similarly, data collected on the number of beneficiaries provided a useful gauge of project coverage. Comprehensive environmental data were collected regularly but no improvement in environmental indicators was expected until the project interventions were nearly complete, so this was not a focus until the final years of the project. The least successful aspect of the monitoring system were the key performance indicators, the high level nature of the KPIs and the difficulty linking KPIs to project outcomes caused the task team and PMUs to focus less attention on these indicators.

**Box 1. Typical example of monitoring of water quality**

**Water quality Sampling in Quang Ninh**

During the project implementation, water sampling for quality analysis at various points have been taken. Analysis focused on BOD<sub>5</sub>, SS and colifoms. Water quality in 4 sampling points was permanently reported at interval of every 6 months. The sampling points were increased when Bai Chay WWTP and leachate treatment plants at landfills were in operation. Flooding indicators have also been supervised.

**Water Quality Results**

During earlier phases of study and construction, wastewater samples were taken from 4 points of discharge in Halong and Cam Pha. Water quality results were recorded and saved in the PMU's office for proper follow-up actions. PMU also reported necessary data to WB and relevant authorities.

Water quality at sampling points in the project area was poor, largely caused by wastewater. Water quality in Cam Pha improved with BOD<sub>5</sub> ranged from 11mg/l to 80mg/l; SS ranged from 23 – 184 mg/l. In Hon Gai BOD<sub>5</sub> was from 16 – 92mg/l and SS was from 32- 250mg/l during the time of supervision period. Water quality in Bai Chay has been much improved since the wastewater collection and WWTP were in operation.

After **WWTP in Bai Chay**, three sludge treatment plants at three landfills Ha Khau, Deo Sen and Quang Hanh were in operation, water sampling was continued. Wastewater Analysis Reports for each plant were prepared by the Institute of Marine Environment and Resources in 2006. It showed good treatment efficiency with a significant reduction of pollution parameters compared to earlier “before project” interventions.

The rating of M&E is “moderately unsatisfactory”

**2.4 Compliance**

**2.4.1 Financial Management:** Financial management (FM) aspects were generally in compliance with Bank procedures. Some problems were encountered due to the limited FM capacity of the URENCOs/SADCO, when the companies were in a transition period, from state-owned to autonomous public service companies. Some audit reports were submitted late because of delays in selecting audit firms. In the early stages of the Project, the PMUs and URENCOs/ SADCO had limited technical capacity to follow up and rectify problems and weaknesses raised by the auditors but there was progress



during the latter years of implementation. Late submission of audited financial statements in Haiphong was a breach of financial covenants of the project financing agreement, which required the audit financial statements and audit reports to be submitted within six (6) months of the financial year end.

**2.4.2 Environmental Safeguards:** During the preparation phase of the project Environmental Impact Assessments (EIA) and Environmental Management Plans (EMP) were prepared as the framework for safeguarding the environment from the impacts of project construction. The outline and content of the EMS was given in Contract Bidding Documents and covered cleaning and inspection of sewers, construction and operation of engineered landfills, rehabilitation and construction of lakes and channels, sewers and interceptors, and construction of workshops and new combined sewers. The focus of the EMS was to minimize dust, odor, litter, noise and traffic emissions, ensure appropriate safe working conditions; select transport routes to minimize/avoid public nuisance; provide proper equipment to transport and treat sludge to avoid accidental spills and odor nuisances; avoid working during the night; for landfill operations, avoid the bottom of landfill be constructed with an impervious liner, etc. Observed results were recorded in PMU’s data bases and original data was kept in the PMUs EMS archive.

**2.4.3** The construction management consultants reported on environmental compliance as required by the EMP, and PMUs took appropriate actions. Site inspections revealed adequate compliance with environmental requirements and that works carried out were generally implemented following the Conditions of Contract which required appropriate environmental mitigation measures. From time to time, review missions noted and requested that safety measures for workers needed to be better enforced by contractors.

**2.4.4 Social Safeguards:** Project preparation included the planning for resettlement of affected people, for which resettlement action plans (RAP) were prepared. Compensation rates applied for land and structure acquisition were sometimes lower than market prices and not always agreed by Project Affected Households (PAH) who were reluctant to accept the compensation offered. As with most projects in Vietnam land allocation procedures for resettlement took a long time which delayed site clearance. With long delay between compensation amounts being agreed and actual site clearance being necessary and compensation being paid, rates agreed were soon outstripped by rapid increases in land prices in the cities, an issue common to many projects in Vietnam. However, despite the difficulties with compensation and resettlement plot provision, there was overall compliance with the Resettlement Policy Frameworks (RPFs)/RAPs by the PMUs. Table 2.1 illustrates the numbers of affected households in all three cities. The actual numbers of PAH exceeded planned figures. Reasons for this included: some underestimation of original planned figures and the delays that occurred in project implementation which led to some newcomers on sites which were not always adequately controlled.

**Table 2.1 Social Safeguards**

City	Land acquired (ha)		Partially affected PAH		Fully affected PAH	
	Plan	Actual	Plan	Actual	Plan	Actual
Danang	na	Na	836	525	106	79
Haiphong	56	70	900	1897	107	350
Quang Ninh	268	333	545	1607	144	139
Total	na	na	2281	4029	357	568

**2.4.5 Procurement:** In keeping with the lessons learned in an earlier World Bank-funded operation in the sector, where all elements of infrastructure were bundled into one contract per city, multiple contracts per city were used to construct civil works and procure vehicles and equipment. There was no recorded evidence of collusion among bidders or other forms of malfeasance in the procurement process. However, Governments’ own protracted procurement processing had a substantial impact on progress, particularly during Phase 1 of the project. In Phase 2, procurement activities went more smoothly based on the experience gained in Phase 1.

Procurement delays are a common and systemic issue in Vietnam for two main reasons: decentralized responsibility for implementation, without parallel decentralization of the related approval authority; and differences in the procurement procedures of Government and the Bank. Each step of the procurement process, starting with design reviews, had to undergo multiple, often duplicative reviews within the central and local Government before being eventually submitted to the central authorities for final approval.

## **2.5 Post-completion Operation/Next Phase:**

The following activities will be undertaken post-completion:-

- Plans to increase the number of household connections between septic tanks and tertiary sewer mains through an Output Based Aid<sup>3</sup> approach are being put in place in Danang.
- Continued effort for tariffs increasing by URENCOs to cover O&M and depreciation.
- Awarding of service contracts to the private sector for expanded solid waste collection and disposal and septic tank emptying.
- Explore additional ways in which the PS might participate, e.g., vehicle and equipment service, billing and collection, electromechanical operations and maintenance.
- URENCOs to continue implementing the environmental monitoring plan; and
- Necessary budget be allocated to continue staff training.

## **3. Assessment of Outcomes**

### **3.1 Relevance of Objectives, Design and Implementation**

The project objectives remain highly relevant today. Improving the urban environment is still a central focus of the Government's strategy, and the pressures on the urban environment that created the original demand for the project have only increased. The project design has also retained its relevance as its core components cover basic urban services and are directly targeted at improving the urban environment. Implementation arrangements are still relevant as they reflected the Government's strategy of decentralization which is still a priority.

### **3.2 Achievement of Project Development Objectives**

All PDOs have been satisfactorily achieved<sup>4</sup>.

**3.2.1** The objective of sustained improvements to public health in the project area was achieved. However, as discussed in sections 2.1.2, this PDO was subject to external factors and the positive results measured by the project in the reduction of water-related and vector borne disease cannot be directly attributed to the project. Nevertheless, this objective can be evaluated in relation to the implicit objectives recognized by the task team as well as the outcome indicators. Section 1.3 discussed the project's use of an implicit indicator – the number of urban residents benefiting from the project. The number of beneficiaries is significantly greater than predicated at appraisal and these beneficiaries enjoy improved sanitation, reduced flooding, and a generally cleaner urban environment and they face a reduced risk of disease. The decline in the prevalence of water-related and vector borne diseases shown in the surveys is likely due to the indirect impact of the investments on the lives of project beneficiaries.

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<sup>3</sup> OBA is an approach to providing financial support to a service provider or consumer which is disbursed after an "output" has been delivered, as opposed to payment upfront, as with conventional aid.

<sup>4</sup> There is a discrepancy between the PDO rating of "MS" in the ISR (#18 archived on December 22, 2007 before the Credit closing on June 30, 2008) and the PDO rating of "S" in this ICR. ISR was again updated (#20) on April 24, 2009 after more data on project results became available. The final ISR upgraded the PDO to "S" which is again reflected in this ICR.

**3.2.2** The objective of increased economic development, by reducing the incidence of flooding; upgrading the urban environment; and developing more efficient and financially sustainable sanitation and drainage companies was also achieved. Increased economic development was measured through tourism statistics and the number of tourist nights and the amount of tourist revenue both increased significantly. While these observations cannot be tied directly to the project, it is likely that improved urban environments have had an indirect impact on tourism.

**3.2.3** Intermediate outcome indicators provide additional evidence that the project objectives were satisfactorily achieved. In those areas where drains were constructed, flooding has shown a marked decline. Quang Ninh has measured the improvement in flood control and shown significant improvements in 10 locations prone to flooding; Danang showed similar improvements in 5 locations measured by the project. Haiphong recorded a decline in the flooding area, depth and time at all at all sites most prone to serious flooding.

**3.2.4** Upgrading the urban environment was achieved through the investments in solid waste management, sanitation loans and sewerage and sewage treatment. Solid waste collection and disposal targets were exceeded in all project cities due to improved equipment, improved management of the URENCOs and greater awareness on the part of residents about the health benefits of a clean environment. Virtually all solid waste is removed from the cities within 24 hours. Solid waste and septic tank sludge are safely disposed to engineered landfill sites with appropriate treatment facilities. The sanitation component, consisting of revolving funds for new or improved on-site septic tanks and toilets facilities, exceeded loan targets and disbursed ahead of schedule in 2005 and was the subject of a very positive external evaluation. It promoted equity, by targeting low income households and is considered highly financially sustainable due to the revolving fund mechanism and the high repayment rates. Most households borrowed for construction or upgrading of septic tanks while the loans for house connections to sewers were less popular than anticipated due to slow completion of sewers.

**3.2.5** The urban environment was also improved through investments in wastewater collection and treatment. Investments in Danang and Quang Ninh (Halong and Cam Pha) have resulted in improved water quality to target levels and the three project cities are the only ones in Vietnam to have functional comprehensive wastewater collection and treatment systems. Measurements taken at Quang Ninh's tidal gates showed a reduction in BOD from 80 mg/l to 8 mg/l in 2003. Visual inspection of the beach areas during the first trial runs of the wastewater systems showed impressive results and the swimming areas were no longer affected by discharged wastewater. More house connections need to be made to the sewage collection system to improve the efficiency of the overall system.

**3.2.6** The project succeeded in developing more efficient and financially sustainable sanitation and drainage companies. The project's institutional development sub-components have enabled the URENCOs to become stronger and more sustainable institutions. Through the project, the concepts of cost recovery and user pay have been introduced to the Vietnam sanitation sector for the first time and legislation was enacted to further the goals of cost recovery – this was a major innovation and significant policy advance. URENCOs have improved their management skills and expertise in solid waste management, and have begun to operate more in the manner of a private sector company. Prior to the project, the URENCOs were primarily administrative entities with no commercial focus. With the support of the project, URENCOs have developed comprehensive business plans, and restructured the service delivery framework so that major public services, such as street and beach cleaning, are provided under a structured service agreement. Nevertheless, financial targets have not been achieved as tariff rates have not been raised sufficiently to cover the increased costs of operating new facilities. The Government is committed to providing sufficient O&M funds to cover these costs. In Haiphong, waste water

fees have been introduced to the consumer through water bills since 2000. The waste water fee of 15% of drinking water tariff has been applied since July 2006 and covers nearly 70% of O&M costs for the Haiphong SADCs.

**3.2.7** The project's attempts to introduce private sector participation into this sector for the first time in Vietnam have shown mixed results. In Danang the level of investment in new solid waste management equipment and the resulting improved service by URENCO made it difficult for the private sector to compete. Quang Ninh did contract out 100% of solid waste management. The contracting out of septic tank emptying was very successful in Danang with a 100% participation rate by licensed private operators. PSP in Haiphong was very low because the city policies did not encourage private sector participation and the Haiphong SADCO has sufficient manpower and specialized equipment to manage the tasks.

### 3.3 Efficiency

**3.3.1** The final ERR calculated for the project was slightly higher than the rate calculated at appraisal. The original calculation of the cost and benefits as contained in the PAD assumed that the project would cause a reduction in the incidence of water-related and vector borne diseases by an average of 15 percent, an increase in tourist nights by six percent, and increase revenue from tourism by eight percent. The indicators used to quantify these assumptions were meant to be proxies for the two PDOs: improved public health and economic development. The revised calculations made similar assumption, albeit with more conservative figures of benefits achieved. In addition the recalculation assumed increased benefits of 10% accruing to the additional households which were included in the project once savings of \$27 million were redeployed. The results are displayed in Table 3.2 below. The ICR estimated NPVs and ERRs are slightly higher than the PAD figures in all project cities and for the project as a whole. The notable increase in investment and O&M costs was sufficiently compensated by the increase in benefits, mainly by the extension of coverage.

**Table 3.1 Estimated Total Project Costs by Component**

Component (US\$M)	Costs		% of Total	
	Original	Final	Original	Final
Drainage 44	.81	58.32	37%	49%
Sewerage and Sewage Treatment	35.55	27.96	30%	23%
Solid Waste Management	23.05	8.01	19%	7%
TA and Construction Supervision	16.60	21.77	14%	18%
Revolving Funds	3.00	3.10	3%	3%
<b>Total</b>	<b>119.53</b>	<b>119.17</b>	<b>100%</b>	<b>100%</b>

**Table 3.2 Summary of Cost Benefit Analysis (USD\$M)**

	Danang		Haiphong		Quang Ninh		Overall	
	PAD	ICR	PAD	ICR	PAD	ICR	PAD	ICR
Benefit	29.3	34.5	19.3	23.2	28.2	37.0	76.9	94.7
Cost	23.7	28.2	19.0	22.9	18.5	26.3	61.1	77.4
NPV (Benefit-Cost)	5.6	6.2	0.3	0.9	9.7	10.7	15.6	17.0
ERR (%)	15.1	15.4	12.2	12.2	16.8	17.5	15.1	15.5

**3.3.2 Cost recovery:** The rate of cost recovery for sanitation services in all three cities was much lower than the mandated targets. The main reason for poor cost recovery results is the absence of the necessary increase in the tariffs as required under the agreed schedule. There were efforts by the URENCOs in all three cities to raise the fees. When approvals were given, the tariff was sometimes already out of date. For example, it was planned in Danang to raise the fee for waste water to 25% of water bills starting from 2001. In reality, the fee was only raised to

10% of the water bill, and then increased to a maximum of 13% in 2008. While this is an issue endemic to urban projects in Vietnam, it does not augur well for the financial sustainability of the URENCOs over the long term.

**Table 3.3 Cost Recovery (Percent of O&M and depreciation of moveable assets)**

Year	Quang Ninh		Haiphong		Danang	
	PAD Revised	ICR	PAD Revised	ICR	PAD revised	ICR
2003	69.3	8	68	50.2	100.5	5
2005	70.3	9	68	45.6	100.4	5
2006	81.4	5	83	47.6	100.5	0
2007	83.4	2	100.5	0	100.5	2

Note: Cost Recovery for Quang Ninh was calculated based on PMU reports. For Danang and Haiphong, they were derived from auditing reports of the sanitation companies. Audit report for Haiphong in 2007 has not yet been completed at the time of ICR preparation.

### 3.4 Justification of Overall Outcome Rating

The project rating of “satisfactory” reflects the success of the physical implementation of the works, and the increase in the number of beneficiaries of the project over the appraisal estimate. The physical works were implemented within the agreed budget, despite delays. Measurable changes in all five components of the project represent clear improvements in living conditions in the project areas for 1.7 million people. The rating also reflects the improvement of the institutional framework, as the utility companies have made some progress towards financial and technical sustainability. Despite difficulties in this area, the effort to introduce change was ground breaking and the project has helped move forward public sector reform in the sanitation sector.

### 3.5 Overarching Themes, Other Outcomes and Impacts

#### 3.5.1 Poverty Impacts, Gender Aspects, and Social Development

The project had a positive impact on low income families in the project areas and actively supported the role of women. Project improvements to the urban environment benefited all the populations in the project areas, but low income households tend to suffer the most from poor sanitation and so the impact on this part of the population is pronounced. The revolving fund facility targeted lower income families and enabled poor households to improve their quality of life. However, the poorest households were not eligible for the sanitation loans as they have access to other government funds for this purpose. The project placed importance on the role of women in project management. The revolving funds component was managed by the Women’s Union and women also played a major role in the information education campaign directed at improving health and sanitation knowledge. The project emphasized opportunities for female staff in technical, managerial and operational roles in the PMUs and the sanitation companies.

#### 3.5.2 Institutional Change/Strengthening.

The project had a positive impact on institutional change. The Vietnamese government is devolving responsibility and accountability from the central government to the provinces and cities. For this process to be successful, provincial and local institutions face a steep learning curve and must quickly build up institutional capacity. To this end, the project was able to support the strengthening of the URENCOs with a comprehensive program to produce accounting systems, O&M manual, a regulatory framework for PSP, environmental monitoring and HR training.

### 3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

N.A.

#### **4. Assessment of Risk to Development Outcome:**

Rating: “moderate”

There are three risks to sustainability. The first is low cost recovery through user charges by SADCO/URENCO for provision of sanitation services: Cost recovery was difficult to achieve under the project and the most recent data shows all three cities did not meet targets agreed at negotiations. Unless the utility companies are able to increase tariffs to cover operations and maintenance and depreciation of moveable assets, local government resources will be needed to cover costs. The Government is committed to provide adequate O&M budget until this issue can be resolved with necessary amounts allocated in each city. As per Table 3.3 these are equivalent with 58% in Quang Ninh, 50% in Haiphong and 48% in Danang respectively. A second risk is the lack of effective institutional arrangements to support decentralization and the financial autonomy of the utilities. The Government has taken steps to clarify the institutional arrangements for the provision of urban services by independent service providers. The shifting of the responsibility for sewage collection and wastewater treatment away from URENCOs to separate entities, leaving the latter to deal with solid waste collection and disposal, has clarified the roles of local bodies. Finally, the household connections to the networks need to be increased. The project design assumed financing for connections to sewers would be provided through counterpart funds and also that the households closed to sewers would finance the connection of their on-site septic tanks to the tertiary sewage mains in their neighborhoods. However delays in sewage construction meant that many households did not borrow for connections and some counterpart fund shortfalls also impacted construction. There are plans for the sewage connections to be financed through output based aid or through local budget.

#### **5. Assessment of World Bank and Borrower Performance**

##### **5.1 World Bank Performance**

###### **5.1.1 World Bank Performance in Ensuring Quality at Entry**

The Bank’s performance is rated “**moderately satisfactory**”. The project was designed appropriately for the conditions at the time and incorporated lessons learned from the previous operation in the water sector. However, the PDO was not properly designed and reflects lack of sufficient attention to designing practical M&E systems. The project design attempted to simplify procurement procedures, however the complications from the decentralization process were not anticipated.

**5.1.2 Quality of Supervision:** The project supervision team, including representatives of the bilateral agencies (Netherlands, Finland, Denmark, UK) , carried out implementation support missions twice a year, reviewing project progress, disbursement and procurement schedules and environmental, social, financial and other related issues. The project benefited from a high level of continuity within the IDA team and co-financiers throughout preparation and supervision. The fact that all team members were based in Vietnam meant that it was possible to carry out supervision continuously, on an “as needed” basis rather than intermittently. The task team consistently raised areas of concern, such as cost recovery and procurement delays. Supervision of M&E could have been stronger. World Bank performance is rated as “**satisfactory**”.

###### **5.1.3 Justification of Rating for Overall World Bank Performance**

The Task Team focused much of its attention on the implementation of the civil works, ensuring that systems were properly installed and the environmental safeguards and resettlement of PAH

were properly carried out. This attention no doubt contributed to the generally satisfactory delivery of the engineering output. The Team's oversight and participation in the strengthening of the URENCOs was critical and contributed to the improved managerial and technical capacity of the entities. Despite the short comings referred to in (b) above, on balance the Task Teams performance was rated as **"satisfactory"**.

## 5.2 Borrower Performance

**5.2.1 Preparation:** The borrower's preparation of the project is rated **"satisfactory"**. The project was based on an appropriate and effective strategy. MPI was mobilized significant bilateral support from Australia, Finland and Denmark to support the PMUs in project preparation. By the time the project was presented to the Board detailed designs had been completed for 80% of the project.

**5.2.2 Implementation:** The Government's implementation performance is rated **"satisfactory"**. The Government provided good support in many areas including the provision of counterpart funds. However, in the first stage of the project the Government was not able to adequately respond to Bank concern about procurement. Long procurement delays were the result of procurement procedures which required multiple, often redundant, reviews of designs and contract awards at local and central levels, and on occasion, by the Prime Minister's Office. The performance of the implementing agencies is rated **"satisfactory"**. After the separation of the PMUs from their respective Danang and Quang Ninh URENCOs the role of the URENCOs became less pronounced as their functions were limited to solid waste management and septic tank emptying, PMUs remained proactive using consultant inputs effectively. There was a low turnover amongst the implementing agency staff.

**5.2.3 Justification of Rating for Overall Borrower Performance:** The performance of the borrower is rated **"satisfactory"**. The performance of the Government was good with respect to meeting its commitment for providing counterpart funds. However approval procedures remained a major bottleneck to progress, hence the rating of unsatisfactory. Danang and Haiphong performance was stronger and the project progressed more rapidly. Implementing agencies generally performed well, despite constraints imposed by local regulations and competing systems of procurement and environmental rules. In Quang Ninh, the project experienced greater delays due to poor capacity of the contractor and delays in site clearance and performance was only moderately satisfactory. On balance, the overall rating is **"satisfactory"**.

## 6. Lessons Learned

- i. **Definition of PDOs:** Care should be taken to ensure that PDOs are appropriate and practical, measurable and attributable to the project.
- ii. **Cost recovery:** The project successfully introduced the concept of user pay in the sector. However, cost recovery targets proved to be too ambitious and did not adequately account for the slow pace of change in the legal framework and the risk of economic crisis slowing plans to raise fees.
- iii. **House connections to sewer mains:** Slow uptake of house connections by households in the project areas has reduced the efficacy of the sewerage system installed under the project. Future project should consider working with the Government to include house connections as part of the civil works.

- iv. **Streamlined approval mechanisms:** Future projects working at a sub-national level need to address the issue of protracted delays in the approval of contracts, compensation and site clearances. Strong commitment by local government is critical.
- v. **Ensure some design capacity in construction management teams:** The frequent need for design changes in the field on account of unforeseen circumstances in the works requires some capacity in the CM teams to propose design changes without the need to resort to engineering consultants.
- vi. **Ensure the capacity of supervision consultants, of the contractors:** These firms need to have not only technical expertise/financial ability but also contractual management/project management capacity. Adequate resources need to be mobilized for achieving satisfactory performance.
- vii. **Capacity building of sanitation and drainage companies:** The valuable lessons on building the capability and services of sanitation and drainage companies need to be captured in a systematic manner to guide future projects.

## **7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners**

- (a) Borrower/Implementing agencies (See Annex 7)
- (b) Co-financiers (See Annex 8)
- (c) Other partners and stakeholders (N/A)



## Annexes

### Annex 1: Project Costs and Financing

#### (a) Project Cost by Component (in USD Million equivalent)

- Actual values for each sub-project

Components	Danang	Haiphong	Quang Ninh	Total
Drainage	21.8	26.5	10.02	58.32
Sewerage and Sewage Treatment	5.87	9.7	12.39	27.96
Solid Waste Management	4.06	0	3.95	8.01
Technical Assistance and Construction Supervision	7.41	7.3	7.06	21.77
Revolving Fund	0.96	1.1	1.04	3.10
<b>Total</b>	<b>40.11</b>	<b>44.6</b>	<b>34.46</b>	<b>119.17</b>

- Summary for all three subprojects

Components	Appraisal (USD mill)	Actual (USD mill)	Percentage of Appraisal
Drainage	44.31	58.32	134%
Sewerage and Sewage Treatment	32.56	27.96	86%
Solid Waste Management	23.06	8.01	35%
Technical Assistance and Construction Supervision	16.60	21.77	131%
Revolving Fund	3.00	3.10	105%
<b>Total Baseline Cost</b>	<b>119.53</b>	<b>119.17</b>	<b>99%</b>
Physical Contingencies	0.00	0.00	
Price Contingencies	0.00	0.00	
<b>Total Project Costs</b>	<b>119.53</b>	<b>119.17</b>	<b>99%</b>
Front-end fee PPF	0.00	0.00	
Front-end fee IBRD	0.00	0.00	
<b>Total Financing Required</b>	<b>119.53</b>	<b>119.17</b>	<b>99%</b>

#### (b) Financing

- Actual values for each sub-project

Source of Funds	Danang	Haiphong	Quang ninh	Total
Government	8.07	11.9	5.59	<b>25.56</b>
IDA 30.8	0	25.5	19.23	<b>75.53</b>
Others: AusAid, Finnida, Danida	1.24	7.2	9.64	<b>18.08</b>
<b>Total</b>	<b>40.11</b>	<b>44.6</b>	<b>34.46</b>	<b>119.17</b>

- Summary for all 3 sub-projects

Source of Funds	Cities	Type of Co financing	Appraisal (USD mill.)	Actual (USD mill.)	Percentage
Government	All cities	Joint	20.29	25.56	125%
IDA	All cities	Joint	80.50	75.53	93%
AusAid	Danang	Parallel	1.24	1.24	100%
Danida	Quang Ninh	Joint	11.7	9.64	82%
Finnida	Haiphong	Parallel	5.80	7.2	124%

## Annex 2: Outputs by Component

Details of facilities provided by city compared to appraised elements are as follows:-

### Danang

Element	As Appraised	As Implemented
<b>Drainage</b>	Cleaning and safe disposal of some 81,500m <sup>3</sup> of silt from rivers and existing drains	Due to design changes, the dredging of Phu Loc River (81,500 m <sup>3</sup> ) was deleted. However, 1489 m <sup>3</sup> of silt was dredged from existing drains in town
	Upgrading 14 kilometers of drains	1567 meters of drains were provided with new covers. Many kilometers of old drains were replaced by new drains as included in the new drains lengths.
	Constructing 18 kilometers of new drains	A total length of 16,807 m of new drains was constructed. <sup>5</sup>
	Upgrading roadside entry pits and grit traps;	284 roadside entry pits with grit trap were constructed, as well as 5 long side entry pits at locations with traditionally heavy flooding
<b>Sewerage and Sewage Treatment</b>	17kilometers of interceptor sewers/outfall pipelines	17.4 kilometers implemented
	21 submersible pumping stations (SPS)	23 SPS finally constructed due to re-design
	21kilometers of rising mains	19.4 kilometers finally constructed due to re-design
	Procurement of a limited amount of specialized equipment for emptying septic tanks and cleaning sewers by high-pressure jetting	Done as designed with small tools for URENCO for O&M
	Four low-cost wastewater treatment plants with total capacity 89,200m <sup>3</sup> /day	Done as designed. Daily capacity was based on a retention time of 4 days. However, plants will operate satisfactorily at much shorter retention times, so actual capacity is much higher.
	50 public toilets (PT)	19 public toilets built after design changes
	Operational programs for regular desludging of septic tanks will be developed and implemented.	Done as designed
<b>Solid Waste Management</b>	Procurement of 6 collection trucks, 6 lift on-off trucks with associated containers, mobile covered storage bins	Done as designed.
	Construction of 14 small transfer stations (TS).	11 TS built and renamed as Environmental Service Centers.
	Construction of a sanitary landfill (45ha), including leachate treatment lagoons	A landfill (50ha) including leachate treatment built.
		<b>Additional goods/works funded by project saving:</b> - Equipments purchased: 16 waste compactors, 3470 mobile bins, a bulldozer and associated items - Constructed/upgraded 7.3km drains, constructed 7.3km WW sewers, 6 pump stations and associated works

<sup>5</sup> Almost all new drains were re-designed whereby large single new drains would replace two smaller drains. The effective length of the drains is much larger, therefore, than would appear from the numbers shown.

## Haiphong

Element	As Appraised	As Implemented
<b>Drainage</b>	Rehabilitating and lining of embankments of 6 kilometers large open drains, rehabilitating banks of 7 kilometers storm retention lakes,	Done as designed
	Repairing 8 sets of tidal gates and dredging of 100,000 cm from 7 retention lakes, 6 kilometers of open drains	Done as designed
<b>Sewage and Sewage Treatment</b>	Cleaning, rehabilitating 70 kilometers combined sewers, construct 20 kilometers new/replacement sewers	Done as designed
	Construct 20 kilometers interceptor sewers and 8 pumping stations	Done as designed
	Cleaning/ rehabilitation of 100 kilometers secondary and tertiary sewers	Done as designed
	Construction of septage treatment pond	Done as designed
		<b>Additional works funded by project saving:</b> <ul style="list-style-type: none"> <li>- Construction and rehabilitation of Phuong Luu (22ha) and Cat Bi (3ha) regulation lakes;</li> <li>- Construction and rehabilitation of interceptor sewers, 8 wastewater pumping stations and construction of maintenance/access roads</li> </ul>

Note: no solid waste management investments in Haiphong

### Quang Ninh: Ha Long City (Bai Chay (BC) Area and Hon Gai (HG) Area)

Element/	As Appraised	As Implemented
<b>Drainage</b>	Construct/rehabilitate 11.6 kilometers of channel/streams (BC)	8.2 kilometers channels completed due to design changes
	Construct and rehabilitate 19.4 kilometers of channel/streams (HG)	20.2 kilometers of channels/streams completed
<b>Sewer and Sewage Treatment</b>	Construct 9.1 kilometers of gravity sewer and 8 pumping stations (BC)	7.7 kilometers of gravity sewers and 6.2 kilometers of pressure pipes and 8 pumping stations completed
	Construct Bai Chay WWTP (capacity 3,500m <sup>3</sup> per day)	Done as designed
	Construct septic sludge treatment facility, capacity 10 m <sup>3</sup> per day (BC)	0.8 ha sludge treatment facility 10 m <sup>3</sup> per day completed
	Construct 0.48 ha septic sludge treatment facility, capacity 56m <sup>3</sup> per day (HG)	0.5 ha septic sludge treatment facility, capacity 56m <sup>3</sup> per day completed
<b>Solid Waste Management</b>	Construct 4.2 ha sanitary landfill (BC)	4.4 ha landfill completed
	Construct 5.2 ha sanitary landfill (HG)	3.8 ha sanitary landfill completed
	Vehicles and equipment (BC & HG)	Same quantities as approved
		<b>Additional works funded by project saving (Phase2):</b> <ul style="list-style-type: none"> <li>- Completion of WW pumping stations 630m<sup>3</sup> per day;</li> <li>- Completion of Ha Khanh WWTP (capacity 7,000m<sup>3</sup> per day), WW collection systems and access road</li> <li>- Rehabilitation of channels/streams in Halong City</li> </ul>

### Quang Ninh: Cam Pha Town

Element/	As Appraised	As Implemented
<b>Drainage</b>	Construct/rehabilitate 32.2 kilometers of channels/streams	32.2 kilometers of channels/streams completed
<b>Sewage Treatment</b>	Construct 0.48 ha septic sludge treatment facility, 56m <sup>3</sup> per day (CP)	Completed as designed
<b>Solid Waste Management</b>	Construct 6.3 ha landfill	5.5 ha sanitary landfill completed
	Vehicles and equipment for URENCO	Completed as designed
		<b>Additional works funded by project saving (Phase2):</b> <ul style="list-style-type: none"> <li>- Completed rehabilitation of streams;</li> <li>- Combined sewers</li> </ul>

### Annex 3: Economic and Financial Analysis

(including assumptions in the analysis)

The project delivered the planned work at costs lower than estimated in PAD. Significant savings (amounting \$27.2 million) were used to fund additional works in all three cities/province. In general all components have been completed with works and goods contracts satisfactorily delivered

The economic and financial analysis at completion of the project relied on the same methodology as at appraisal.

#### Service Contracting and Cost recovery

Cost Recovery of the Sanitation Company by project site (%)

	Quang Ninh		Haiphong		Danang	
	PAD Revised	ICR	PAD Revised	ICR	PAD revised	ICR
2003	69	38	68	50.2	100	55
2005	70	39	68	45.6	100	45
2006	81	45	83	47.6	100	50
2007	83	42	100	--	100	52

Note: Cost Recovery for Quang Ninh was calculated based on PMU reports. For Danang and Haiphong, they were derived from auditing reports of the Sanitation Companies. Audit report for Haiphong in 2007 has not yet been completed at the time of ICR preparation.

The rate of cost recovery of all three cities was much lower than the revised target. Danang recorded the highest cost recovery, but the revenue was only just above one half of the cost for operation and maintenance.

The main reason for not achieving cost recovery targets were that the fees for services could not be raised according to the agreed schedule. There were efforts of authorities in all three cities to raise the fees. However, this proved to be a very difficult task to fulfill. For example, it was planned in Danang to raise the fee for waste water to 25% of water bills starting from 2001. In reality, the fee could only be raised to 10% of the water bill, and then increased to a maximum of 13% in 2008.

Another cause of low cost recovery was the rapid increase of costs for operation and maintenance. Major components of operating expenses witnessed considerable increases during the project life. Wages were revised several times. For example, a 30% increase in all workers salaries from Jan 1, 2003 significantly increased costs. Electricity costs increased significantly. A recent decision of the Government to raise the electricity fees by nearly 9% will have a significant impact on cost recovery of the operations. In addition, high rates of inflation caused by the surge in commodity prices in recent years also contributed significantly to the rising of cost of operation.

An example of large difference between cost estimate and actual cost can be seen with solid waste collection in Halong and Cam Pha. Only a few year after the appraisal, the actual cost for solid waste collection in Halong was 50% higher than the projected cost for 2003; and in 2004, the actual cost for solid waste collection in both Cam Pha and Halong was more than twice as much as the projected cost.

Despite the low cost recovery, a significant achievement of the project was the implementation of service contracting in Quang Ninh and Danang. The PCs of Danang, Halong and Cam Pha have all entered into such contracts and have found that it has improved the accountability of their utility companies. Anecdotal evidence also suggests that people have been highly satisfied with improved quality of services of the utility companies after the move to service contracting.

### **Economic Analysis**

The main economic benefits resulted from the implementation of the project are (a) reduced flood damage; (b) increased tourism; (c) improved public health; and (d) avoided sanitation costs.

There are two major factors that could have significantly positive and negative impacts on the estimation of the economic benefits of the project. On the positive side, the use of savings for extended sanitation work in three cities resulted in significant increased coverage of drainage which in turn led to higher economic benefits as flooding was considerably reduced and more people benefitted from improved water sanitation.

On the other hand, benefits related to tourism are quite sensitive to unforeseen events such as the occurrence of natural disaster and severe epidemic or economic turbulence. Vietnam's tourism has been negatively affected by all these factors. Danang and Quang Ninh were severely affected by both Avian Flu and the strong tropical storms in 2005-06, and actual revenues from tourism even decreased over the period 2003-05. Since benefits from tourism accounted for the largest share of the total benefits, notable declines in the growth of number of visitors over the last few years would no doubt have negative impact on the overall benefits and economic returns.

Note: economic benefits related to improved public health and increased economic development, the two PDOs, require major assumptions about the extent to which the project is supposed to produce the expected outcomes in a reduced level of communicable diseases and an increase in tourism. The assumptions required are subjective to the extent they rely on very little data.

The ICR analysis relied mostly on the same assumptions as that of PAD. Some of these were modified slightly, to reflect better the trend in the last few years, and also the change of the scope of work due to extension. In addition, the timeframe for the ICR analysis started from 2001, the year actual investment took place, instead of 1999 as in PAD analysis. Some changes in the calculations reflected the change in population of the project cities.

A summary of the PAD and ICR costs and benefits are shown in the table below. Significant higher values of NPV for investment resulted from two factors: (i) change in the pattern of investment with much heavier outlay in the first two years as compared with the plan; and (ii) depreciation of VND vis-a-vis USD. If the depreciation were to be taken into consideration, the increase became rather insignificant.

The ICR estimated NPVs and ERRs are slightly higher than the PAD figures in all project cities and for the project as a whole. The notable increase in investment and O&M costs was sufficiently compensated by the increase in benefits, mainly by the extension of coverage and by the rapid increase in the number of visitors and revenues from tourism.

It should be noted that the adopted ICR assumptions about tourism-related benefits attributed to the project implementation were even less generous than that of PAD. The increase in tourism benefits resulted solely from the much faster rate of growth of both visitors and revenues in the period of project implementation. For example, the projected number of visitors in Quang Ninh for 2007 was less than one seventh of the actual figure. It was also the main reason behind the large gains in both NPV and ERR for Quang Ninh.

### Summary of Cost Benefit Analysis

	<b>Danang PAD</b>	<b>ICR</b>	<b>Haiphong (HP)</b>	<b>ICR</b>	<b>Quang Ninh</b>	<b>ICR</b>	<b>Overall Project</b>	<b>ICR</b>
<b>Benefit Million VND</b>	<b>470,926</b>	<b>555,304</b>	<b>310,169</b>	<b>373,570</b>	<b>453,534</b>	<b>595,906</b>	<b>1,234,629</b>	<b>1,524,781</b>
<i>Increased tourism income</i>	171,317.2	01,594	0	0	347,999	451,220	519,316.6	52,814
<i>Avoided private costs</i>	20,619.2	7,712.1	6,495	19,398.1	4,034	20,811		67,921
<i>Avoided flood damage</i>	166,855.1	93,552.2	49,640	293,707	16,028	22,977	432,523.5	10,235
<i>Health</i>	112,134.1	32,447	44,034	60,465	75,473	100,899	231,642.2	93,811
<b>Cost Million VND</b>	<b>380,808</b>		<b>305,246</b>		<b>297,209</b>		<b>983,263</b>	
<i>Investment</i>	313,340	<b>454,820</b>	279,814	<b>368,269</b>	275,516.42	3,461	868,669	<b>1,246,551</b>
<i>Operation &amp; Maintenance</i>	67,468.3	72,734	25,432	319,291	21,693	361,452	114,593	1,053,478
O & M in Million US\$	4.22.8	2,086	1.59	48,978	1.36	62,010	7.16	193,074
<b>NPV (Benefit- Cost) Million VND</b>	<b>90,118</b>	<b>100,484</b>	<b>4,923</b>	<b>5,301</b>	<b>156,325</b>	<b>172,445</b>	<b>251,367</b>	<b>278,230</b>
ERR	<b>15.10%</b>	<b>15.4%</b>	<b>12.27%</b>	<b>12.29%</b>	<b>16.80%</b>	<b>17.51%</b>	<b>15.10%</b>	<b>15.5%</b>

## Annex 4: World Bank Lending and Implementation Support/Supervision Processes

### (a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
<b>Lending</b>			
Alan Coulthart	Lead Municipal Engineer/TTL	EASVS	Municipal Engineer
Hoi-Chan Nguyen	Senior Counsel	EASVS	Legal
William Kingdom	Lead W&S Specialist	EASUR	Sanitation
Cuong Duc Dang	Sr. Operations Officer	EASVS	Economics
Quyen Do Duong	Finance Analyst	LOADM	Economics
Hoa Thi Hoang	Sr. Operations Officer	EASVS	Community develop.
Giang Thi Huong Nguyen	Program Assistant	EACVF	General assistance
Hoa Thi Mong Pham	Sr. Social Development Specialist	EASVS	Social development
Hung Viet Le	Financial Management Specialist	EAPCO	FM
Phuong Thi Thanh Tran	Sr. Environmental Specialist	EASVS	Environment
Kien Trung Tran	Sr. Procurement Specialist	EAPCO	Procurement
<b>Supervision / ICR</b>			
Alan Coulthart	Lead Municipal Engineer/TTL	EASVS	Municipal Engineering
Hung Duy Le	Senior Operations Officer/ TTL at Closing	EASVS	Operations/TTL
Laurent Msellati	Portfolio and Operations Manager	EACVF	Portfolio
Hoi-Chan Nguyen	Senior Counsel	EASVS	Legal
Cuong Duc Dang	Sr. Operations Officer	EASVS	Economics
Hoa Thi Hoang	Sr. Operations Officer.	EASVS	Community developm.
Giang Thi Huong Nguyen	Program Assistant	EACVF	General assistance
Hoa Thi Mong Pham	Sr. Social Development Specialist	EASVS	Social development
Phuong Thi Thanh Tran	Sr. Environmental Specialist	EASVS	Environment
Kien Trung Tran	Sr. Procurement Specialist	EAPCO	Procurement
Cung Van Pham	Financial Management Specialist	EAPCO	FM
Quynh Xuan Thi Phan	Financial Management Specialist	EAPCO	FM
Quang Hong Doan	Senior Economist	EACVF	Finance & economics
Nga Thi Quynh Dang	Country Trust Fund Coordinator	EACVF	Trust fund
Quyen Do Duong	Finance Analyst	LOADM	Economics
Thao Thi Do	Finance Analyst	LOADM	Disbursement
Ninh Quang Nguyen	Program analyst	EACVF	Disbursement



**(b) Staff Time and Cost**

Stage of Project Cycle	Staff Time and Cost (World Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
<b>Lending</b>		
FY98		188.71
FY99		266.44
FY00		0.00
FY01		0.00
FY02		0.00
FY03		0.00
FY04		0.00
FY05		0.00
FY06		0.00
FY07		0.00
FY08		0.00
	<b>Total:</b>	<b>455.15</b>
<b>Supervision/ICR</b>		
FY98		0.00
FY99		2.13
FY00	45	77.35
FY01	40	62.00
FY02	45	62.47
FY03	53	68.23
FY04	52	69.91
FY05	33	58.61
FY06	26	54.97
FY07	23	54.91
FY08	6	12.60
	<b>Total:</b>	<b>523.18</b>

**Annex 5: Beneficiary Survey Results**

Not required

## **Annex 6: Stakeholder Workshop Report and Results**

Not required

## **Annex 7: Summary of Borrower's PCRs and/or Comments on Draft ICR**

All participating cities submitted their PCR (See Annex 9). Based on the information/comments provided, the TTL and the ICR Authors (Mr. Richard Beardmore and Ms. Julia Li) prepared several draft ICRs. The revised draft Version 4.0 was circulated to Borrower and other partners for comments. Below are the list and content of comments received so far:-

### **Comments from the Ministry of Planning & Investment (Email dated 13 May, 2009)**

Firstly I would like to congratulate WB and three cities for successful completion of the Three Cities Sanitation Project. I would like to give some comments as follows:-

- In general the project has met the set target. This is the first sanitation project which dealing with a comprehensive issues, including sewers and sewage treatment system.
- The project also changed the management style of the Sewerage and Drainage Company in Hai Phong or urban environment companies in other cities. In which, these companies have moving from mostly financed by the local government budget to sustained by themselves through the principle of cost recovering mechanism. This mechanism is also now start to be applied to other cities in the countries and is a method that should be followed.
- The implementation of the project showing a strong commitment from both provincial authorities and the WB, the effective coordination between the WB and Vietnam authorities through the scheduled meeting to review the progress of the project.
- Decentralization in this project has shown its strength.

Nevertheless, the project has also faced some difficulties in implementation that we should take note for other similar projects in the future:-

- The bidding problems: Some contractors are not good and not implement as they committed (the contractor in Quang Ninh,...) which make the project delayed.
- The selection of contractor should be made more carefully and sometime the contractors who have the best score are not the best one.
- Site clearance: Even with the high commitment from local authorities, as other project in Vietnam, site clearance remains a difficult issue to tackle. Due to the different b/w WB and Vietnam procedure, for the future project, the DCA should mention more detailed and clearer the resettlement framework to help the implementation agencies to be easier to follow.

Thanks and best regards,  
TRAN NGOC LAN (Mr.)  
Expert, Foreign Economic Relation Department  
Ministry of Planning and Investment (MPI)

- **Comment/Action by ICR Team Leader/Author:** The above comments are reasonable. Necessary revisions were made in this version.

**Comments from Quang Ninh Sub-project (Email dated 7 May 09)**

**HALONG CITY-CAM PHA DRAINAGE AND SANITATION MANAGEMENT UNIT**

No. 4, Cao Xanh Road, Ha Long City, Quang Ninh Province.

Tel: 84-33-625206

Fax: 84- 33- 627402

E-mail: [pmu-moitruonghl@hn.vnn.vn](mailto:pmu-moitruonghl@hn.vnn.vn)

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**Fax transmission** Date

: **07/5/2009**

**To:** Worlbank Office in Ha Noi

**Att.:** **Mr. Le Duy Hung**  
Task Team Leader

**Fax: 033. 622.854**  
Number of page: 01

**From:** **Phan Cam Pha**  
Director of PMU

Fax: 033. 627.402

**Cc:** Mr. Do Thong-Vice-chairman, QNPPC Letter no.: /PMU  
Mr. Dao Thanh Binh- Director of URENCO Ha Long  
Mr. Pham Van Tan- Vice-director of PMU  
Mr. Nguyen Nhu Nghia – PMU  
Ms. Nguyen Thi Huong Giang-Program Assistant

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*Ref. Quang Ninh Sub-project: PMU's comments to the draft ICR*

Dear Mr. Hung,

Thank you for your email of 24.04.2009 and the attached draft Implementation Completion Report, we would like to have some comments to this as follows:

In general, we agree with the outline and contents of the draft ICR. We however propose some amendments for number of parts in the ICR:-

1. In Item 1.7.2 (page 10), in paragraph: "**Additional works included expended drains in Ha Long City, and construction of a new WWTP in Cam Pha.....**". Please amend as "*Additional works included expended drains in Ha Long City and Cam Pha Town, and construction of a new WWTP in Hon Gai concentratively populated and administrative area of Ha Long City*".
2. In the Item 5.2.3 (page 23), in paragraph remarking Quang Ninh project: "**..In Quang Ninh, the project experienced greater delays in procurement and site clearance....**". In the fact that, the delays was not caused by the procurement, we therefore propose to reorrect as "*...In Quang Ninh, the project experienced greater delays due to poor capacity provided by the Contractor and site clearance....*".
3. In the Part A- Outcome: Regarding the second dash of the second sub-item (b) ( page 39), we propose to re-state as follows: *A plan of increase of wastewater charge according to freshwater bill was drawn out in the FS Document for Loan Agreement with the Bank. People's Committee of Quang Ninh Province had issued Decisions regarding increase of wastewater charge for 5 times, from the flat fee of VND 200 per m3 to 10÷15% surcharge on water supply*".
4. In the Item regarding Completion of the Civil Works Contracts (page 40), at paragraph: "**At the time of completing this draft report no further actions had been taken.**", we propose to rewrite as follows: "*After consideration solutions, Quang Ninh Provincial People's Committee as well as PMU had conducted stronger actions, namely*

*broadcasting the poor capacity provided by the contractor on National Television, issuance of request letter to Ministry of Construction ( Construction Company is directly under MOC) for assistance. After that move, the Contractor had mobilized more execution units which resulted in successfully completion of Bai Chay WWTP and it is handed over to the Employer for operation in the end of May 2007"*

If there are any unclear points regarding our comments, please do not hesitate to contact us.

By the way, please be informed that Ha Khanh WWTP is reaching the end of commissioning period. The recent tested samples are shown that treated wastewater meets Vietnamese Standard. It is expected to be handed over to the Employer on May 25th, 2009.

Thank you for your assistance.

Yours truly,  
Phan Cam Pha  
Director of PMU

- ***Comment/Action by ICR Team Leader/Author:*** The above comments are reasonable. Necessary revisions were made in this version.

#### **Comments from Hai Phong Sub-project (Email dated 13 May 09)**

Dear All,

Please find attached the file with some highlighted comments from Haiphong PMU for the ICR. Please reconsider carefully ERR for Haiphong project.

Do Trong Dat, Haiphong PMU



P051553\_3CS\_ICR\_Ver4.0\_April20,09-for cmt.doc

- ***Comment/Action by ICR Team Leader/Author:*** It was agreed from the project design that no touristic figures in Haiphong will be included in the economic analysis. Other comments were incorporated in this version.

#### **Comments from Da Nang Sub-project (Email dated 13 May 09)**

Dear anh Hung,

Please find the Danang PMU's comments on ICR of Sanitation Project (English version).

Best regards,

Ho Tuong Huy

Vice Director of Danang PIIPs PMU

54 Thai Phien St., Danang City

Tel: (84-511) 3562677 - 3562679 / Fax: (84-511) 3562678



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- ***Comment/Action by ICR Team Leader/Author:*** The above comments are reasonable. Necessary revisions were made in this version. The Danang map was revised as requested.

## **Annex 8: Comments of Co-financiers and Other Partners/Stakeholders**

### **Comments from Embassy of Finland (Email dated 12 May 09)**

**EMBASSY OF FINLAND**

**Hanoi**

***Re: Three Cities Sanitation Project***

Mr. Le Duy Hung, Task Team Leader  
World Bank, Hanoi, Vietnam

Re: Your letter 29 April 2009

We have a pleasure to congratulate World Bank and all parties involved to successfully implementing the demanding Three Cities Sanitation Project in Vietnam. According to the Completion Report the relevancy of the project has been high and the implementation most satisfactory.

The draft of the Implementing and Completion Report for the Three Cities Sanitation Project is very informative and makes interesting comparisons between three case cities of Hai Phong, Danang and Quang Ninh. Finland has been involved with Hai Phong City and from our experience we can agree that the conclusions of the Report are correct. We are also pleased to observe that the quality of supervision has been rated good. That has been the major Finnish contribution in Hai Phong. These kinds of projects normally have many complications and problems. That was also the experience in Hai Phong, but finally issues were settled in time in a good co-operation between relevant parties.

Cost benefit analysis shows positive cost/ benefit ratio in general, also in Hai phong. However, it is a pity that the increase of tourism income has not been evaluated in the case of Hai Phong. That makes Hai Phong figures low and non-comparative with other cities. Hai Phong City is a remarkable feeding hub for tourists to Halong, Cat Ba and Do Son. It is most probable, that hygiene environment makes Hai Phong a more attractive gate to the final tourist estimations. During the monitoring period, the number of tourists increased 100 % in Hai Phong. The financial impact of that should not be ignored.

One of the key sustainability factor of the sanitation schemes is the financial status of the operating companies in the sanitation sector. The issue is discussed in a few chapters in the report. However, the discussion leaves many issues open and does not reach a proper analytical level.

Sincerely yours  
Max von Bonsdorff  
Head of Development Cooperation  
Embassy of Finland

**Comment/Action by ICR Team Leader/Author:** As mentioned earlier, no touristic figures in Haiphong will be included in the economic analysis. Other comments were incorporated in this version. In addition, the TT would like to thank FINNIDA for their excellent cooperation and strong commitment in Haiphong. This was a great example of good bilateral/ co-financing.

**Comments from Mr. Antti Nykanen, Team Leader, CMC in Hai Phong (Email dated 18 May 09)**

Dear Hung,

I have reviewed the report and I don't find any incorrect issues there. In general there are a lot of good findings (especially in M&E) which will be useful in following the CCESP. Could you send me a copy of Cofinancier's (Ministry for Foreign Affairs) comments. It would be interesting to see what they have commented.

Best regards,  
Antti N.

➤ **Comment/Action by ICR Team Leader/Author:** Not required.

**Comments fr. Mr. Sytze Jarigsmma, Team Leader, CMC in Danang (Email dated 11 May 09)**

Dear Giang and Hung,

From the DHV side, there are no comments on the draft ICR. Many of the Tables used in the ICR on the Danang project originate from a draft report prepared by us in cooperation with Gerry Glazier (Institutional component) and they have not changed, as far as we know.

However, the drawing sent to us separately, later on, is far from correct. I have contacted Mr. Huy of the PMU PIIP Danang and I understand that the PMU will send you an updated picture that shows the wastewater component correctly and that also will include the drainage component.

Kind regards,

Sytze Jarigsmma  
On behalf of DHV  
CMC of Danang component

➤ **Comment/Action by ICR Team Leader/Author:** Danang map was revised and accepted for this version.



## **Annex 9: List of Supporting Documents**

PMU Haiphong, *Haiphong Sub-Project: Project Completion Report, December 2007*  
PMU Danang, *Danang Sub-Project: Project Completion Report, December 2007*  
PMU Quang Ninh: *Quang Ninh Sub-Project: Project Completion Report, March 2009*

World Bank, *Project Appraisal Document for Three Cities Sanitation Project Report  
No.18796, April 22, 1999*

World Bank, *Minutes of Negotiation, March 1999*

World Bank, *Development Credit Agreement Cr No. 3211 VN, August 3, 1999*

World Bank, *Copies of Aide Memoire, Management Letters*

World Bank, *Copies of Implementation Status Reports (ISRs)*

John Martin, *Lessons Learnt From Review For Guiding Preparation Of Future  
Sanitation Projects, October 2003*

Cu Thuy and Sophie Trémolet: *Case Study: Sanitation Revolving Fund in Vietnam, Draft  
Report, March 2009*

## Annex 10: Danish Trust Fund for Quang Ninh Sub-Project

### IMPLEMENTATION COMPLETION MEMORANDUM (ICM) TRUST FUND TF No. 024899 THREE CITIES SANITATION PROJECT IN VIETNAM (As agreed with the Country Trust Fund Coordinator)

#### A. BASIC TRUST FUND INFORMATION

**TF Name:** Danish Trust Fund for the Three Cities Sanitation Project in Vietnam  
**TF Number:** TF No. 024899  
**Task Team Leader Name/TF Managing Unit:** Mr. Hung Duy Le  
**TF Amount (as committed by the donor):** DKK 32,634,000 (USD 5,944,642.07)  
**Recipient of TF funds (Bank/Recipient, if Recipient state name of recipient government and implementing agency):** People's Committee of Quang Ninh Province, Vietnam  
**Program Management Unit Director:** Dr. Le Van Minh, Director General, International Cooperation Department, Ministry of Agricultural and Rural Development (MARD)  
**Type of TF:** Free-standing  
**Single/Multi Donor:** Single  
**Donor(s) Name(s):** Kingdom of Denmark, through DANIDA  
**TF Program Source Code:** VN-FS  
**Purpose of TF:** Co-financing  
**TF Approval/IBTF Clearance Date:** 01 March 2001  
**Grant Agreement Signing Date:** 15 May 2001  
**TF Closing Date(s):** 30 April 2006  
**Date of ICM Submission to TFO:** March 20, 2009  
**Cost and Financing Table:**

Category	Allocated Amount	Actual Disbursement
	DKK	DKK
Works under Part A.1 and A.4 of the Project	25,334,000	24,928,331.60
Sanitation Sub-loans for Cam Pha and Ha Long under Part C of the Project	7,300,000	7,291,712.83
Quang Ninh Part A Special Account	0	-37,654.56
Quang Ninh Part C Special Account	0	337,064.39
<b>Total</b>	<b>32,634,000</b>	<b>32,519,454.26</b>
Cancellation 114,		545.74

#### B. TRUST FUND DEVELOPMENT OBJECTIVES AND DESIGN

##### 1. Original (and Revised) Trust Fund Development Objectives

a) Sustained improvements to public health; and b) Increased economic development by reducing the incidence of flooding, upgrading the urban environment, and developing more efficient and financially sustainable sanitation and drainage companies (URENCOs) in Quang Ninh Province (Ha Long City and Cam Pha Town).

## 2. Original (and Revised) Trust Fund Activities/Components

- Bai Chay Sanitation (DKK 25.3 millions): Drainage, sewerage and sewage treatment, solid waste management; and
- Revolving fund for household sanitation improvement (DKK 7.3 millions)

## 3. Outcome Indicators

Together with other funding resources for Quang Ninh Sub-project, the TF had an important contribution to the realization of relevant indicators. These are provided in details in the main report:

- Reduction in the flooding: The flooding area has been reduced 80%. A total of 435,000 people in the Province benefit from reduced flooding.
- Reduction in the incidence of water-related and vector-borne diseases: A total of 93,000 people benefit from WW collection and treatment.

### Summary Health Figures in Project Area

(Data collected in 3 nominated wards of Halong City and 2 wards of Cam Pha Town):

Description	Unit	Year 2002	Year 2003	Year 2007
Dysentery	Case	0	0	0
Cholera	Case	0	0	0
Typhoid	Case	0	0	0
Diarrhea	Case	239	197	251*

Note: \* The number of diarrhea in 2007 was significantly increased due to an outbreak of SARS and cholera in many cities/provinces.

### Increased tourism

Description	Unit	Year 2002	Year 2003	Year 2007
Total number of tourists to Quang Ninh	Visitor 2,31	3,022	2,576,000	3,600,200
Number of tourists stayed overnight	Visitor 898,	182	982,000	2,295,886
Total Provincial Income from Tourism	VND bill.	542.621	857.000	2,117.369

- **Increased external investment:** More other projects on sanitation area are under preparation. In particular, JICA plans to fund a new sanitation project for Vietnam with a total cost estimate of US\$120 million.
- **Immediate local environment has become cleaner:** Samples were taken at three discharge points as indentified before. It was found that the results obtained at two points in Bai Chay Area were satisfactory while the treated water quality from Bai Chay WWTP met B Category as designed and thus contributed to environmental conditions improvement for Halong Bay. It is expected that the water quality in the last point will be improved when new Ha Khanh WWTP will be put under full operation
- **Cost recovery and willingness-to-pay sanitation fee:** During the project period, the PPC increased the WW fees and SWM fees four times. It was recorded that a high number of households paid these fees. The services providers, URENCO, are operating on a more commercial basis.

- **Solid waste collection and safe disposals:** It was recorded that solid waste of a high number of households (approx. 80,000HH) with population of 330,000 people was collected and safely disposed at sanitary landfills.
- **Small sanitation revolving fund:** A high number of 11,504 loans were provided to the households for improving toilet and sanitation facilities.
- **Information-Education-Communication (IEC) Program:** The IEC activities were carried out in 21 primary and secondary schools. The “Green Sundays” initiative was promoted and maintained. With active participation from Women Union, the environmental protection campaign was taken place in all wards of Ha Long City and Cam Pha Town

#### 4. Other Significant Changes in Trust Fund Design

- There was no significant change in the TF design. Quang Ninh PPC asked DANIDA to use all allocated budget for an extension into phase II. On 8 October 2002, Danida objected the proposal of Quang Ninh PPC. Consequently, an amount of DKK 11,545.74 was cancelled from the trust fund, and so was the remaining amount separately allocated from bilateral grant provided by DANIDA. Afterwards, remaining activities had been funded by Quang Ninh PPC.

### C. OUTCOME

#### 1. Relevance of TF Objectives, Design and Implementation

- The TF is for co-financing with the Three Cities Sanitation Project which supports the CAS’s goal to raise productivity through infrastructure by making the project cities more competitive, improving their “livability” and enhancing their bankability. It also contributes to the reform of the state-owned enterprises by making the companies currently responsible for sanitation and drainage more commercially focused and by increasing private sector participation, thereby making their eventual divesture more feasible. The TF is therefore relevant to both the CAS and the Bank’s general urban and local government sector strategy.

#### 2. Achievement of TF Development Objective

##### a) **Sustained improvements to public health:**

- The Danish TF contributed to improving sanitation conditions to 301,655 people in Quang Ninh Province.
- In terms of Increased Awareness in Halong, according to the Impact Assessment Reports (of which data was collected from mass organizations, the health department and monitoring of activities), the TF achieved their objectives to a relatively high extent. Information, Education and Communication (IEC) activities were carried out in the whole project area. Residents are now generally aware of environmental and health issues. A large number of residents benefited from the Revolving Fund and contributed to an improved environment through, for example, clean up campaigns and improved sanitation, and the general health situation has improved.

##### b) **Increased economic development** by reducing the incidence of flooding, upgrading the urban environment, and developing more efficient and financially sustainable sanitation and drainage companies (URENCOs) in Quang Ninh Province (Ha Long City and Cam Pha Town):

- In terms of institutional development, for the case of Halong, new procedures and practices for Urban Environmental Company's (URENCO) were completed and used in daily works. To this extent the objectives have been obtained. However it should be noted that the process

of change in which the administration and the URENCO management has been now engaged is very dynamic. It is hoped that the sub-project has laid a strong foundation for continued institutional strengthening and HRD initiatives for these groups in the future in order to address changes that will continue to occur.

- *A plan of increase of wastewater charge according to freshwater bill was drawn out in the FS Document for Loan Agreement with the Bank. People's Committee of Quang Ninh Province had issued Decisions regarding increase of wastewater charge for 5 times, from the flat fee of VND 200 per m<sup>3</sup> to 10÷15% surcharge on water supply-* The overall environmental impacts of the implementation of the sanitation components have been positive. Improvements of the drainage channel capacity have already decreased flooding in low-lying areas. Wastewater and septic sludge collection and treatment have helped improve considerably the living conditions in the project areas.
- Wastewater treatment has reduced the direct pollution load from the human population. Especially in Ha Long, the reduced pollution will improve the water quality and aquatic life especially near the shoreline of Bai Chay. Also, the introduction of sanitary landfill sites with proper membranes and leachate treatment plants has reduced the impact on the groundwater in the landfill areas.
- With the introduction of a sewage collection and treatment facility covering the town center area of the city, the concept of separating wastewater from rainwater has been introduced for the first time in Vietnam by the TF. Rapid industrial and urban development in Vietnam will create a pressure on the environment. Therefore extensive investments in wastewater treatment will be needed.

### 3. Efficiency

- In general, the results have been quite effective for the sanitation component. The works were carried out as planned in a reasonably timely manner. Most of the outputs were achieved, and targets were met.
- For the construction supervision, it is assessed that the results have been generally effective. The works were carried out as planned, and targets have been met. However, with many changes and extensions in the sub-project, it is difficult to evaluate whether the results have also been efficient. Originally, some 69 international and 198 national man-months were assigned to project management and supervision. In reality, almost 125 international and more than 450 national man-months were spent on the task. In other words, the input has doubled compared with the original plan. The main reason for the expansion of the supervision input is the contractors' lack of own quality assurance. The supervision organization had constantly attempted to assist the contractors to improve both quality control and organization, but in this respect without tangible results. Nevertheless, given the outside factors it is deemed that the construction supervision was implemented in a reasonably efficient way.
- With regard to the Institutional Strengthening (IS), Sub-Project had specifically addressed the institutional capacity development. The IS sub-project is assessed to substantially develop capacity for the two URENCO's. All of the main outputs that supported the log frame indicators of the sub-project were produced, and the process of institutionalization of the new procedures and practices used in daily operations of the URENCO's were completed. In addition, important capacity development took place within the PMU, where management and staff learned further developed skills to manage large international civil works contracts

Outstanding issues: these are some major outstanding issues:

- Completion of the Civil Works Contracts: During a meeting following an inspection by the PPC of the contractor in question in March 2006, the consultant pointed out the fact that the contractor's work force had decreased, and mentioned that with the current rate of progress

the contractor would complete the works at least two months later than the scheduled end of June, 2006. Irrespective of this, the contractor without providing any tangible evidence guaranteed to complete all works on or even ahead of schedule. Subsequent to the meeting the contractor had further decreased his work force, and the consultant decided to recommend expulsion of the contractor as soon as possible. After consideration solutions, Quang Ninh Provincial People's Committee as well as PMU had conducted stronger actions, namely broadcasting the poor capacity provided by the contractor on National Television, issuance of request letter to Ministry of Construction ( Construction Company is directly under MOC) for assistance. After that move, the Contractor had mobilized more execution units which resulted in successfully completion of Bai Chay WWTP and it is handed over to the Employer for operation in the end of May 2007.

- Private Sector Involvement. Various aspects of the Private Public Partnership concept was presented and demonstrated. A private contractor, Invesco, was assigned for solid waste collection in Halong City. The Ha Long and Cam Pha URENCO are under transition period from directly administrative companies under PC to an autonomously operated companies
- Community related issues: There is a need for an in-depth impact study to assess whether the revolving fund has the desired impacts on poverty and the environment, and how deficiencies especially in terms of lacking benefits to poor households may be improved.
- The waste collection system does not yet satisfactorily function. Both the issue of insufficient fees and non-payment of fees, and the irregular dumping of waste need to be more directly addressed in order to ensure sustainability.

#### 4. Development Impacts, including those that are Unintended/Unrelated to TF Objectives

- The TF generated public benefits to the project area's economies as a whole, and private benefits to individual households. A healthier workforce attributed by fewer water-borne diseases and less damage and disruption of production resulting from flooding has helped improved business's productivity. Reduced flood damage to roads and other infrastructure services has also helped lower road maintenance costs. Urban environmental improvement has given the project areas a more comparative advantage over others in competing for new investments. There is also another benefit to tourism in Ha Long city through reduced pollution of the popular swimming beaches in Ha Long Bay, as the famous World Heritage's site.

#### 5. Overall TF Outcome

Overall outcomes of the Danish TF has been achieved.

### **D. RISK TO DEVELOPMENT OUTCOME**

#### 1. Follow-On Results and/or Investment Activities

*Activity/Investment:*

\_\_\_\_\_ Recipient/Other Investment; \_\_\_\_\_ Grant Project/Program; \_\_\_\_\_ Bank Project; \_\_\_\_\_ IFC Financial Project/Activity

#### 2. Replicability

- As noted above, it is recorded that more projects are under preparation. In particular JICA is planning to fund a new sanitation project with total cost estimate of US\$120 million.

### 3. Overall Risk to Development Outcome

- Whilst physical outputs were successfully achieved, institutional objectives focusing on the development of strong financially viable institutions were not. Almost all physical outputs were achieved and the institutions (URENCO and the PMU) have become stronger in managerial and technical sense. However, the objective of making them financially less dependent on cost recovery basis has not been achieved. During the course of the project, the PMU for the project was separated from URENCO. This caused serious problems as URENCO staff did not gather practical experiences in project management, and had less opportunity to learn new skills on the job, whilst PMU staff became less interested in the operational side of the project outputs.

## E. PERFORMANCE

### **1. Bank:**

The Bank's team was proactive in providing guidance and assistance to the Recipient in implementation of the trust fund. Continuous supervision was provided. The Bank's team and the Recipient regularly coordinated to review and revise activities for achieving intended's objectives.

### **2. Recipient (for Recipient-executed TFs only):**

The Recipient well managed the trust fund's activities. However, there were still some rooms for improvement such as weak collaboration between line agencies, slow site compensation and hand-over, and delayed bidding process.

## F. LESSONS LEARNED / RECOMMENDATIONS

There are several major lessons learned from this TF:

- In the context of project decentralization, only local approval of contract works was required. This created a fast-track method for contract implementation, as it precluded any approval from central government such as Ministry of Construction. This allowed the contractor to work closely with the Department of Construction authorities and receive their close cooperation and support at critical approval periods in the contract implementation
- In terms of the design, a key emphasis should be placed on the use of appropriate technology which reflects both the level of expertise and financial resources available to operate and maintain the implemented investment. The simplest level of technology to achieve the stated goals should be utilized, so as to create a reliable, financially sustainable operating system. It is critical to choose a suitable technology that is adapted to local capacity, and community's needs and affordability.
- About IEC activities: It is important to have an insight knowledge of the local situation before launching the activities through: (i) a baseline study on the issue at stake before the start of the Awareness Campaign; (ii) a long term (6 months) anthropological study (using a KAP approach) of the communities' understanding of the project related issues. It also requires the use of the anthropological study results as a basis for detailed design of the awareness campaign and the creation of awareness raising materials fit to the communities.
- Regarding the preparation of a Communication Plan in collaboration with the Counterpart at the outset of the campaign, the Plan should contain a very detailed description of the TORs of

the stakeholders (various government, project and community-based players), of the connection links between them, and of the progress monitoring system.

- Strong focus on setting up an institutional system with existing provincial and city authorities for ensuring the sustainability of IEC activities.
- Close collaboration with the other components of the Project.
- Support from the PPC and Commune People's Committee to the campaign throughout the Project life.
- Awareness campaign implemented in the communities by full-time employees
- Communication Agents (called Sanitation Trainers in the BMT-SSC).
- Simple system of subsidizing poor households for latrine construction.
- Integration between IEC activities and construction work.





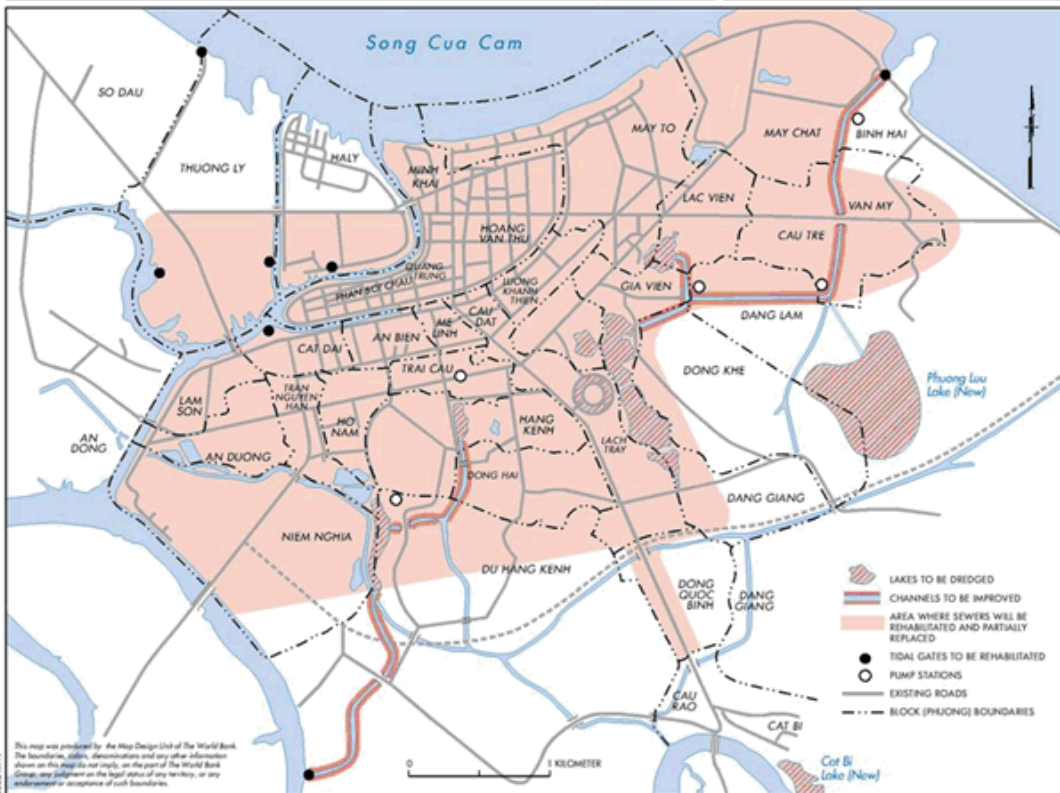
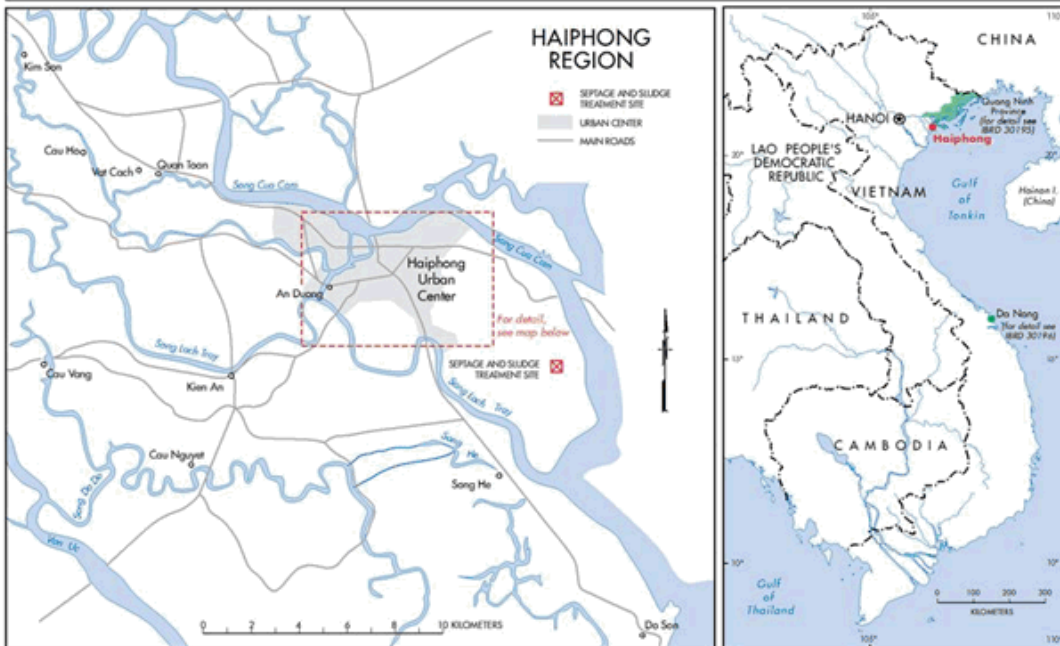
VIETNAM  
3 CITIES SANITATION PROJECT  
DA NANG

- SEWERAGE PUMP STATION
- TEMPORARY PUMP STATION
- WASTEWATER TREATMENT PLANTS
- ⊕ SANITARY LANDFILL
- SEWERAGE PUMPING MAIN
- GRAVITY INTERCEPTION DRAIN
- NEW DRAIN
- NEW DRAIN (ADDITIONAL WORKS)
- PIPE DIAMETER (MM), FLOW DIRECTION
- - - EXISTING DRAIN
- EXISTING ROADS
- EXISTING RAILROADS



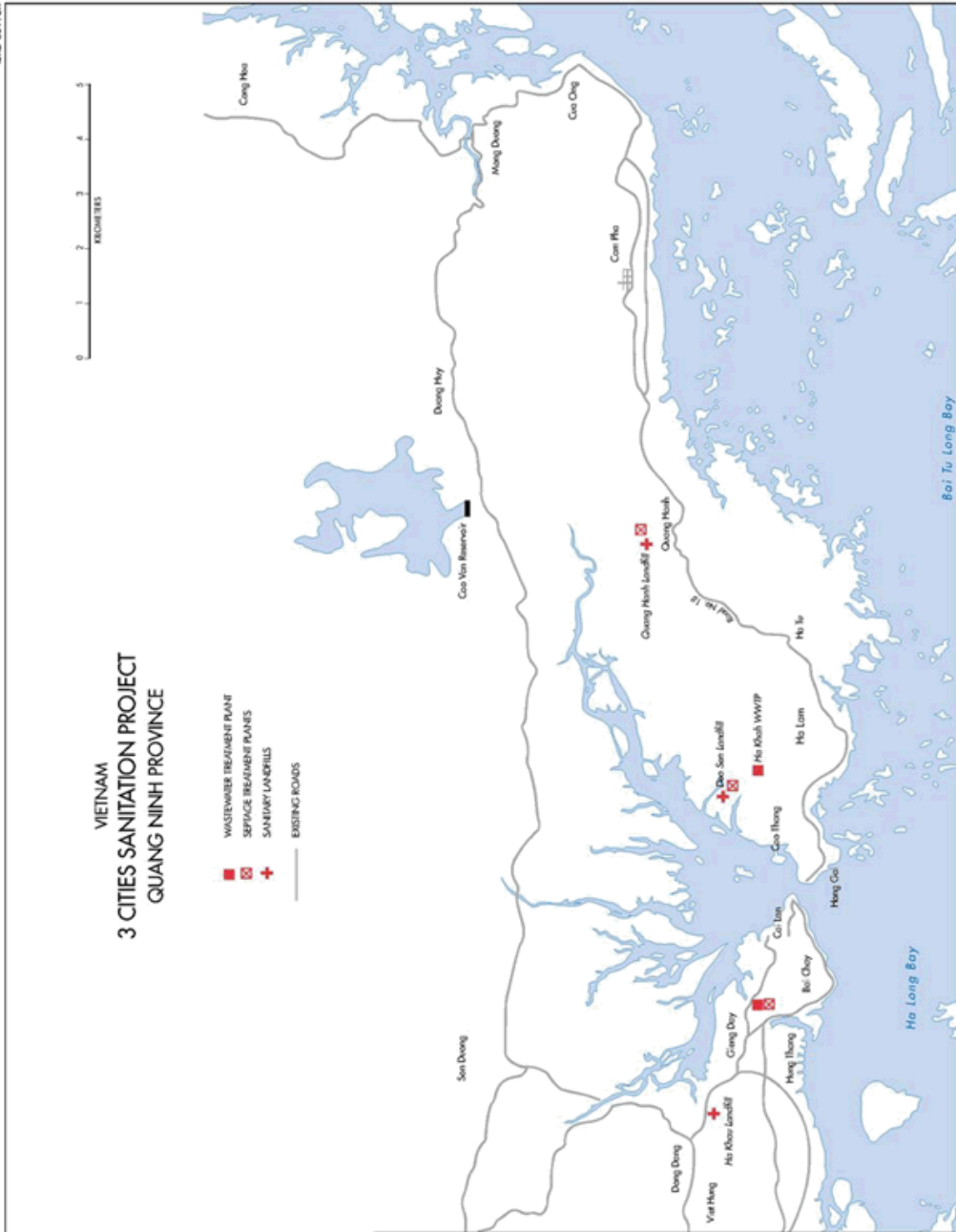
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# VIETNAM 3 CITIES SANITATION PROJECT HAIPHONG



### VIETNAM 3 CITIES SANITATION PROJECT QUANG NINH PROVINCE

- WASTEWATER TREATMENT PLANT
- SEWAGE TREATMENT PLANTS
- SANITARY LANDFILLS
- EXISTING ROADS



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