



# Report and Recommendation of the President to the Board of Directors

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Project Number: 30286  
October 2006

## Proposed Loan Socialist Republic of Viet Nam: Central Region Small and Medium Towns Development Project

Asian Development Bank

## CURRENCY EQUIVALENTS

(as of 11 October 2006)

Currency Unit	–	dong (D)
D1.00	=	\$0.00006229
\$1.00	=	D16,055.00

## ABBREVIATIONS

ADB	–	Asian Development Bank
AIFC	–	average incremental financial cost
DONRE	–	department of natural resources and the environment
EIRR	–	economic internal rate of return
FIRR	–	financial internal rate of return
IEE	–	initial environmental examination
MOC	–	Ministry of Construction
O&M	–	operation and maintenance
PCU	–	project coordinating unit
POE	–	public operating entity
PPC	–	provincial people's committee
PPMU	–	provincial project management unit
PSC	–	provincial steering committee
RF	–	resettlement framework
RP	–	resettlement plan
RWG	–	resettlement working group
TPC	–	town people's committee
VWU	–	Viet Nam women's union
WACC	–	weighted average cost of capital
WSS	–	water supply and sanitation

## NOTES

- (i) The fiscal year of the Government ends on 31 December.
- (ii) In this report, "\$" refers to US dollars.

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## LOAN AND PROJECT SUMMARY

<b>Borrower</b>	Socialist Republic of Viet Nam
<b>Classification</b>	Targeting classification: Targeted intervention Sector: Water supply, sanitation, and waste management Subsector: Integrated Themes: Environmental sustainability, inclusive social development, sustainable economic growth Subthemes: Urban environmental improvement, human development, developing urban areas
<b>Environment Assessment</b>	An initial environmental examination (IEE) was conducted for each of the five provinces of Binh Thuan, Dak Nong, Khanh Hoa, Ninh Thuan, and Phu Yen in the Central Region, covering eight project towns. The Project is classified under environmental category B. A summary IEE for the project is presented in Appendix 13.
<b>Project Description</b>	The Project involves water supply and environmental sanitation infrastructure development and expansion—to include water supply, drainage and wastewater, and solid waste management—in the project towns: Phan Thiet (Binh Thuan), Gia Nghia (Dak Nong), Cam Ranh and Ninh Hoa (Khanh Hoa), Ca Na and Thap Cham (Ninh Thuan), and Song Cau and Tuy Hoa (Phu Yen). These activities will be supplemented with public education and awareness campaigns on the importance of environmental hygiene, its relation to public health, and civic participation. The Project will help equitize and corporatize public operating entities (POEs) and improve their financial sustainability and operational efficiency through cost-recovery mechanisms, adequate tariffs, and capacity building, as well as suggestions for improving the regulatory environment.
<b>Rationale</b>	Viet Nam's rapid urbanization and transformation from an agricultural to an industrialized economy has put enormous pressure on already inadequate services, particularly water supply and sanitation (WSS) infrastructure. Most recent infrastructure investments are in the northern and southern urban areas, anchored by Hanoi and Ho Chi Minh City, and investments in the small and medium-sized towns of the Central Region have been relatively neglected. The lack of infrastructure maintenance and investment has caused pollution of waterways, flooding, waterborne diseases, and unhygienic conditions. The region, with a poverty rate of 38.2%, is one of Viet Nam's poorest. With improved WSS, it is expected that the project towns in the Central Region will become more productive and competitive and catch up with towns in other regions.
<b>Impact and Outcome</b>	The Project is expected to contribute to sustainable economic growth and improve the urban quality of life in the project towns through accessible, equitable, and sustained WSS services. The expected outcomes are (i) improved and expanded access to safe

and sustainable water supply services; (ii) improved drainage and wastewater services and management; (iii) improved solid waste service coverage and management; (iv) increased public awareness of the importance of good environmental hygiene and sanitation and reduced risk to public health; (v) improved management capacity of POEs and WSS providers, sustained service provision through adequate tariffs and cost recovery, and strengthened sector regulation; and (vi) greater community and private sector participation for WSS service sustainability.

### Project Investment Plan

The total investment cost of the Project is estimated at \$66.72 million, including duties and taxes of \$4.82 million, physical and price contingencies, and interest during construction.

### Financing Plan

(\$ million)

Source	Foreign Exchange	Local Currency	Total Cost	%
Asian Development Bank	33.22	20.00	53.22	79.77
Government and/or PPCs	0.00	13.50	13.50	20.23
Beneficiaries				
<b>Total</b>	<b>33.22</b>	<b>33.50</b>	<b>66.72</b>	<b>100.0</b>

PPC = provincial people's committee.

Source: Asian Development Bank estimates.

A loan of up to \$53.22 million equivalent in SDR from the Asian Development Fund of ADB will be provided. The loan will have a 32-year term, including a grace period of 8 years, an interest rate of 1.0% per annum during the grace period, 1.5% per annum thereafter, and such other terms and conditions set forth in the draft loan agreement.

### Allocation and Relending Terms

Part of the loan funds from ADB will be re-lent by the Government to POEs to finance water supply development. The detailed terms and conditions of the subsidiary loans will be further specified in the subsidiary loan agreements upon terms and conditions satisfactory to ADB.

### Period of Utilization

Until 30 June 2012

### Estimated Project Completion Date

31 December 2011

### Implementation Arrangements

Overall coordination will be done by a project coordinating unit (PCU) established under the Management Board for Urban Technical Infrastructure Projects of the Ministry of Construction. The PCU, which will be equipped with technical expertise provided by international and national consultants, will liaise closely with ADB and the provincial people's committees (PPCs) of the five project provinces. The PPCs will serve as the executing agencies of the Project and will be primarily responsible for allocating the required counterpart funding and supervising and for monitoring and evaluating project progress. A provincial project management unit

(PPMU) will be established under each PPC to manage day-to-day project implementation, prepare withdrawal applications and bidding documents, award contracts, liaise with key stakeholders, and prepare periodic progress reports. Oversight of project activities will be done through the provincial steering committee, which will be chaired by the PPC vice chair, with representatives from relevant provincial departments and key stakeholders. The provincial Viet Nam women's union (VWU) will work with and report to the PPMU to implement public education and awareness campaigns in the project communities.

## **Executing Agencies**

The PPCs of Binh Thuan, Dak Nong, Khanh Hoa, Ninh Thuan, and Phu Yen

## **Procurement**

Goods, works, and services financed by ADB will be procured in accordance with ADB's *Procurement Guidelines* (2006). Procurement will generally be carried out by the PPMUs. Equipment and selected materials will be procured using international competitive bidding (ICB), national competitive bidding (NCB), force account, and shopping procedures, as appropriate. To the extent possible, civil works to be procured will be grouped into packages larger than \$2 million to be suitable for ICB, while civil works below \$2 million will follow NCB. Procurement of goods above \$500,000 will follow ICB, while goods from \$100,000 to \$500,000 will follow NCB. Force accounts will be used for small and scattered water supply and/or drainage works that cannot be defined in advance. Off-the-shelf items and standard products costing the equivalent of less than \$100,000 will be procured following ADB's shopping procedures.

## **Consulting Services**

Consultants will be selected and engaged using ADB's quality- and cost-based selection procedures in accordance with ADB's *Guidelines on the Use of Consultants* (2006). An international consulting firm in association with a national consulting firm will be recruited by the PCU using the quality- and cost-based selection procedure to assist the PCU and PPMUs in project management and implementation. Consultancy services will include project detailed design and supervision comprising engineering, environmental, sanitation, financial, and social aspects; social, poverty, resettlement, and environmental monitoring; and capacity building and training programs to strengthen the institutional capacities and improve operational efficiencies of POEs and WSS service providers. A total of 1,045 person-months of consulting services (93 international and 952 national) will be required. In addition, an independent resettlement monitoring consultant and an auditing firm will be engaged using the least-cost selection method and on an intermittent basis throughout the Project.

## **Project Benefits and Beneficiaries**

The water supply development and expansion works proposed in three project towns will improve access to safe water, increase coverage, increase water distribution efficiency, and reduce the risk of public exposure to waterborne and water-related pathogens

in tap water in three project towns. About 13,300 households or 58,000 people will benefit from the proposed works. The drainage and wastewater treatment works proposed in six project towns will benefit about 105,000 households or 461,000 people through savings from reduced flood damage and losses, increased land values, and improved health, particularly reduced child mortality rates and medical costs associated with waterborne and water-related diseases.

Improved solid waste management services and facilities in three project towns will substantially clean up the environment, make conditions healthier and safer for waste pickers in landfill sites, and support ongoing private sector waste collection to the benefit of 30,700 households.

The community environmental and sanitation awareness component will provide targeted, pro-poor interventions to enable 1,700 households to access water and 3,000 households to access sanitation services. It will also introduce good environmental hygiene practices as well as sustainable environmental improvements.

In total, about 114,000 households<sup>1</sup> will benefit from improved WSS and enhanced community health. The Project will also improve the operational efficiency and financial sustainability of POEs through corporatization, improved cost-recovery mechanisms, tariff adjustments, and improved regulatory environment.

## **Risks and Assumptions**

The Project identifies several risks to smooth implementation, including (i) PPCs' resistance to POEs becoming corporate entities; (ii) unwillingness of local authorities to implement institutional and policy reforms, including tariff adjustments and efforts toward greater transparency and accountability; and (iii) unforeseen fluctuations or macroeconomic changes that raise project costs.

The Project will undertake several measures to mitigate the risks: (i) conduct policy dialogue involving Government, PPCs, and POEs on the benefits of a financially-viable and responsive entity, and propose an acceptable timetable to corporatize POEs and adjust tariffs; (ii) identify and discuss incentives and options for stakeholders to induce greater participation and sense of ownership; (iii) conduct sensitization workshops on project objectives, scope, and activities; teach beneficiaries accounting, technical, and managerial skills; and (iv) provide adequate contingencies to anticipate unforeseen, adverse economic fluctuations.

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<sup>1</sup> Some households may benefit from more than one intervention, e.g., water supply development, drainage and wastewater, and solid waste management.



The Project's success is based on the following assumptions: (i) adequate and timely provision of resources needed for project completion from the Government, ADB, and key stakeholders, particularly timely recruitment of consultants, timely disbursements, and availability of counterpart funds and qualified personnel; (ii) ability and willingness of the Government and PPCs to undertake policy and institutional reforms; (iii) implementation of suggested cost-recovery mechanisms and tariff adjustments; (iv) project beneficiaries' active participation and sense of ownership; (v) support for the Project from PPCs, POEs, communities, and other key stakeholders; and (vi) implementation of environmental, social, and resettlement requirements.



## I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan to the Socialist Republic of Viet Nam for the Central Region Small and Medium Towns Development Project. The design and monitoring framework is in Appendix 1.

## II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

### A. Performance Indicators and Analysis

2. With a population of 83.2 million and annual urban population growth rate of 3.3%, Viet Nam is one of the most rapidly urbanizing countries in Asia. Despite relatively low urbanization of 25%, the high growth rate implies that urban areas will be flooded with 12 million more people by the end of the decade. The fundamental aftermath of its transformation from a predominantly agricultural to an increasingly industrial economy is Viet Nam's rise from being one of Asia's poorest into one of its fastest-growing countries, where the poverty level of 58.1% in 1993 was reduced to 24.1% in 2004.<sup>1</sup> Economic growth has been sustained during the past 10 years, averaging 7.3% annually, created jobs, and significantly reduced the number of poor. However, growing urbanization has led to higher population density, environmental deterioration, and increased demand for infrastructure services, including water supply and sanitation (WSS).

3. Water supply production capacity increased from an estimated 1.95 million cubic meters (m<sup>3</sup>) per day in 1990 to 2.7 million m<sup>3</sup>/day in 2000, and over 50% of the country's distribution network has been constructed within the past 8 years. Still, overall urban water supply coverage of the country remains low at 50%,<sup>2</sup> ranging from 67% in the larger cities to about 11% in the smaller towns. Low coverage is exacerbated by overinvestment in production capacity, whereby utilities operate at 78% capacity and therefore exceed the capacity of the distribution network. Financially, water supply sustainability has been hampered by tariffs that are low relative to incomes and by the lack of substantial investment to expand coverage. The sector analysis is in Appendix 2.

4. Most urban areas have "combined" drainage systems, with coverage ranging from less than 0.1 m/capita in district towns to around 0.2–0.4 m/capita in the major cities and provincial capitals, well below the drainage coverage of 1.0–2.5m/capita in more developed Asian cities. In provincial and district towns, drains are usually limited to the highways and main roads and are generally poor or incomplete as a result of lack of maintenance, lack of investment, ad hoc development, and poor design and construction standards. Inadequate drainage systems along with the pollution of waterways poses serious threats to public health and damage to property.

5. Throughout Viet Nam, about 15 million tons of solid waste are generated each year, with municipal waste accounting for 80% and industrial waste nearly 20%, including about 1% of hazardous waste. In the next 10 years, the urban population is expected to double, leading to a 50% increase in total solid waste to 22 million tons/year nationwide. Impressive progress has been made in collection of waste from urban areas, where 75% on average is collected (70–90% in large towns and up to 30% in small towns). Of the country's total of about 100 dump sites and landfills, only 20% are of adequate sanitary quality. The rest cause environmental pollution and are a threat to people's health and to surface and groundwater systems.

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<sup>1</sup> ADB. 2006. *Viet Nam Country Strategy and Program, 2007–2010*. Manila. Based on the household living standard surveys, the poverty rate has reduced from about 58% in 1993, to 37% in 1998, to 29% in 2002. The poverty rate was estimated to be about 25% in 2005.

<sup>2</sup> USAID, SEAWUN, US-AEP, and OECD. 2005. *Regional Assessment Survey and Workshop on Full Cost Recovery for Water Utilities in Southeast Asia: Sharing International Experience and Best Practices*. Viet Nam: USAID.

6. Despite considerable gains in indicators for WSS, coverage and quality are not sufficient to meet the growing demand. Water shortages and intermittent service are not uncommon. Existing mechanisms for effective delivery have yet to be fully implemented or are impractical, and most urban people have yet to access the services. The key problems that need to be addressed in the short to medium term are (i) inadequate investment as only one third of 600 district towns have piped water, only a few large and medium-sized towns have sewerage and sewage treatment facilities, and cities have no wastewater treatment plants; (ii) public operating entities' (POEs) lack of autonomy, business focus, and customer orientation; (iii) poor operation and maintenance (O&M) of infrastructure systems; (iv) lack of management and technical capacity of POEs and people's committees; and (v) weak institutional framework and sector regulation.

7. During the past decade, Government investments and overseas development assistance totaled over \$1.2 billion to develop new WSS facilities but total investment needs are four times higher. Deteriorating infrastructure and limited Government and people's committee funds for infrastructure capital investments and maintenance have widened the gap in infrastructure supply and demand. This is particularly evident in Viet Nam's Central Region, which contributes the lowest share to the country's gross domestic product (GDP) with a poverty rate of 38.2%.

8. Viet Nam's socioeconomic development plan aims to accelerate growth in the Central Region and make it more dynamic, enabling it to catch up with other regions. Foreign investors have long been attracted to the relatively established infrastructure in the Hanoi–Haiphong and the Ho Chi Minh–Mekong Delta areas. However, in the coastal provinces of Binh Thuan, Khanh Hoa, Ninh Thuan, and Phu Yen, the small and medium-sized towns are starting to develop and have great growth potential in various sectors such as tourism, fisheries, maritime industries, and oil refining. The central highland province of Dak Nong has high agriculture and tourism potential. To further develop the region's potential and ensure sustained economic growth, competitiveness, and livability, sufficient investments must therefore be channeled to develop and sustain its infrastructure and make the services available to most, if not all, of the towns' population.

9. A socioeconomic household survey<sup>3</sup> covering 18 candidate project towns in the five provinces indicated that 10.4–44.9% of the urban population is still below the poverty line.<sup>4</sup> Piped water is available to up to 72% of the population in the towns (compared with 50% nationwide and 77% in urban areas), which confirms that demand for improved water supply services is unmet. Water shortages and intermittent supply range from 6 to 18 hours. Many residents purchase water from vendors at extremely high prices (5–20 times the tariffs for public water supply). From 12% to 60% of urban households have sanitary latrines (compared with 28% nationwide and 72% in urban areas). Urban wastewater discharged into combined storm water and sewer systems are completely untreated, polluting nearby water courses. Together with inadequate drainage systems, this causes siltation, and with clogged drains causes flooding and ponding in the wake of heavy rainfall.

10. Government sector policy and strategy are set out in separate orientation plans for urban water supply, drainage, and solid waste management, approved by the Prime Minister in 1998 and 1999. The plans provide sector targets and present Government reforms that aim to (i)

<sup>3</sup> ADB. 2004. *Technical Assistance to the Socialist Republic of Viet Nam for the Central Region Small and Medium Towns Development Project*. Manila.

<sup>4</sup> The Ministry of Labour, War Invalids and Social Affairs (MOLISA) standard of D250,000/capita/month (2005). However, MOLISA has raised the poverty line for 2006–2010 to D200,000 per month for a rural resident and D260,000 per month for an urban resident. The overall poverty rate is now estimated at about 26%.

decentralize responsibility for urban WSS services to provincial people's committees (PPCs), (ii) strengthen sector institutions, (iii) increase cost recovery through user charges, and (iv) gradually eliminate Government subsidies. The targets of orientation plans for WSS services are, by 2010, 95% of the urban population will have access to clean water, 40% of urban areas and 70% of industrial zones will be equipped with centralized wastewater treatment systems, 80% of solid waste will be collected, and over 60% of hazardous waste and 100% of medical waste will be treated. However, the regulatory framework and mechanisms to achieve these aims have yet to evolve or be fully implemented.

11. The Government's sector financing policy aims to (i) adopt full cost-recovery tariffs for water supply, (ii) incorporate drainage charges into water tariff structures, (iii) apply drainage and solid waste tariffs sufficient to cover O&M costs, and (iv) gradually increase tariffs to cover capital investment requirements and reduce the need for Government subsidies. While the authority to set tariffs continues to be held by the PPCs, the tariff guidelines issued in 1999 and 2004 (Directive 04/2004) provide the framework and methodology for the PPCs in establishing these tariffs.

12. The key problems that need to be addressed in the short to medium term are inadequate investment and deteriorating urban infrastructure, low cost recovery for capital expenditures and O&M, lack of managerial autonomy and inefficient WSS service provision, absence of a transparent regulatory and monitoring framework in WSS, and lack of public awareness and civic participation in WSS service provision.

## **B. Analysis of Key Problems and Opportunities**

### **1. Inadequate and Deteriorating Urban Infrastructure**

13. Most urban infrastructure in the small and medium-sized towns in the Central Region was built decades ago and therefore has not kept up with rapid urbanization and Government sectoral targets. Existing piped-water systems leak and are in dire need of repair, and many residents, particularly the poor, do not have access to safe water. Clogged drains and inadequate drainage have not only caused loss of property but also deteriorating health. Landfills are overburdened, and equipment for collecting, transporting, and disposing of waste is limited. Despite substantial Government and overseas development assistance investments in WSS, the lack of capital investments and maintenance for WSS infrastructure has worsened poor services and difficulties in expanding service coverage. The lack of access to WSS services has worsened deteriorating public health and quality of urban life. To ensure and sustain economic competitiveness and livability in small and medium-sized towns, coverage of WSS services must be improved and expanded.

### **2. Low Cost Recovery for Capital Expenditures and O&M**

14. Government Directive 04/2004 and the 1999 Ministry of Construction (MOC) guidelines for water supply and drainage provide the framework and methodology for PPCs to achieve full cost recovery for water supply and financing that is sufficient to cover O&M costs for drainage and solid waste services. However, existing tariff levels do not reflect the cost of production and are not sufficient for the long-term financial sustainability needed to generate adequate levels of service. For example, the guideline indicates that drainage charge is to be no lower than 10% of the total water production cost but only a few POEs apply the surcharge. In general, drainage fees cover only 30–70% of O&M costs while solid waste fees only cover about 30–50% of O&M costs for waste collection, transport, and disposal. The lack of funding for capital investments and O&M has led to generally less sustainable urban infrastructure and piped-water supply systems and sanitation services, poor work incentives and capacity of staff, low efficiency and

effectiveness of WSS operations, and poor services. Although PPCs have the authority to set tariffs, there is no specific time frame for applying them, and operational implementation details and a method for calculating the required level of cost recovery is lacking. This is a major constraint on full cost recovery and long-term financial sustainability. Tariffs must therefore be calculated and enforced to cover capital investment requirements as well as O&M. To make services affordable, targeted subsidies must replace the current blanket subsidies.

### **3. Lack of Managerial Autonomy and Operational Inefficiencies**

15. POEs' regulating and operating functions are bundled together, leading to conflicts of interest and little incentive for POEs to operate as businesses. The operational inefficiencies faced by POEs are rooted in the lack of managerial autonomy and excessive, centralized control, which interferes with management and operating decisions, including the skills mix, service levels, staff salary and benefits, and major expenditures. Under the 2005 Unified Enterprise Law, the Government aims to equitize POEs by converting them gradually into joint stock companies with 49–100% public ownership or limited liability companies by 2010. This will give POEs greater autonomy in business decisions, staff remuneration, and raising capital; separate them from government administration; and allow for gradual reduction of subsidies from the state budget. However, operational guidelines do not exist and institutional arrangements for managing WSS services vary widely between provinces, depending on historical, geographical, political, and other factors. Guidelines based on the 2005 Unified Enterprise Law will need to be developed, along with capacity-building requirements and a timetable for implementation. To achieve autonomy, gradual efforts must be made to modify the organizational structure, enhance managerial responsibility and performance, and develop independent business and financial plans.

### **4. Absence of a Transparent Regulatory and Monitoring Framework**

16. POEs' poor performance and lack of client-oriented services result in a general lack of trust from residents and a reluctance to pay service fees. Although the direct cause of poor WSS services is the lack of money, the basic issues are the lack of a transparent regulatory and monitoring framework to improve the performance and financial viability of O&M of WSS service provision. Outdated regulations, laxity, inconsistencies in enforcing regulations, weak governance, and the absence of incentives for efficient service delivery will need to be addressed when updating existing regulations or issuing new ones.

17. The development of a regulatory and monitoring framework will need central, provincial, and district policy dialogue and reforms. The legislation and monitoring mechanisms need to be in place to ensure the sustainability and proper provision and functioning of public services. The Government must also ensure that its policies are mutually supportive, resource-efficient, and bring maximum benefits, especially to the poor. The roles and responsibilities of regulators, service providers, and various government agencies should be clearly delineated to reduce ambiguities. The central planning and budgeting functions need to be devolved to PPCs but regulatory oversight and technical assistance capabilities must be retained. PPCs need to delegate more autonomy to POEs, which must be transformed from subsidized to financially viable and responsive entities. This will enable POEs to acquire capital investments and O&M through user charges and be accountable to their customers.

### **5. Lack of Public Awareness and Civic Participation**

18. The lack of public awareness and civic participation in planning and managing urban services constrains provision of effective urban infrastructure and WSS. For example, not knowing how hygiene practices and health are linked has resulted in deteriorating public health;

not participating in the protection and conservation of infrastructure has led to its deterioration; and not knowing the benefits of paying for urban services and connecting to the systems has discouraged households from connecting to and paying for environmental sanitation services. The Government and PPCs now realize that their resources alone are not sufficient to provide WSS services for all and that public awareness and civic participation are important.

19. Improving public health is more related to changing attitudes toward investing in household sanitation facilities and changing behavior to adopt improved water use and hygiene practices. For vulnerable groups (the poor, female heads of households, ethnic minorities and indigenous peoples, and project-affected people), accessibility and affordability remain critical issues. Their participation as users of WSS services (through payments, participation in O&M) provides the feedback and support needed to improve WSS.

20. Other WSS service providers such as private water companies, water vendors, private cooperatives, and solid waste management companies constitute another stakeholder category. Despite their profit motive, they provide services that POEs cannot. Private sector participation will relieve PPCs of operational responsibility for utilities, lower the cost of services, and increase access to and improve them. Facilitating a conducive climate for private operators will therefore expand and improve their services. Micro-financing institutions could also expand WSS services. The poor have difficulty accessing micro-credit. Mass social organizations could help provide them with information on how to do so.

## **6. External Assistance**

21. External assistance has been a major source of funding to rehabilitate and expand the urban WSS systems. Since the mid-1980s, external funding agencies have lent more than \$1.2 billion to develop water supply, drainage, sanitation, and solid waste projects. Almost 40% of this amount has financed environmental improvement projects in Ho Chi Minh City (\$308 million) and Hanoi (\$156 million). In provincial towns, external assistance has focused on water supply systems, but investment in drainage, sanitation, and solid waste improvements in the towns has been relatively small, particularly in the Central Region. Besides ADB, which has provided assistance of \$330 million, major external funding sources include the governments of Australia, France, and Japan as well as UNICEF and the World Bank (Appendix 3).

## **7. ADB Experience**

22. Its experience in the urban and WSS sectors have taught ADB several lessons:

- (i) Political factors may hinder tariff adjustments and the separation of POEs' regulatory and operating functions.
- (ii) Policy dialogue has helped implement institutional and sector policy reforms.
- (iii) People in unserved areas are willing to pay more than what PPCs or POEs are willing to charge, and civil-society support for WSS investments is more likely when expanded service is complemented by public education awareness programs and civic participation.
- (iv) The provincial and town Viet Nam women's unions (VWUs) play an important role in implementing community-based programs and activities as they have worked at the grassroots level and possess extensive networking capacity.
- (v) Baseline surveys are valuable to assess the Project's impact and should be carried out during the early stages of implementation.

23. Several actions are necessary:

- (i) Ensure that the institutional and policy reform agenda is not too ambitious and allows for a reasonable timetable for implementation.
- (ii) Improve POEs' financial sustainability in two stages: (a) corporatization of POEs; and (b) development of an action plan to enable profitability, as reflected in the entity's positive cash flow.
- (iii) Integrate public awareness on environmental sanitation into the design of WSS infrastructure.
- (iv) Continue to involve VWUs in community environmental awareness programs.
- (v) Continuously build the capacity of local authorities and project personnel throughout the Project and familiarize them with Government and ADB procedures through training and workshops.
- (vi) Carry out baseline surveys at the start of the Project.

To further ensure project success, the following are imperative:

- (i) Central and local government and project managerial, technical, and administrative capacity should be continuously improved throughout the Project.
- (ii) The Government should be committed to transparency and accountability.
- (iii) The Government should show its commitment to the Project by providing adequate counterpart staff and funding and approval processes, and by using safeguard compliance mechanisms. Unnecessary delays would thus be avoided during project start-up, design, bidding, construction, and conclusion.
- (iv) The Project should identify the incentives that will increase participation and a sense of ownership to ensure better services. The risks and other mitigation measures are discussed in paras. 73–75.

### **III. THE PROPOSED PROJECT**

#### **A. Impact and Outcome**

24. The main project impacts are improved quality of life, sustained urban economic growth, and reduced poverty through sustainable WSS improvements. The project area will cover eight towns in the five provinces of Binh Thuan, Dak Nong, Khanh Hoa, Ninh Thuan, and Phu Yen.

25. The project outcomes are (i) improved access to safe and sustainable water supply, adequate drainage and wastewater treatment, reduced flooding and ponding, and improved solid waste management systems; (ii) changed attitudes toward environmental hygiene and sanitation, particularly increased awareness of the importance of environmental sanitation; and (iii) sustainable management and delivery capacities of WSS service providers.

#### **B. Outputs**

26. The Project will have five major interrelated components: (i) part A: water supply development and expansion, which will construct headworks, water treatment plants, and pumping stations, and expand water distribution networks; (ii) part B: drainage and wastewater management, which will construct interceptor sewers and wastewater stabilization ponds and construct and expand drainage networks; (iii) part C: solid waste management, which will construct and rehabilitate landfill sites, procure solid waste disposal equipment, and establish solid waste management systems; (iv) part D: community environmental sanitation and awareness, which will promote public awareness of the importance of good environmental



hygiene and sanitation and improve access to sanitation services for the poor; and (v) part E: project management and institutional strengthening (description and outputs in paras. 33–35).

### **1. Part A: Water Supply Development and Expansion**

27. This component will expand piped water to the project towns of Ca Na, Gia Nghia, and Ninh Hoa; increase combined water production capacity from 5,000 to 16,000 m<sup>3</sup>/day; and ensure 24-hour uninterrupted water supply service. The Project will rehabilitate headworks, including 10 kilometers (km) of raw-water pipelines, construct three water treatment plants in Gia Nghia and Ninh Hoa, construct 18 km of treated-water pipelines to Ca Na, and provide pumping stations in the towns. Expansion of water distribution networks in the towns will be supported by building 98 km of new transmission and distribution pipes and installing 7,000 new piped-water connections. The water supply development and expansion works will (i) increase access to improved drinking water, (ii) reduce the risk of exposure to waterborne and water-related pathogens in tap water, and (iii) improve water distribution efficiency by repairing and reducing pipe leaks and introducing water meters. Baseline surveys at the beginning of project implementation will determine the number of connections needed for inventory and billing.

28. About 13,300 households are expected to benefit from expanded water supply services aside from the improved services for existing connections. The Project will ensure that affordability and access for the poor are adequately addressed and reflected in the proposed tariff structure. The Project will also use mechanisms to allow poor households to connect to the piped-water system.

### **2. Part B: Drainage and Wastewater Management**

29. This component will improve drainage, prevent flooding, and treat wastewater in Cam Ranh, Gia Nghia, Phan Thiet, Song Cau, Thap Cham, and Tuy Hoa. It will construct integrated combined drainage systems comprising (i) 112 km of primary and secondary drains; (ii) 92 km of tertiary drains; (iii) 5 km of pressure mains; and (iv) 20 km of wastewater collection and interceptor systems; and (v) four wastewater stabilization ponds to temporarily retain runoff water from drainage channels in Cam Ranh, Phan Thiet, Thap Cham, and Tuy Hoa. The total capacity of the drainage systems is 17,500 m<sup>3</sup>/day, with a service area of 23,000 hectares (ha). Selection of a combined drainage system with interceptor sewers was based on least-cost considerations and environmental acceptability. The towns will benefit from the drainage and wastewater management works through (i) health benefits resulting from improved environmental hygiene as well as reduced medical expenditures, (ii) savings from reduced flooding and property damage and losses, (iii) protection of infrastructure and public property, and (iv) incremental increase in land values. About 105,000 households will benefit.

### **3. Part C: Solid Waste Management**

30. This component will expand and reequip the waste collection and transport systems to increase collection coverage in Cam Ranh, Gia Nghia, and Song Cau. Three sanitary landfill sites totaling 15 ha with a capacity of 240 tons/day will be developed, and solid waste and landfill equipment will be procured for waste transport and landfill operations in Cam Ranh, Gia Nghia, and Song Cau. The component mainly involves earthworks for landfill construction, construction of access roads, landfill infrastructure, and small storage stations, together with procurement of solid waste equipment for collection, transport, and O&M. Solid waste management services and facilities will enable substantially cleaner town environments. In the landfill sites, the Project will ensure that WSS service providers introduce measures so that the livelihoods of waste pickers are not adversely affected by the project activities. Male and female waste pickers will equally

have the options of being employed by the POEs or by private solid waste companies. About 30,700 households are expected to benefit from improved solid waste management.

#### **4. Part D: Community Environmental Sanitation and Awareness**

31. This component aims to (i) promote public awareness of the importance of environmental hygiene and links between good sanitary practices and health; and (ii) support community activities to enable the poor to access water, particularly sanitation services, in all project towns. The activities will comprise (i) public awareness education campaigns<sup>5</sup> for good environmental hygiene practices, and (ii) social intermediation and the development of information, education, and communication initiatives for good environmental hygiene practices to minimize duplication of materials. The Project will ensure that information materials are gender-sensitive and culturally appropriate, and seek partnerships with other funding agencies such as UN-HABITAT to enable poor households to access low-cost technology improvements in sanitation such as installment of septic tanks, latrines, and household sewer connections. The VWU, with its experience in working effectively at the community level, will be responsible for designing and implementing this component and will report to the provincial project management unit (PPMU). Implementation arrangements and engagement of VWUs are further discussed in paras. 46 and 51.

32. Upon project completion, about 1,700 poor households are expected to have access to piped water, and 3,000 households will have improved sanitation.

#### **5. Part E: Project Management and Institutional Strengthening**

33. This component will have two subcomponents: institutional strengthening and project management. The institutional strengthening subcomponent will provide consultancy services to develop a time-bound action plan to ensure improved and sustained delivery of WSS services in the project towns. The Project will strengthen national tariff policies by preparing affordability and tariff guidelines and cost-recovery mechanisms to reduce the need for Government subsidies, supporting performance benchmarking activities, and strengthening utility networks such as the ADB-supported Southeast Asia Water Utilities Network. The Project will help (i) transform POEs into financially viable and responsive entities; (ii) develop action plans to improve POE efficiency and implement them; (iii) strengthen POE planning and management capacities; (iv) prepare standard contracts and guidelines for service contracts and other forms of private involvement and partnerships; (v) introduce measures to improve operational efficiency through cost reductions, decreased levels of unaccounted-for water, improved bill collection, and improved accounting procedures; and (vi) train management and staff. The institutional and policy reform agenda is in Appendix 4.

34. This subcomponent will provide running costs for day-to-day administration, consultancy services to help the project coordination unit (PCU) and PPMUs,<sup>6</sup> and surveys to develop a detailed project design. The subcomponent will also build technical and managerial capacity for PCU and PPMU staff through skill training and workshops on (i) bidding procedures and guidelines for procurement of goods and services; (ii) project management, including planning, implementation, monitoring, and evaluation; (iii) financial management and accounting; (iv) environmental sanitation and awareness; (v) gender awareness; (vi) quality management and report writing; and (vii) technical aspects of sanitary engineering. This subcomponent is discussed in paras. 44–47.

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<sup>5</sup> The environmental awareness campaigns could target, among other groups, primary-school children, waste pickers, women's groups, and the youth.

<sup>6</sup> The roles and functions of PCU and PPMUs are discussed in paras. 44–45.

35. The Project, together with MOC, will engage in policy dialogue with PPCs and civil society to ensure PPC support and greater civic participation. The dialogue will involve discussions on (i) development of action plans for government reform programs and targets set out in the orientation plans; (ii) relationships between people's committees and POEs, particularly with regard to regulatory and operating functions; (iii) the importance of increasing the role of women and including vulnerable groups and assurance of women's participation in project planning, design, and implementation, including greater representation of women in POE management positions; and (iv) measures to protect the livelihoods, health, and safety of waste pickers.

## **C. Special Features**

### **1. Corporatization of Public Operating Entities**

36. The Project will support the Government's State Enterprise Reform Program, which aims to equitize POEs by converting them gradually into joint-stock shareholding companies with 49–100% public ownership. For POEs that cannot be equitized in the short term, the Project will help convert them into one-member limited liability companies. This will allow the entity greater autonomy in business decisions, staff remuneration, capital raising, and retention of earnings collected from customers for O&M expenses. By the end of the Project, POEs are expected to be financially viable as indicated by positive cash flows, allowance for gradual reduction of Government subsidies, and selling of shares to the public. As companies are corporatized and subsequently equitized, economies of scale and service demand will be major factors in determining POEs' direction. The Project will help restructure POEs into autonomous entities, develop business plans, prepare standard contracts and guidelines, and introduce efficiency measures in accordance with the 2005 Unified Enterprise Law, with new employment practices, performance-based staff incentives, commercial focus, financial autonomy, and improved financial management systems.

### **2. Cost Recovery and Financial Sustainability**

37. To enable full cost recovery and long-term financial sustainability, the Project will help PPCs develop and implement action plans to improve sustainability of POEs by expanding coverage of services, reducing operating costs, and adopting tariffs that will enable full cost recovery for water supply and recover sufficient costs to cover O&M costs for drainage, wastewater, and solid waste management services. The Project will also help poor households connect to the piped-water supply system, including through deferred payment systems for new water connections and facilitation of grants for building septic tanks and connecting to municipal drainage systems.

38. The Project will provide time-bound suggestions to operationalize national tariff policies. It will also develop mechanisms to strengthen the regulatory function for tariff revision, which includes public participation by calculating fees for water supply, drainage, wastewater, and solid waste and recommending and justifying them to clients and people's councils, and agreeing on service levels with provincial and town people's committees.

### **3. Participation for Improved Management of WSS Services**

39. The Project emphasizes the importance of community awareness and civil-society participation in planning and managing urban services and in providing greater access to poor households. The Project will (i) involve VWUs in implementing the public awareness component and ensure timely disbursement of funds from the PPMUs to the VWUs; and (ii) mobilize communities and introduce measures to help poor households connect to the piped-water supply system, including through deferred payment systems for new water connections.

Through participation and sense of ownership, PPCs will be able to better formulate and implement improved sanitation regulations and policies which, among others, mandate wastewater connection to municipal drains and impose penalties on people who do not pay for services received, cause environmental pollution, or impinge on urban infrastructure. To increase private sector participation, the Project will also involve private groups, private cooperatives, and private companies involved in solid waste management by developing simplified service contracts. Through feedback from customers or beneficiaries of WSS services, the Project will support an independent regulatory body such as the Viet Nam Water Supply Authority to evaluate tariffs and recommend tariff increases. The Project will also develop benchmarking and key performance indicators, which will be monitored throughout the Project.

#### D. Project Investment Plan

40. The project investment cost is estimated at \$66.72 million, of which ADB will provide up to \$53.22 million equivalent. The remaining amount, to include duties and taxes, will be provided by the central Government, PPCs, and project beneficiaries. A detailed project cost estimate is in Appendix 5.

**Table 1: Project Investment Plan <sup>a</sup>**  
(\$ million)

Component	ADB	Government/PPC	Total Cost <sup>b</sup>
<b>A. Base Costs</b>			
Part A: Water Supply Development	8.46	1.97	10.43
Part B: Drainage and Wastewater Management	29.19	8.41	37.60
Part C: Solid Waste Management	1.43	0.33	1.76
Part D: Community Environmental Sanitation and Awareness	0.38	0.00	0.38
Part E: Project Management and Institutional Strengthening	6.65	0.43	7.08
<b>Subtotal (A)</b>	<b>46.11</b>	<b>11.14</b>	<b>57.25</b>
<b>B. Contingencies</b>			
Physical <sup>c</sup>	4.61	1.12	5.73
Price <sup>d</sup>	1.62	1.24	2.86
<b>Subtotal (B)</b>	<b>6.23</b>	<b>2.36</b>	<b>8.59</b>
<b>C. Finance Charge during Implementation</b>	<b>0.88</b>	<b>0.00</b>	<b>0.88</b>
<b>Total</b>	<b>53.22</b>	<b>13.50</b>	<b>66.72</b>

<sup>a</sup> Includes taxes and duties of \$4.8 million not financed by the Asian Development Bank (ADB). Numbers may not sum precisely because of rounding.

<sup>b</sup> In mid-2006 prices.

<sup>c</sup> Physical contingencies computed at 10% for civil works, training, surveys, and studies. Price contingencies computed at 5% on foreign exchange costs and 9% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

<sup>d</sup> Includes interest charges for the ADB loan.

Source: ADB estimates.

#### E. Financing Plan

41. ADB's Asian Development Fund will cover up to 79.77% of the total project cost, including \$20.00 million equivalent of local currency cost. ADB financing of the local currency cost is justified by the tight fiscal situation confronting the PPCs, which will provide the counterpart funds and repay the subsidiary loans under the Project. The ADB loan will have a maturity of 32 years, with a grace period of 8 years, an interest rate of 1.0% per annum during the grace period, and 1.5% per annum thereafter. The borrower will be the Socialist Republic of Viet Nam. Table 2 provides the financing plan.

**Table 2: Financing Plan**  
(\$ million)

Source	Foreign Exchange	Local Currency <sup>a</sup>	Total Cost	%
Asian Development Bank	33.22	20.00	53.22	79.77
Government and/or PPCs	0.00	13.50	13.50	20.23
Beneficiaries				
<b>Total</b>	<b>33.22</b>	<b>35.50</b>	<b>66.72</b>	<b>100.0</b>

<sup>a</sup> Detailed local currency costs will be reviewed during Project implementation.

PPC = provincial people's committee.

Source: Asian Development Bank estimates.

42. Part of the ADB loan will be re-lent by the Government to POEs for water supply development and expansion through subsidiary loans in local currency under Subsidiary Loan Agreements upon terms and conditions satisfactory to ADB.

43. The Government shall cause PPCs to ensure that POEs apply the proceeds of the loan to finance expenditures on the Project in accordance with the provisions of the loan agreement and project agreement.

## **F. Implementation Arrangements**

### **1. Project Management**

44. A PCU will be established within the Management Board for Urban Technical Infrastructure Projects (MABUTIP) to coordinate project implementation within 1 month after the loan effectiveness. The PCU will (i) provide technical support for Project implementation, supervision and training to the Project provinces through Project consultants, (ii) monitor withdrawal applications for disbursement of the Loan proceeds, (iii) monitor the preparation and submission of Project financial reports at the provincial level, (iv) recruit an independent auditor and ensure that periodic Project audits are properly carried out in a timely manner, (v) coordinate all reporting activities of the PPMUs, consolidate reports and ensure timely submission of semi-annual reports to MOC and ADB, (vi) monitor and coordinate all Project-related procurement to ensure compliance with the requirements of the Government and ADB, (vii) prepare and implement training programs for the PPMUs, and (viii) act as liaison between the Government and ADB with respect to the Project. MOC shall be responsible at the central level for coordinating the Project implementation, including recruiting and managing the consultants for the Project, except for Part D: Public Awareness component of the Project, through the PCU under MABUTIP.

45. In accordance with the Government's decentralization policy, PPCs of Binh Thuan, Dak Nong, Khanh Hoa, Ninh Thuan, and Phu Yen will be the executing agencies. The PPC will allocate the counterpart funding, provide policy guidance, and monitor and evaluate project activities. Within 2 months after the loan effectiveness, each PPC will set up a PPMU under a designated POE as the implementing agency, which will (i) directly manage day-to-day Project implementation in the Project towns, (ii) supervise the Project consultants in designing, preparing bid documents, and construction activities, (iii) manage the acquired land, resettlement, and environmental and social safeguard compliance, (iv) implement the Gender Action Plan prepared for the Project, (v) prepare withdrawal applications and financial documents, and (vi) submit periodic progress reports with assistance from the Project consultants for submission to the PCU and the respective PPC. The PPMUs shall establish

resettlement working groups and environmental monitoring units which shall monitor and update information in their relevant areas of expertise. At least 30% of the PPMU staff will be female.

46. The provincial VWU will work with the PPMU to design and implement part D (community environment sanitation and awareness). It will report to the PPMU and coordinate with other agencies. At least one person from the PPMU will be assigned to work with the VWU to ensure timely implementation of activities under part D. The VWU will be recruited by the PPMU through the single-source selection procedure.

47. Within 2 months after the loan effectiveness, a project steering committee (PSC) will be established in each Project province to resolve matters that require interdepartmental coordination at the provincial level. A project steering committee (PSC) will be established in each province to resolve matters that require interdepartmental coordination at the provincial level. The PSC will be chaired by a PPC vice chair, and members will represent stakeholders, including, but not necessarily limited to, the provincial departments of finance, planning and investment, health, environment and natural resources, and construction and/or public works; and women's unions. The provincial VWU will have at least one representative in the PSC. Where relevant, the PSC will include a representative from the provincial department of the Committee for Ethnic Minorities in Mountainous Areas. The project implementation arrangements are in Appendix 6.

## **2. Implementation Period**

48. It is estimated that the Project will be implemented over 5 years, commencing in the first half of 2007. To minimize delays, PPMUs need to be established and project consultants recruited by early 2007. Detailed design is scheduled for completion by mid-2008, and construction is expected to commence in the second half of 2008. Land acquisition and resettlement will be conducted before construction. The water supply, small-scale drainage schemes, and the solid waste management components are scheduled for completion in 2010. The large, complete drainage and wastewater schemes with wastewater treatment in Tuy Hoa, Cam Ranh, Phan Thiet, and Gia Nghia are expected to be completed by early 2011. The implementation schedule is in Appendix 7.

## **3. Procurement**

49. Goods, works, and services financed by ADB will be procured in accordance with ADB's *Procurement Guidelines* (2006). All procurement contracts will contain anticorruption provisions as specified by ADB. Procurement will generally be carried out by the PPMUs under the guidance of the PCU. Civil works above \$2,000,000 or goods above \$500,000 will be procured through international competitive bidding (ICB), and civil works below \$2,000,000, through national competitive bidding (NCB). Equipment and selected material packages worth \$100,000 to \$500,000 will be procured using NCB, while packages under \$100,000 will be procured through shopping. Force accounts will be used for small and scattered water supply and/or drainage works that cannot be defined in advance. Before commencement of NCB procurement, ADB and the Government will review the Government's procurement procedures to ensure consistency with ADB's requirements. Any necessary modifications or clarifications will be documented in the procurement plan (Appendix 8).

50. The Government has requested ADB to approve advance action to recruit consultants and to procure goods and civil works. Advance action is necessary to expedite project implementation. The Government has been advised that ADB's approval of advance action does not constitute a commitment to finance the Project.

#### 4. Consulting Services

51. Consultants will be selected and engaged using ADB's quality- and cost-based selection procedures in accordance with ADB's *Guidelines on the Use of Consultants* (2006). An international consulting firm in association with one or more national consulting firms will be recruited by the PCU using the quality- and cost-based selection procedure and will assist the PCU in overall project management. Consultancy services will include project detailed design and supervision, comprising engineering, environmental, sanitation, financial, and social aspects; social, poverty, resettlement, and environmental monitoring; capacity building and training programs to strengthen the institutional capacities and improve operational efficiencies of POEs and WSS service providers. A total of 1,045 person-months of consulting services (93 international and 952 national) will be required. In addition, (i) an independent resettlement monitoring consultant will be engaged, on an intermittent basis, using the least-cost selection method; and (ii) VWUs will be engaged through single-source selection to implement part D (community environmental and sanitation awareness). The least-cost selection method is justified because the assignment is relatively small, and practices and standards for conducting poverty impact assessments are well established. Single-source selection, despite not having the benefits of competition for quality and cost, is proposed because the VWUs engage in grassroots activities and have exceptionally extensive networks. The estimated staffing requirement is in Appendix 9.

#### 5. Anticorruption Policy

52. The Government shall comply with, and shall cause the PPCs and the POEs, as applicable, to comply with ADB's anticorruption policy.<sup>7</sup> The Government (i) acknowledges ADB's right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive or coercive practices relating to the Project; and (ii) agrees to cooperate fully with, and to cause the PPCs and POEs, as applicable, to cooperate fully with any such investigation and to extend all necessary assistance, including providing access to all relevant books and records, as may be necessary for the satisfactory completion of any such investigation.

53. In addition to these requirements, to deter corruption and increase transparency, the Government shall maintain the procurement website to disclose information about public procurements, including those related to the Project. For each contract, the website shall include information on, among others, the list of participating bidders, name of the winning bidder, basic details on bidding procedures adopted, amount of contract awarded, and the list of goods/services procured. In addition to the web-based disclosure, stakeholders, which include civil society and non-governmental organizations, shall be provided detailed information on each PPMU-level procurement on public notice boards in their respective provinces.

#### 6. Disbursement Arrangements

54. Loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook*. Six imprest accounts—one for the PCU and five for the PPMUs of Binh Thuan, Dak Nong, Khanh Hoa, Ninh Thuan, and Phu Yen—will be established in non-interest-bearing current accounts in a commercial bank acceptable to ADB to expedite project implementation through the timely release of loan proceeds. The advance to each imprest account will not exceed 10% of the allocation for the PCU or the 6-month forecast expenditure for each PPMU. The imprest accounts will be established, managed, and liquidated in accordance with ADB's *Loan Disbursement Handbook* and detailed arrangements agreed to by the Government and ADB; ADB's statement of expenditure procedure may be used to reimburse eligible

<sup>7</sup> ADB. 1998. *Anticorruption Policy*. Manila.

expenditures and to liquidate advances made into the imprest account. The procedure will apply to contracts not exceeding \$100,000.

## **7. Accounting, Auditing, and Reporting**

55. Detailed consolidated annual project accounts, as maintained by the PCU and PPMUs, will be audited by qualified and independent auditors acceptable to ADB and will be submitted to ADB, in English, within 6 months of the close of each fiscal year. The annual audit report will include the audit of the imprest accounts and the statement of expenditure procedure.

## **8. Project Performance Monitoring and Evaluation**

56. The PCU will consolidate quarterly implementation reports sent by PPMUs and submit semiannual progress reports to ADB. The PCU will ensure that the PPMUs conduct timely baseline physical and socioeconomic surveys. A baseline survey will be undertaken early during implementation to collect and analyze data on the relevant indicators for monitoring and reporting purposes and will be compared against the targets achieved during project completion. The performance indicators will include but not be limited to (i) service coverage, (ii) unaccounted-for water, (iii) production capacity, (iv) staff and working ratios, and (v) billing and collection efficiency. Semiannual progress reports will describe physical progress, details of any change in schedule, implementation, progress against the gender action plan, updates on implementation of the environmental and resettlement plans, use of loan proceeds, and an outline of the work for the next 6 months. The report will provide summary financial accounts of the Project, including expenditure during the period, year-to-date expenditure, and total expenditure to date. The PCU will submit to ADB, within 3 months of physical project completion, a project completion report covering the details of implementation, costs, monitoring and evaluation, and other information requested by ADB.

57. The PCU will ensure that the project performance monitoring system is established within 6 months of loan effectiveness. It will track project implementation activities, target dates, expected outcomes, and assigned responsibilities. A post-resettlement evaluation, by an independent consultant, will be undertaken once all project resettlement activities have been completed. The indicators to be monitored will be formulated, discussed, and agreed by ADB, PPCs, and municipal corporations. Within 6 months of loan effectiveness, the PCU will conduct initial baseline physical and socioeconomic surveys and submit a detailed implementation plan for benchmarking information and monitoring performance. This will be subject to ADB's review and concurrence. The PCU will submit annual reports to ADB throughout project implementation.

## **9. Project Review**

58. Project performance will be reviewed by the PCU, PPCs and ADB. The first-level review will be conducted every quarter by the PCU. It will be based on performance reports prepared by the PPMUs. The monthly reports on project performance, major policy issues, and actions required or taken by the respective authorities will be reviewed. The report will be sent to MOC and the PPCs for their action. The second-level review will be conducted by ADB review missions every 6 months throughout the Project. A comprehensive midterm review will be carried out 36 months after the date of loan effectiveness to identify problems or weaknesses in implementation arrangements and to agree on any corrective measures. A final review will be conducted by an ADB mission towards the end of the project.



## **IV. PROJECT BENEFITS, IMPACTS, ASSUMPTIONS, AND RISKS**

### **A. Social Aspects**

#### **1. Social and Poverty Impact**

59. The Project will improve the quality of life in eight towns by providing piped water and improving environmental conditions. By 2011, it will benefit about 105,000 households or 501,000 people, of whom 10,400 households or 45,300 people are poor. Safe and reliable piped water will help lower water costs, save time, and improve health. Better drainage and solid waste collection systems will help eliminate standing rain and storm water and unsanitary solid and liquid waste disposal. Hygiene awareness and promotion will complement the Project's physical investments. Infants, women, and the elderly, who are more susceptible to waterborne disease and environment-related illness, will benefit the most.

60. The Project will help reduce the risk of increased impoverishment associated with the high cost of health care. The poor and near-poor suffer most because of weak urban infrastructure and unsanitary conditions. They are often forced to sell their income-generating assets and lose work days because of sickness—their own or a family member's. Part D supports poor households that cannot afford the connection fee to a water supply and drainage system and have poor toilet facilities. These interventions aim to facilitate access by the poor to safe water and improved sanitation facilities. The summary poverty reduction and social strategy is in Appendix 10.

#### **2. Gender Impact**

61. Women are responsible for a variety of household and community WSS tasks. They are responsible for household water supply and use, including family hygiene and sanitation, and make up most solid waste collectors. Distance to the nearest water source is less of a problem for urban than rural women as many households in the project towns purchase water from vendors and/or use rain-harvesting systems. Women will benefit mainly from increased cost and time savings and improved family health and hygiene. Women represent about one third of employees in the public utility companies surveyed and are often underrepresented in management positions. The Project will help public utility companies in the project towns develop and implement steps (providing access to training and posting job announcements) to increase the number of female employees, especially in management. The PPMU will contract the provincial VWU to implement part D. VWUs will be represented in the PSCs and help deliver gender awareness training in the provincial PSC and POE and the PPMU. At least 30% of the PPMU staff will be female. A gender analysis and action plan is in Appendix 11.

#### **3. Indigenous Peoples and Ethnic Minorities**

62. Most people in the project area are Kinh. Ethnic minorities live in Thap Cham (1.2%) and Gia Nghia (35.3%) but rarely in urban areas. Specific actions have been integrated into the project design to ensure that ethnic minorities have equal access to project benefits, have culturally appropriate awareness and education materials, and are safeguarded against adverse project impacts. Under part D, public awareness campaigns on water use and hygiene will reflect ethnic differences in knowledge and practice. Ethnic minorities will be equally eligible for assistance to household water supply connection and sanitation facilities. The PSC established in Gia Nghia will include a representative from the provincial department of the Committee for Ethnic Minorities in Mountainous Areas. Provisions have been included in resettlement plans to ensure that ethnic minorities receive equal compensation, additional support for rehabilitation, and asset transfers that help retain the high status of Ma and Edde women.

#### 4. Land Acquisition and Resettlement

63. The Project will require land acquisition and resettlement of people in eight project towns. Impact on private households and agricultural land will be minimal. An estimated 59 ha will be lost because of improvements in drainage and flood protection, wastewater and sanitation, and solid waste infrastructure; 154 households will be severely affected either by displacement of housing or shops or loss of 10% or more of productive land, and 48 households will be marginally affected (a total of 202 households or 894 people). Involuntary resettlement effects will be most severe in or near landfill areas, wastewater treatment plants, and wastewater stabilization ponds. During project design, efforts were made to avoid and, where possible, minimize the impact through consultations with local authorities. Some households and businesses may be temporarily affected during construction by pipe laying.

64. Resettlement plans for each province were prepared according to Government regulations and ADB's policy on involuntary resettlement<sup>8</sup> and in consultation with local communities and authorities. The plans cover project components able to do the basic resettlement-planning activities of census, inventory of losses, and socioeconomic surveys. Some provincial components are unable to do these at this stage and so a resettlement framework has been prepared to guide resettlement planning and implementation after detailed design. The summary resettlement plan and framework are in Appendix 12. The resettlement framework and five resettlement plans are supplementary appendixes. A total of \$2.11 million is estimated for all project resettlement costs, including implementation costs and contingencies.

#### B. Environmental Aspects

65. Initial environmental examinations (IEEs) were undertaken according to ADB's *Policy and Environmental Assessment Guidelines* (2003) and reports prepared for each province to screen the environment, assess potential impacts of the proposed investments, and propose mitigation measures and institutional arrangements. All IEEs concluded that the Project may lead to temporary and reversible localized negative impacts but foresaw no significant adverse environmental impacts. To minimize adverse impacts, if any, the Project will involve communities and other stakeholders in project planning, design, and implementation. For the proposed landfill sites for Gia Nghia and Cam Ranh, buffer areas will be provided to ensure sufficient soil cover. Periodic monitoring and inspection will be conducted to maintain daily soil cover after disposal of wastes. Waste pickers will be allowed to recover recyclable wastes at the separation area adjacent to the landfill site and participate in income-generating opportunities. Potential environmental impacts during construction are generation of dust and noise; soil erosion caused by excavation; and surface and groundwater contamination by spoil, oil and grease, and wastes. Mitigating measures can be instituted without difficulty through careful monitoring by PPMU and involving communities. Therefore, no further study or detailed EIA is needed.

66. Integrated WSS management will provide sustainable prospects for reducing waterborne diseases, improving water quality and hygiene, reducing incidence of flooding, and improving living conditions, which far outweigh negative impacts. The environmental analysis is in Appendix 13. A summary IEE describing the environmental impacts, mitigation measures, and monitoring plans is in Supplementary Appendix F, while subproject IEEs are in Supplementary Appendix G.

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<sup>8</sup> ADB. 1995. *Policy on Involuntary Resettlement*. Manila.

### C. Economic Aspects

67. The economic analysis has been undertaken in accordance with the ADB's *Guidelines for the Economic Analysis of Projects* and *Handbook for the Economic Analysis of Water Supply Projects*. The analysis comprises least-cost and cost-benefit analyses for the water supply and drainage and wastewater components, while the solid waste and community environmental sanitation and awareness components were examined using the cost-effectiveness criteria. Approaches are combined because of the uncertainties and difficulties of quantifying health and environmental benefits.

68. The major economic benefits arising from improved WSS are (i) time and cost savings in obtaining water, and health benefits accruing to the residents because of improved and expanded coverage of water supply; and (ii) health benefits accruing to the residents, cost savings because of reduced flood damage and losses, and annualized incremental increase in the values of affected land because of improved drainage and wastewater management. The community environmental sanitation and awareness component is expected to generate significant pro-poor benefits in the form of improved hygiene and sanitation practices through better awareness of and access to WSS facilities.

69. The economic internal rate of return (EIRR) has been calculated for the water supply and drainage components of each project town. The results of the overall economic analysis indicate that the base case for the project EIRRs is calculated at 20.87%, where the EIRR for water supply is 15.56% and for drainage 22.49%. The sensitivity analysis shows that the overall EIRR is most sensitive to the actual values of the realized benefits and to delays in the receipt of such benefits. The poverty impact ratio is calculated at 29.92%, which is above the 12.60% estimated average share of the poor in GDP for Viet Nam, reflecting the Project's pro-poor thrust. The economic analysis is in Appendix 14.

### D. Financial Aspects

70. The financial analysis has been undertaken in accordance with ADB's *Guidelines for Financial Management and Analysis of Projects*. It is based on the estimated required average tariffs to achieve full cost recovery for all components. This is achieved by calculating the average incremental financial cost: (i) the present values of capital and O&M costs at financial prices divided by the present value of the volume of water sold for the water supply component, (ii) water sales equivalent as a proxy for the drainage and wastewater treatment component, and (iii) solid waste collected for each year over the life of the components. A recommended tariff structure was then devised and incorporated further affordabilities, segmenting different user groups.

71. The financial internal rates of return (FIRRs) were calculated for the water supply and solid waste components and compared with the weighted average cost of capital (WACC). The FIRRs are 3.9–7.0% (water supply) and 7.8–11.7% (solid waste management), all above the estimated project WACC of 2.0%. The drainage and wastewater component is not considered to generate sufficient revenue to have positive FIRRs and needs to be subsidized by the Government. Even so, a 10% surcharge on water bills is proposed to help recover O&M costs, not capital expenditures.

72. The financial estimations were based on payments of 5% of household incomes, cross subsidies, and a willingness to pay of 6.5%. The financial projections prepared for all eight towns indicate that the financial performance will improve over the 2009–2020 forecast period as tariffs for the services increase. The Government's budget to support the services will be gradually reduced and finally eliminated in 2014. The summary financial analysis is in Appendix 15.

## **E. Risks and Mitigation Measures**

73. Several risks were identified: (i) resistance of existing PPCs to POEs' becoming corporate entities; (ii) lack of willingness of local authorities to implement institutional and policy reforms, including tariff adjustments and efforts toward greater transparency and accountability; and (iii) unforeseen macroeconomic fluctuations or change, which will raise project costs. Several challenges face the project: (i) lack of stakeholders' understanding of project objectives; (ii) lack of capacity of people's committees and WSS service providers; (iii) the PPCs' and POE's lack of familiarity with ADB and Government procurement and disbursement procedures, delaying project implementation; and (iv) poor households' inability to benefit from the project investments.

74. To mitigate the risks and challenges, several measures are proposed: (i) undertake policy dialogue involving the Government, PPCs, and POEs on the benefits of a financially viable and responsive entity; (ii) propose a timetable for corporatizing POEs and adjusting tariffs; (iii) identify and discuss incentives and options for stakeholders to induce greater participation and sense of ownership; (iv) conduct sensitization workshops on project objectives, scope, and activities; (v) provide contingencies to anticipate unforeseen, adverse economic fluctuations; (vi) provide training in accounting, technical, and managerial skills, and in Government and ADB guidelines on procurement, disbursements, and project management for project staff; and (vii) devise mechanisms such as deferred payment schemes to enable the poor to connect with the water supply system and sanitation services.

75. The costs are expected to be outweighed by the integrated benefits and impacts: (i) enhanced environmental sanitation and public health (particularly reduced water-related and waterborne diseases); (ii) reduced or eliminated flooding; and (iii) socioeconomic growth, which is expected to pressure local authorities to meet rising demand for basic infrastructure services.

## **V. ASSURANCES**

76. In addition to the standard assurances, the Government and the PPCs have given the following assurances, which are incorporated in the legal documents:

- (i) The Government shall: (a) establish the PCU within MABUTIP within 1 month after the effective date, (b) cause the PPCs to set up a PPMU within each Project province within 2 months after the effective date, and (c) cause the PPCs to establish a PSC in each Project province within 2 months after the effective date.
- (ii) The Government shall ensure that (a) implementation regulations for the Unified Enterprise Law (2005) are prepared and adopted by the relevant agencies of the Government in a timely manner in order to facilitate effective corporatization and equitization of the POEs; (b) the PPCs adopt promptly the necessary resolutions required to be taken at the provincial level to further facilitate application and enforcement of the Unified Enterprise Law; (c) corporatization and equitization of the POEs are carried out in accordance with the corporatization and equitization program of the respective Project province as may be approved by the Government; and (d) policy dialogue is maintained between the Government and ADB with respect to performance and operation of the POEs throughout the Project implementation period.
- (iii) The Government, through the PPCs, shall ensure that the POEs, within 3 years after the effective date and in a manner satisfactory to the Government and ADB, develop, adopt and implement a time-bound action plan, which shall include (a)

new employment policies, strategies and guidelines on hiring practices, including performance based remuneration systems, enhanced transparency in hiring practices and staff incentives, in accordance with the relevant laws and regulations of the Government; (b) training programs to improve staff capabilities; (c) improved accounting procedures; and (d) O&M plans and procedures.

- (iv) The Government shall ensure that the PPCs adopt tariffs, immediately upon commissioning of the Project facilities that provide full cost recovery in the case of water supply, and recover sufficient costs to cover full O&M costs in the case of drainage, wastewater and solid waste management services.
- (v) The Government shall cause the PPCs to allocate the counterpart funds, at the provincial level, required for the Project from the respective PPCs' annual budget in a timely manner and in accordance with the Government's Budget Law (2002).
- (vi) The Government shall cause the PPCs to (a) carry out the resettlement plans prepared for the Project provinces in an effective and timely manner; (b) update the resettlement plans based on the final technical design, in accordance with the resettlement framework prepared for the Project and with prior approval of ADB; and (c) prepare, revise, implement and monitor the resettlement plans in accordance with the related regulations of the Government and ADB's policy on involuntary resettlement (1995) and other related requirements. Provisions and principles adopted in the resettlement framework and the resettlement plans shall supersede the provisions of Government's regulations wherever there is a conflict or gap.
- (vii) The Government shall cause the PPCs to ensure that the gender action plan prepared for the Project is fully implemented and monitored in accordance with its terms, related Government regulations and ADB's policy on gender and development (2003) in a timely manner, and adequate resources are allocated for this purpose. In particular, the Government shall ensure that (a) female-headed households are eligible for equal compensation and additional support measures for rehabilitation; (b) in ethnic minority groups where women hold higher status than men, such status is maintained where asset transfers are concerned; (c) at least 30% of each PPMU staff are female; and (d) at least one member of the PSC in each Project province is a member of the provincial VWU.
- (viii) The Government shall cause the PPCs to ensure that (a) ethnic minorities have equal access to the Project benefits, have culturally appropriate awareness and education materials, and are safeguarded against adverse impacts; (b) the specific actions indicated in the resettlement plans for ethnic minorities, including their customary rights to forest products, are fully implemented in accordance with the relevant terms of the respective resettlement plans, related Government regulations and ADB's policy on indigenous peoples (1998) in a timely manner, and that adequate resources are allocated for this purpose; and (c) where relevant, the PSC concerned includes a representative from the provincial department of community for ethnic minorities in mountainous areas (CEMMA).
- (ix) The Government shall cause the PPCs to ensure timely flow of funds from the PPMUs to the VWUs allocated for the Project activities under Part D. The Government shall also ensure that (a) the VWUs work effectively with the respective PPMUs to implement the community environmental sanitation and public awareness campaigns under Part D, (b) at least 50% of the motivators

selected for the public awareness campaign are female, and (c) at least 30% of the teams formed to discuss the Project with communities are composed of female members.

- (x) The Borrower shall ensure that adverse environmental impacts of the Project are minimized. In particular, the Borrower shall, through the PPCs, cause (a) the PPMUs and the relevant authorities to monitor and supervise the construction activities to minimize short-term adverse impacts by adopting appropriate mitigation measures and good engineering and construction practices, including replanting of trees, ensuring working safety, sanitation and health care of workers; (b) the existing O&M manual and emergency/inspection plans to be reviewed and revised, as needed, to improve the operation performance for delivery of safe drinking water and minimize a potential risk overflow and flooding of raw sewage; (c) surface and ground water quality testing to be conducted regularly to ensure compliance with drinking water quality and wastewater standards, and detect any sign of ground water contamination; (d) periodic monitoring and inspection to be conducted to maintain daily soil cover of landfill sites; (e) waste pickers to be employed to recover recyclable wastes at the separation area adjacent to the landfill sites and to provide income generation opportunities; and (f) an EMU to be set up within each PPMU to be responsible for implementation of environmental mitigation measures and monitoring.
- (xi) The Government shall comply with, and shall cause the PPCs and the POEs, as applicable, to comply with ADB's anticorruption policy (1998). The Government (i) acknowledges ADB's right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive or coercive practices relating to the Project; and (ii) agrees to cooperate fully with, and to cause the PPCs and POEs, as applicable, to cooperate fully with any such investigation and to extend all necessary assistance, including providing access to all relevant books and records, as may be necessary for the satisfactory completion of any such investigation.

## **VI. RECOMMENDATION**

77. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank and recommend that the Board approve the loan in various currencies equivalent to Special Drawing Rights 36,031,000 to the Socialist Republic of Viet Nam for the Central Region Small and Medium Towns Development Project from ADB's Special Funds resources with an interest charge at the rate of 1.0% per annum during the grace period and 1.5% per annum thereafter; a term of 32 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan Agreement and Project Agreement presented to the Board.

Haruhiko Kuroda  
President

24 October 2006

## DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<b>Impact</b>  Improved quality of life, sustained economic growth, and reduced poverty in project towns	By 2015  100% coverage for improved WSS, reduced waterborne and water-related diseases, poverty reduced to less than 10% in all project towns	Government reports, socioeconomic statistics, poverty impact assessment, environmental monitoring reports, household and customer surveys, project completion report	<b>Assumption</b>  <ul style="list-style-type: none"> <li>Full commitment of and support from the Government, PPCs, WSS service providers, and beneficiaries</li> </ul>
<b>Outcome</b>  Improved access to safe and sustainable water supply  Improved drainage and less flooding  Improved solid waste management systems  Changed attitudes toward environmental hygiene and sanitation  Sustainable management and delivery capacities of WSS service providers	By end of Project (2011)  95% water supply coverage, uninterrupted 24-hour water supply, average unaccounted-for-water of less than 30%. Benefits will accrue to about 13,200 households.  85% drainage coverage, reduced flooding and ponding, reduced wastewater discharge to rivers and waterways. Benefits will accrue to about 105,400 households.  90% solid waste collection coverage, fully operational SWM management systems. Benefits will accrue to about 30,700 households.  Septic tank coverage of 60% in all eight project towns, reduced risks to public health  Corporatization of all POEs to limited liability companies by 2009; positive cash flows, improved staff ratio, adequate, and timely tariff adjustments for water supply; improved collection; improved cost-recovery mechanisms	Government reports, socioeconomic statistics, plant records and water production and sales figures, customer surveys, water-quality tests, groundwater monitoring data, account statements, DONRE monitoring reports, monitoring of targets against baseline surveys  Financial reports of solid waste collectors  Household surveys, VWU records and reports on sanitation  PWSC reports, performance audit reports, billing statistics, POE balance sheets, tariffs	<b>Assumptions</b>  <ul style="list-style-type: none"> <li>Adequate and timely provision of resources for project completion from the Government, ADB, and key stakeholders</li> <li>Ability and willingness of the Government and PPCs to undertake policy and institutional reforms</li> <li>Active participation and sense of ownership from project beneficiaries</li> </ul> <b>Risk</b>  <ul style="list-style-type: none"> <li>Existing PPCs' resistance to POEs' becoming corporate entities</li> </ul>
<b>Outputs</b>  <b>Part A: Water supply development and expansion</b>  Construction and rehabilitation of existing headworks  Construction of water treatment plants and	Mid-2008 to end of 2010  10 km of raw water pipelines from source to WTPs for Gia Nghia and Ninh Hoa  3 WTPs with a combined 16,000 m <sup>3</sup> capacity per day	PPMU and consultant reports, mission findings  Semiannual progress reports  Semiannual progress reports	<b>Assumptions</b>  <ul style="list-style-type: none"> <li>Adequate and timely provision of resources needed for project completion from Government, ADB and key stakeholders, particularly timely recruitment of</li> </ul>

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
pumping stations	designed to agreed standards in Ca Na, Gia Nghia, and Ninh Hoa		consultants, timely disbursements, and availability of counterpart funds and qualified personnel
Construction, rehabilitation, and improvement of water distribution networks	98 km of water supply distribution networks, pipes designed to agreed standards in Ca Na, Gia Nghia, and Ninh Hoa; 18 km treated-water pipes extended to Ca Na	Semiannual progress reports	<ul style="list-style-type: none"> <li>Ability and willingness of the Government and PPCs to undertake policy and institutional reforms</li> </ul>
Installation of new piped connections and rehabilitation of existing connections	7,000 new pipe connections and rehabilitation of obsolete connections in Ca Na, Gia Nghia, and Ninh Hoa	Semiannual progress reports	<ul style="list-style-type: none"> <li>Implementation of suggested cost-recovery mechanisms and needed tariff adjustments</li> </ul>
<b>Part B: Drainage and wastewater management</b>	Mid-2008 to end of 2011	PPMU and consultant progress reports, mission findings	
Construction of drainage networks	112 km primary and secondary drains, 92 km tertiary drains, and 5 km pressure mains in Cam Ranh, Gia Nghia, Phan Thiet, Song Cau, Thap Cham, and Tuy Hoa	Semiannual progress reports	<ul style="list-style-type: none"> <li>Active participation and sense of ownership from project beneficiaries</li> <li>Support for the Project from PPCs, POEs, WSS providers, communities, and other key stakeholders</li> </ul>
Construction of interceptor sewers for the above towns	20 km of interceptor sewers equipped with 14 pumping stations	Semiannual progress reports	
Construction of wastewater stabilization ponds for Tuy Hoa, Cam Ranh, and Phan Thiet	4 wastewater stabilization ponds, total treatment capacity of 17,500 m <sup>3</sup> /day	Semiannual progress reports	<ul style="list-style-type: none"> <li>Implementation of environmental, social, and resettlement requirements</li> </ul>
<b>Part C: Solid waste management</b>	Mid-2008 to end of 2009	PPMU and consultant progress reports, mission findings	<b>Risks</b>
Construction and rehabilitation of landfill sites for Cam Ranh, Song Cau, and Gia Nghia	New sanitary landfills, including buffer zones, and landfill infrastructure for Gia Nghia, and Cam Ranh, each covering 6 ha; 3.5 landfill site improvement for Song Cau All waste pickers identified have continued access to landfill sites.	Semiannual progress reports	<ul style="list-style-type: none"> <li>PPCs' resistance to POEs' becoming corporate entities</li> <li>Lack of willingness of local authorities to implement institutional and policy reforms, including tariff adjustments and efforts toward greater transparency, and accountability</li> </ul>
Procurement of solid waste equipment; establishment of SWM management systems	Compactor trucks, bulldozers, handcars, and storage bins	Semiannual progress reports	
Establishment of SWM management systems	Functioning solid waste management systems in Gia Nghia, Song Cau, and Thap	Semiannual progress reports	<ul style="list-style-type: none"> <li>Unforeseen macroeconomic</li> </ul>



Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p><b>Part D: Community environmental and sanitation awareness</b></p> <p>Public awareness on the importance of good environmental hygiene and sanitation</p> <p>Improved access to sanitation services for the poor</p> <p>Improved environmental conditions in poor communities</p>	<p>Cham</p> <p>Early 2007 to end of 2008</p> <p>Evidence of community participation; increased use of septic tanks</p> <p>At least 30% of teams that provide information about the Project are female.</p> <p>At least 50% of motivators recruited are female.</p> <p>Number of poor households able to acquire septic tanks and drainage connections</p> <p>Cleanliness verified through visual inspections</p> <p>Percentage of female-headed households that have acquired septic tanks and drainage connections</p>	<p>PPMU and consultant progress reports, mission findings</p> <p>Semiannual progress reports</p> <p>Semiannual progress reports</p>	<p>fluctuations or change, which will raise project costs</p>
<p><b>Part E: Project management and institutional support</b></p> <p>Improved capacity of MOC and PPC personnel, as well as POE and WSS personnel in the areas of project management and technical and financial expertise</p> <p>Greater managerial autonomy and operational efficiency of POEs and WSS providers</p> <p>Improved tariff structure for WSS services for financial sustainability</p> <p>O&amp;M manuals, established accounting systems, corporate plan for POEs</p>	<p>Early 2007 to end of 2011 (full duration of the Project)</p> <p>Number of personnel trained in management, technical and administrative expertise in PWSCs and other POEs</p> <p>Issuance of PPC operational decree on autonomy and other necessary reform</p> <p>Conformity to tariff schedule</p> <p>Publication and use of guidelines and manuals</p>	<p>PPMU and consultant progress reports, mission findings</p> <p>Semiannual progress reports, gender action plan, participation records disaggregated by sex</p> <p>Semiannual progress reports</p> <p>Semiannual progress reports</p>	

Activities	Milestones	Inputs (\$ million)
<b>1. Project Start-Up and Implementation</b> 1.1 Establishment of PCU and PPMUs (Women comprise at least 30% of the PPMU, with at least one VWU member in the PSC) 1.2 Consultant recruitment	Early 2007  Early 2007	Civil works \$45.45  Materials and equipment \$ 2.23  Land acquisition and resettlement \$ 2.11  Surveys \$ 0.70
<b>2. Water Supply Development and Expansion</b> 2.1 Detailed surveys 2.2 Consultation with women and men in the communities about design 2.3 Detailed engineering design 2.4 Development of headworks 2.5 Construction and rehabilitation of WTPs 2.6 Transmission and distribution pipes 2.7 Land acquisition and resettlement	Mid-2007 Early 2007  Mid-2007–early 2008 Late 2008–early 2009 Early 2009–early 2010 Early 2009–mid 2010 Late 2007–early 2008	Training and workshops \$ 0.68  Consulting services \$ 4.03  Project management \$ 2.05  Subtotal \$57.25  Miscellaneous \$ 9.47
<b>3. Drainage and Wastewater Management</b> 3.1 Detailed surveys 3.2. Consultation with women and men in the communities about design 3.3 Detailed engineering design 3.4 Pipe layout and refurbishment 3.5 Public sanitation improvements 3.6 Land acquisition and resettlement	Mid-2007 Early 2007  Mid-2007–mid-2008 Early 2009–late 2010 Early 2009–late 2009 Late 2007–early 2008	<b>Total \$66.72</b>
<b>4. Solid Waste Management</b> 4.1 Detailed surveys 4.2. Consultation with women and men in the communities about design 4.3 Detailed engineering design 4.4 Solid waste systems improvements 4.5 Landfill development/improvements 4.6 Land acquisition and resettlement	Mid-2007 Early 2007  Mid-2007–early 2008 Early 2009–mid-2009 Early 2009–mid-2010 Late 2007–late 2008	
<b>5. Community Environmental Sanitation and Awareness</b> 4.1 Form teams (30% female) to inform communities about the Project 4.2. Develop gender- and ethnic-sensitive promotional materials 4.3. Recruit motivators (50% are female) 4.4 Public awareness campaigns 4.5 WSS assistance for poor households	2007  2007–2008  2007 Full duration 2008–2010	
<b>6. Project Management and Implementation Assistance</b> 5.1 Incremental project management 5.2 Training and institutional strengthening 5.3 Institutional/policy reforms	Full duration 2008–2010 2007–2011	

ADB = Asian Development Bank, DONRE = provincial department of natural resources and the environment, O&M = operation and maintenance, MOC = Ministry of Construction, POE= public operating entity, PPC = provincial people's committee, PPMU = provincial project management unit, PWSC = provincial water supply company, SWM = solid waste management, VWU = Viet Nam Women's Union, WSS = water supply and sanitation, WTP = water treatment plant.

Source: Asian Development Bank estimates.

## SECTOR ANALYSIS

### A. Sector Profile

1. **Water Supply.** Over the past decade, the Government, with Official Development Assistance, has invested over \$1 billion to develop new water production and distribution facilities. Production capacity increased from an estimated 1.95 million m<sup>3</sup>/day in 1990 to 2.7 million m<sup>3</sup>/day in 2000, and over 50% of the country's distribution network has been constructed within the past 8 years. Yet, overall urban water supply coverage of the country remains low at 50%,<sup>1</sup> ranging from 67% in the larger cities to about 11% in the smaller towns. Low coverage is exacerbated by overinvestment in production capacity, whereby utilities operate at 78% capacity and therefore exceed the capacity of the distribution network. Financially, water supply sustainability has been hampered by low tariffs relative to incomes and the need for substantial investment to expand coverage. Most water supply companies recover at least operation and maintenance (O&M) costs, with an average working ratio close to 0.7. However, few if any companies achieve full cost recovery, based on properly calculated depreciation levels. The average collection period of less than 30 days and metering practices of 95% are very good. However, much of the distribution system is in poor condition; low water tariffs and lack of accountability have provided little incentive to maintain the distribution network. A concerted program has succeeded in reducing unaccounted-for water from 38.5% in 2000 to 34.0% in 2004. Many small water supply systems provide intermittent supply, averaging 17 hours of service per day.

2. **Drainage and Wastewater.** External assistance for the sector over the past decade has focused on water supply, covering 59 cities and provincial towns in the 61 provinces, while investments in drainage, sanitation, and solid waste improvement in provincial and district towns has been relatively small. Most urban areas in Viet Nam have "combined" drainage systems, with coverage ranging from less than 0.1 m/capita in district towns to around 0.2–0.4 m/capita in the major cities and provincial capitals, well below the drainage coverage of 1.0–2.5 m/capita in more developed Asian cities. In provincial and district towns, drains are usually limited to the highways and main roads, and where drains exist they are generally poor or incomplete as a result of lack of maintenance, lack of investment, ad hoc development, and poor design and construction. About 75% of households in provincial towns and 25–50% in district towns have septic tanks, but only a small portion are connected to sewers or drains. In many urban areas, septic tanks provide only partial treatment of wastewater because they are not constructed to suitable standards, causing septic tank effluent or seepage, which pollutes surface water and groundwater in populated areas.

3. **Solid Waste Management.** Throughout Viet Nam, about 15 million tons of solid waste are generated each year, with municipal waste accounting for 80% and industrial waste nearly 20%, including about 1% of hazardous waste. In the next 10 years, the urban population is expected to double, leading to a 50% increase in the national total solid waste to 22 million tons/year. Impressive progress has been made in collection of waste from urban areas, where on average 75% is collected, with a range of 70–90% in large towns and up to 30% in small towns. However, solid waste is threatening the environment despite some improvement in waste treatment. Of the country's total of about 100 dumps and landfills, only 20% are of adequate sanitary quality. The rest cause environmental pollution and are a threat to people's health and to surface and groundwater systems. Hazardous waste incineration systems are lacking and hazardous wastes generated by industry are usually disposed of with other general wastes.

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<sup>1</sup> United States Agency for International Development, Southeast Asia Water Utilities Network, United States–Asia Environmental Partnership, and Organisation for Economic Co-operation and Development. 2005. *Regional Assessment Survey and Workshop on Full Cost Recovery for Water Utilities in Southeast Asia: Sharing International Experience and Best Practices*. Viet Nam.

4. **Overall Sector Performance.** Despite considerable gains in indicators in the water supply and sanitation (WSS) sector, the coverage and quality of services is not sufficient to meet the growing demand. Shortages of piped water and intermittent services are common. Mechanisms for effective delivery have yet to be fully implemented or are impractical. The key problems that need to be addressed in the short to medium term are (i) inadequate investment in the sector whereby only one third of 600 district towns have piped water, only a few large and medium-sized towns have sewerage and sewage treatment facilities, and cities have no wastewater treatment plants; (ii) public operating entities' (POEs) lack of autonomy and business focus because of unsustainable tariffs; (iii) poor O&M of infrastructure systems as indicated by high unaccounted-for water figures; (iv) lack of management and technical capacity of POE and people's committees; and (v) weak institutional framework and sector regulation.

## B. Sector Institutions.

5. The Ministry of Construction is the line ministry responsible for providing guidelines for sectoral development at the central level. Other related ministries include the ministries of rural development and agriculture (water resources); natural resources and environment (water use, pollution, and hydrology); and health (drinking water and sanitation quality and environmental health education). The provincial people's committee (PPC) oversees urban WSS operations of the provincial department of construction. The service providers include water supply and drainage companies, town or district water supply companies, or urban environment companies, which operate at district and town levels. The setup for managing sewerage, drainage, and sanitation is sometimes not clear and could be different from town to town.

**Table A2: Existing Management of Urban Services in the Project Towns**

Province	City or Town	Class	Existing POE/WSSP		
			Water Supply	Drainage/ Wastewater	Solid Waste
Phu Yen	Tuy Hoa	III	Phu Yen WSDC <sup>a</sup>	Phu Yen WSDC <sup>a</sup>	URENCO under CPC
	Song Cau	V	Phu Yen WSDC <sup>a</sup>	None	Unit under TPC
Khanh Hoa	Cam Ranh	IV	Cam Ranh Urban Works <sup>b</sup>	Cam Ranh Urban Works <sup>b</sup>	Cam Ranh Urban Works <sup>b</sup> /Cooperatives
	Ninh Hoa	V	Ninh Hoa Urban Company <sup>b</sup>	Ninh Hoa Urban Company <sup>b</sup>	Ninh Hoa Urban Company <sup>b</sup>
Ninh Thuan	Thap Cham	III	Ninh Thuan Water Supply Co	Ninh Thuan Water Supply Co	Ward Cooperatives
	Ca Na	V	None	None	None
Binh Thuan	Phan Thiet	III	Binh Thuan WSDC	Binh Thuan WSDC	Unit under CPC
Dak Nong	Gia Nghia	IV	Dak Nong WSD&UW	Dak Nong WSD&UW	Cooperatives

CPC = city people's committee; POE = public operating entity; TPC = town people's committee; WSDC = water supply and drainage company; URENCO = Urban Environmental Company; WSD&UW = water supply, drainage, and urban works company; WSSP = water supply and sanitation provider.

<sup>a</sup> OMLLC = one member limited liability company.

<sup>b</sup> JSC = joint stock company.

Source: PPTA consultant report.

## C. Sector Issues and Challenges

6. The WSS sector faces four main challenges:

- (i) **Lack of managerial autonomy and accountability of POEs.** PPC approval is required for most key management and operating decisions, including service levels, staff salary and benefits, and major expenditures. Excessive dependence on PPCs decisions limits the capacity of POEs to efficiently deliver services.
- (ii) **Lack of capacity and human skills of POEs.** Although sufficient staff is allocated, WSS service providers lack capital, equipment, and training. Many managers are engineers and often lack business and management skills, resulting in poor attention to financial management, markets, and customers' needs.
- (iii) **Low tariffs and cost recovery arising from poor quality services.** While the authority to set tariffs continues to be held by the PPCs, the tariff guidelines issued in 1999 and 2004 do not provide a specific method for calculating the required level of cost recovery, and lack suitable mechanisms for valuing assets and calculating depreciation, constraining full cost recovery and eventual WSS company equitization.
- (iv) **Lack of a sound regulatory framework.** Outdated regulations and weak enforcement of regulations provide disincentives for efficient service delivery.

## D. Policy and Institutional Reforms

7. Government sector policy and strategy are set out in separate orientation plans for urban water supply, drainage, and solid waste management, approved by the Prime Minister in 1998 and 1999. The orientation plans provide sector targets and present Government reforms that aim to decentralize responsibility for urban WSS services to provincial governments, strengthen sector institutions, increase cost recovery through user charges, and gradually eliminate government subsidies. By 2020, all urban areas are expected to be covered and have suitable drainage and wastewater treatment facilities. This will be accompanied by sector and financial reform, modernization of technology and human resources, and mobilization of resources from civil society.

8. Administrative arrangements for urban WSS are gradually changing under the Government's Unified Enterprise Law, which aims to separate POEs from government administration by equitizing POEs by converting them gradually into shareholding companies with 49–100% public ownership. Under the 2005 Enterprise Law, all POEs will be converted gradually into limited liability companies or joint stock companies by 2010. POEs that cannot be equitized in the short term will first be converted into one-member limited liability companies, which gives them greater autonomy in business decisions, staff remuneration, and capital raising, allowing for gradual reduction of subsidies from the state budget. When the limited liability become profitable and financially capable, they will be gradually equitized by selling shares to the public.

9. In sector financing, Government policy aims to (i) adopt full cost-recovery tariffs for water supply; (ii) introduce drainage charges, incorporated into water tariff structures; (iii) apply drainage and solid waste tariffs that are sufficient to cover O&M costs; and (iv) gradually increase tariffs to cover capital investment requirements, and reduce the need for government subsidies.

## EXTERNAL ASSISTANCE

Project	Source	Year	Amount
<b>A. Loans by ADB</b>			
1 1237-VIE: HCMC WSS Rehabilitation		1995	65.00
2 1361-VIE: Provincial Towns WSS		1995	66.00
3 1514-VIE: Second Provincial Towns WSS		1998	69.00
4 HCMC Environmental Improvement		2000	70.00
5 Third Provincial Towns WSS		2002	60.00
6 Central Regional Urban Environmental Improvements		2003	44.00
<b>Subtotal (A)</b>			<b>374.00</b>
<b>B. Loans by Other Sources</b>			
6 Water and Sanitation	UNICEF	1996	60.00
7 Ha Noi Drainage – Phase 1	Japan	1996	148.00
8 Vinh Drainage and Sanitation Rehabilitation	Germany	1996	7.14
9 Dong Hoi Urban Infrastructure Development – Phase 1	Switzerland	1996	0.30
10 Vietnam-Canada Environment Project – Phase 1	Canada	1996	6.70
11 Hai Phong WSS – Phase 3	Finland	1997	7.75
12 Ha Long City Drainage and Water Supply	Denmark	1997	12.84
13 Buon Ma Thuot WSS	Denmark	1997	15.40
14 Northern Thang Long–Van Tri Urban Infrastructure Development	Japan	1997	98.55
15 Nam Dinh Urban Infrastructure Development – Phase 1	Switzerland	1997	2.20
16 Hue City Urban Infrastructure Development – Phase 1	Switzerland	1997	2.20
17 Viet Tri Waste Treatment	Germany	1997	2.70
18 Wastewater Treatment at Viet Thang Textile Company	Netherlands	1997	1.56
19 Ha Tinh WSS	France	1998	1.14
20 Thai Nguyen Drainage and Wastewater Treatment	France	1998	15.96
21 Hue City Drainage and Wastewater Treatment	Belgium	1998	8.70
22 Go Cong Waste Treatment System	Australia	1998	0.11
23 Nam Dinh Waste Treatment	France	1998	3.38
24 Tan Hoa Loa Gom Canal Rehabilitation	Belgium	1998	4.34
25 Viet Tri Drainage and Sanitation	Germany	1999	1.83
26 Vung Tau Wastewater Collection, Treatment, and Drainage	France	1999	17.27
27 HCMC Environmental Improvement	Norway	1999	1.80
28 Hai Phong WSS – Phase 4	Finland	2000	4.75
29 Nam Dinh Urban Infrastructure Development – Phase 2	Switzerland	2000	1.60
30 Dong Hoi Urban Infrastructure Development – Phase 2	Switzerland	2000	0.84
31 Vietnam-Canada Environment Project – Phase 2	Canada	2000	7.90
32 Go Cat Landfill Rehabilitation	Netherlands	2000	10.60
33 Five Provinces Rural WSS	Australia	2001	12.69
34 Water and Sanitation	UNICEF	2001	18.00
35 Viet Tri Industrial and Urban Development	Denmark	2001	2.19
36 HCMC Sanitation (Nhieu Loc–Thi Nghe)	World Bank	2001	166.34
37 Three Cities Sanitation–Hai Phong, Ha Long, and Da Nang	World Bank	2001	99.24
38 Hai Phong Solid Waste Management and Treatment	Korea, Rep. of	2001	19.61
39 Hoi An Wastewater and Solid Waste Treatment and Sanitation	France	2001	8.00
40 Cau Dien Composting Plant	Spain	2001	4.00
41 West Lake Water Quality Improvement – Ha Noi	Austria	2001	28.78
42 Three Provincial Towns WSS: Bac Lieu, Kien Giang, and Dong Thap	Australia	2002	25.00
43 Third Provincial Towns WSS	France	2002	11.24
44 HCMC Drainage and Wastewater Treatment	Japan	2002	71.30
45 Ha Noi Solid Waste Management Equipment	Japan	2002	7.47
<b>Subtotal (B)</b>			<b>892.92</b>

ADB = Asian Development Bank, HCMC = Ho Chi Minh City, UNICEF = United Nations Children's Fund, WSS = water supply and sanitation.

Source: Asian Development Bank estimates.

## INSTITUTIONAL AND POLICY REFORM AGENDA

Policy Objective	Present Situation	Action Needed	Agencies	Time Frame <sup>a</sup>
1. Strengthen national tariff policies and enhance POEs' financial sustainability	PPCs have the authority to set tariffs as per 1999 and 2004 guidelines but are not equipped to calculate the required level of cost recovery, asset valuation, and depreciation. This constrains full cost recovery and eventual POE equitization.	National actions: Issue guidelines for asset valuation and depreciation.  Project actions: Prepare affordability guidelines for tariffs and provide recommendations to the Government.	MOC, MOF, PPCs, TPCs, VWSA, POEs, PCU, PPMUs	Phase 1: adopt tariffs for full cost recovery: immediately upon commissioning of Project facilities  Phase 2: positive cash flow: 36 months
2. Transform and restructure POEs into autonomous and efficient, financially viable and responsive companies operating under the Unified Enterprise Law	Most POEs have limited autonomy and accountability as well as capital and equipment for their operations, and asset management capacities are weak. PPC approval is required for most key management and operating decisions, including service levels, staff salary and benefits, and major expenditures.	National actions: Issue guidelines separating POEs from PPC administration through equitization.  Project actions: Develop action plans to (i) equitize POEs, (ii) develop employment policies and performance-based remuneration, (iii) provide training, (iv) use transparent hiring practices.	POEs, WSSPs, MOC, MOF, other line ministries and PPCs	Phase 1: inventory of issues: 6 months  Phase 2: develop action plan: 12 months  Phase 3: transform POEs into LLCs: 24 months; implement action plan: 36 months
3. Develop cost-recovery mechanisms and business strategies to ensure sustainability of POEs and reduce government subsidies	Directive 04/2004 requires all WSCs to set water tariffs based on full cost recovery; CircularNo.03/1999/TTLT/BXD-BVGCP for drainage requires that 10% of the total water production cost is levied as a minimum and to be gradually increased to cover O&M costs.	Project actions: Develop action plans to (i) expand coverage and reduce operating costs; (ii) adopt tariffs for full cost recovery for water supply; (iii) review tariffs for O&M costs and some depreciation of plant and equipment for drainage, wastewater, and solid waste management services.	PPCs, CPCs, DPCs, TPCs and WSSPs	Phase 1: inventory of issues: 6 months  Phase 2: develop action plan: 12 months  Phase 3: implement action plan: 36 months
4. Strengthen the role of PPCs as "clients" of POEs and improve the planning capacity of PPCs	PPCs are relinquishing administration of POEs, which are being corporatized. However, PPC divisions lack capacity to carry out their new functions as regulators. PPCs have no formal agreements with POEs on performance standards and service delivery.	Provincial actions: Equip PPCs with human resources and guidelines for effective urban management; establish performance standards for service delivery; prepare, implement, and supervise service performance contracts with POEs and WSSPs.	PPCs, provincial departments, and TPCs	Phase 1: conduct dialogue and PPC assessments: 12 months  Phase 2: provide recommendations and technical support: 24 months
5. Improve awareness and community participation of communities in	Lack of (i) awareness of the links between hygiene practices and health, (ii) occupational health and safety of WSS service employees,	Project actions: (i) involve VWU in implementing the public awareness component and ensure timely disbursement of funds	PPCs, CPCs, DPCs, TPCs, PPMUs, WSSPs, VWUs	Phase 1: undertake public consultations: 6 months

Policy Objective	Present Situation	Action Needed	Agencies	Time Frame <sup>a</sup>
the planning and management of urban services	(iii) participation in the protection of WSS infrastructure, and (iv) awareness on the benefits of paying for urban services and connecting to the systems	from the PPMU to VWU, (ii) undertake public consultation and involve communities and poor households in planning and design and O&M of WSS services.		Phase 2: develop IEC materials, implement public education campaigns: 12–36 months
6. Expand WSS services to poor households	The poor are disadvantaged because they are unable to access WSS service systems and no policies help them connect to WSS systems.	Project actions: (i) deferred payment systems for new water connections, (ii) social intermediation to access micro-credit and (iii) assistance to the poor to construct septic tanks and wastewater connections to municipal drainage systems.	PPCs, VWU, PPMUs, POEs	Undertake public consultations with communities: 6 months
7. Increase private sector participation in solid waste management.	Private business (cooperatives and private companies) is currently involved in solid waste management activities. However, their roles are limited, and there are concerns of job losses if the waste management systems are expanded and taken over by POEs.	National action: facilitate a business climate that encourages private sector participation.  Project action: prepare standard service contracts and guidelines for solid waste management for the private sector.	PPCs, DPCs, TPCs and WSSPs	Within 24 months
8. Increase participation by women and vulnerable groups in planning, design, implementation and O&M of WSS services	Females make up more than 50% of the total population in the five Project provinces and are responsible for a variety of tasks relating to WSS at both the family and community levels, yet are underrepresented in management positions in most POEs. Gender mainstreaming and representation within the project units and POEs shall be emphasized.	Adequate representation of females in the PSC and PPMU should be guaranteed. <sup>b</sup> The Project will ensure access to training and posting of job announcements for women and increase the number of women engaged in WSS services, particularly in management positions.	PPCs, PPMUs, WSSPs, WUs	Within 12 months

O&M = operation and maintenance, PPC = provincial people's committee, PPMU = provincial project management unit, POE = public operating entity, WSS = water supply and sanitation, WSSP = water supply and sanitation service provider.

<sup>a</sup> Time frame refers to the number of months upon loan effectiveness.

<sup>b</sup> At least one member of the provincial VWU will be part of each PSC.

Source: PPTA consultant report.



## DETAILED PROJECT COST ESTIMATES

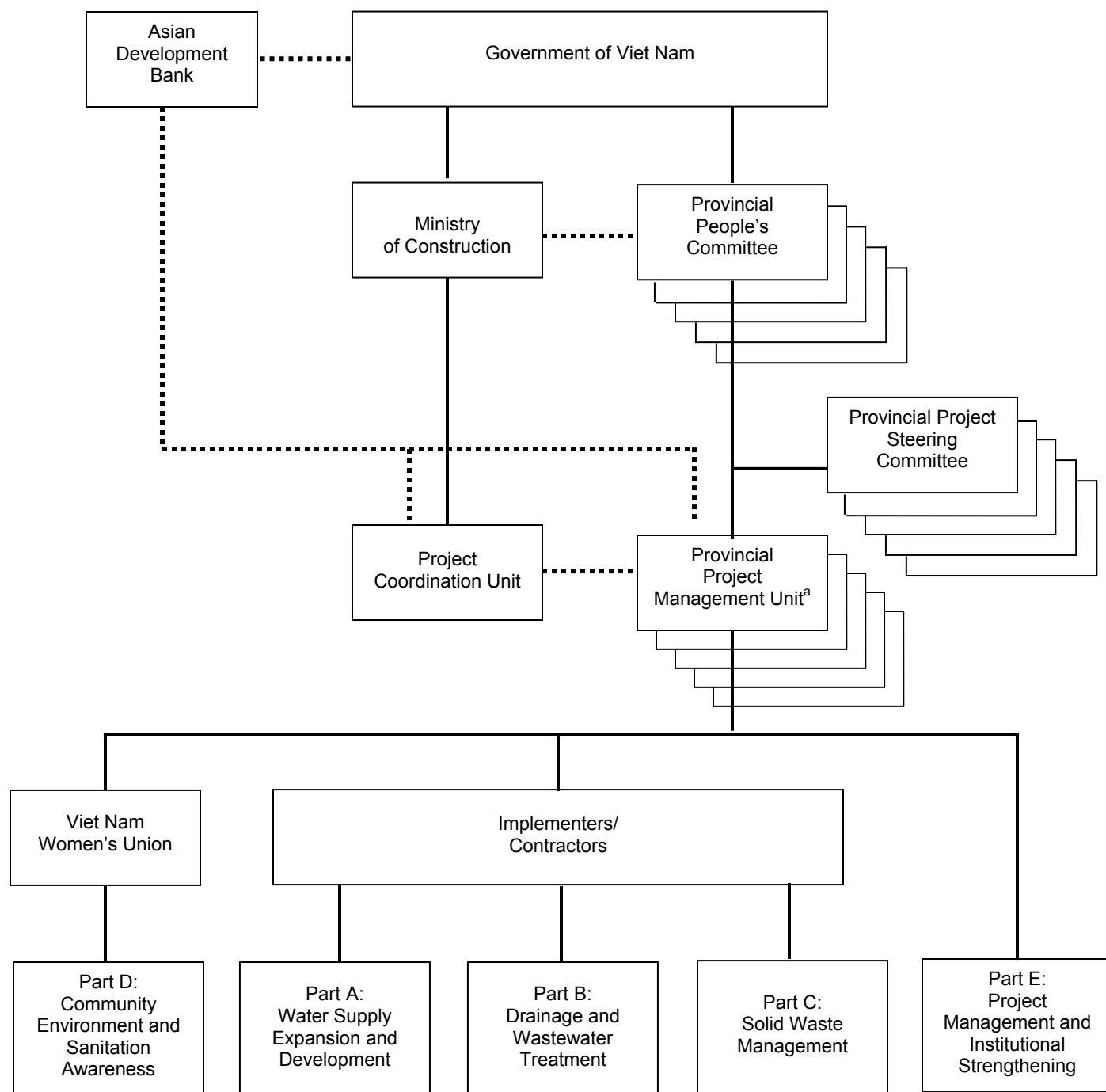
No.	Description	Tuy Hoa	Song Cau	Cam Ranh	Ninh Hoa	Thap Cham	Ca Na	Phan Thiet	Gia Nghia	Total
<b>A.</b>	<b>Water Supply Development</b>									
1.	Civil Works	0	0	0	2,764	0	2,164	0	4,769	9,697
2.	Equipment	0	0	0	188	0	71	0	358	617
3.	Land Acquisition and Resettlement	0	0	0	5	0	0	0	109	114
	<b>Subtotal (A)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,957</b>	<b>0</b>	<b>2,235</b>	<b>0</b>	<b>5,236</b>	<b>10,428</b>
<b>B.</b>	<b>Drainage and Wastewater</b>									
1.	Civil Works	9,086	1,235	4,788	0	3,903	0	11,128	4,293	34,433
2.	Equipment	882	0	138	0	70	0	154	75	1,318
3.	Land Acquisition and Resettlement	267	0	582	0	266	0	682	57	1,854
	<b>Subtotal (B)</b>	<b>10,235</b>	<b>1,235</b>	<b>5,508</b>	<b>0</b>	<b>4,239</b>	<b>0</b>	<b>11,964</b>	<b>4,425</b>	<b>37,605</b>
<b>C.</b>	<b>Solid Waste Management</b>									
1.	Civil Works	0	195	620	0	0	0	0	508	1,323
2.	Equipment	0	21	0	0	0	0	0	276	297
3.	Land Acquisition and Resettlement	0	0	78	0	0	0	0	63	141
	<b>Subtotal (C)</b>	<b>0</b>	<b>216</b>	<b>698</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>847</b>	<b>1,761</b>
<b>D.</b>	<b>Community Environmental Sanitation and Awareness</b>									
1.	Environmental Awareness Education	70	32	90	30	26	20	80	35	383
2.	Sanitation Assistance for Poor Households	0	0	0	0	0	0	0	0	0
	<b>Subtotal (D)</b>	<b>70</b>	<b>32</b>	<b>90</b>	<b>30</b>	<b>26</b>	<b>20</b>	<b>80</b>	<b>35</b>	<b>383</b>
<b>E.</b>	<b>Project Management and Institutional Strengthening</b>									
1.	Consultancy <sup>a</sup>	832	120	506	235	333	176	969	857	4,028
2.	Project Management <sup>b</sup>	424	60	257	118	169	89	494	437	2,048
3.	Survey/Investigations <sup>a</sup>	145	20	88	40	58	30	169	149	699
4.	Training <sup>c</sup>	52	7	31	14	21	11	60	107	303
	<b>Subtotal (E)</b>	<b>1,453</b>	<b>208</b>	<b>882</b>	<b>408</b>	<b>580</b>	<b>306</b>	<b>1,692</b>	<b>1,550</b>	<b>7,078</b>
<b>Base Cost</b>		<b>11,757</b>	<b>1,691</b>	<b>7,178</b>	<b>3,394</b>	<b>4,845</b>	<b>2,561</b>	<b>13,736</b>	<b>12,093</b>	<b>57,255</b>
1.	Contingency									
a.	Physical	1,176	169	718	339	484	256	1,374	1,209	5,725
b.	Price	587	84	358	169	241	127	686	604	2,856
	<b>Subtotal</b>	<b>1,763</b>	<b>253</b>	<b>1,076</b>	<b>508</b>	<b>725</b>	<b>383</b>	<b>2,060</b>	<b>1,813</b>	<b>8,581</b>
c.	Bank Charges	179	21	109	50	98	36	207	184	884
	<b>Total</b>	<b>13,699</b>	<b>1,965</b>	<b>8,363</b>	<b>3,953</b>	<b>5,668</b>	<b>2,980</b>	<b>16,003</b>	<b>14,090</b>	<b>66,720</b>

<sup>a</sup> These subcomponents (consultancy, surveys/investigations, and training) will be managed by the PCU.

<sup>b</sup> This includes PCU running costs (\$416,000) and PPMU running costs (\$1,472,000), and audit costs (\$160,000).

<sup>c</sup> This includes training costs (\$116,000, of which \$40,000 will be allocated for PPMU training by PCU), office equipment for PCU (\$30,000), and office equipment for PPMUs (\$157,000).

Source: PPTA Consultants Report.

**IMPLEMENTATION ARRANGEMENTS**

<sup>a</sup> PPMU/implementing agencies, as agreed by PPCs:

Phan Thiet (Binh Thuan Province): Binh Thuan Water Supply and Drainage Company

Gia Nghia (Dak Nong Province): Dak Nong Water Supply, Drainage, and Urban Works Management Company

Cam Ranh (Khanh Hoa Province): Cam Ranh Urban Works Joint Stock Company

Ninh Hoa (Khanh Hoa Province): Ninh Hoa Urban Joint Stock Company

Ca Na and Thap Cham (Ninh Thuan Province): Ninh Thuan Water Supply Company

Song Cau and Tuy Hoa (Phu Yen Province): Phu Yen Water Supply and Drainage Company (Limited Liability)

Source: Asian Development Bank estimates.

## IMPLEMENTATION SCHEDULE

Project Component	2006		2007				2008				2009				2010				2011			
	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Project Start-Up and Implementation</b> 1. Establish PCU and PPMUs 2. Consultant recruitment																						
<b>A. Water Supply Development and Expansion</b> 1. Detailed engineering design 2. Bidding and award 3. Development of headworks 4. Construction/rehab of WTPs 5. Transmission and district pipes 6. Land acquisition/resettlement																						
<b>B. Drainage and Wastewater Management</b> 1. Detailed engineering design 2. Bidding and award 3. Pipe layout and refurbishment 4. Public sanitation improvements 5. Land acquisition/resettlement																						
<b>C. Solid Waste Management</b> 1. Detailed engineering design 2. Bidding and award 2. Procure landfill equipment 3. SW systems improvements 4. Landfill development 5. Land acquisition/resettlement																						
<b>D. Community Environmental Sanitation and Awareness</b> 1. Public awareness campaigns 2. Assistance scheme for the poor																						
<b>E. Project Management and Institutional Strengthening</b> 1. Incremental project management 2. Training and capacity building 3. Institutional strengthening																						

PCU = project coordination unit, PPMU = provincial project management unit, SW = solid waste, WTP = water treatment plant.

Source: Asian Development Bank estimates.

## PROCUREMENT PLAN

### A. General

Project Information	
Country	Viet Nam
Name of Borrower	Socialist Republic of Viet Nam
Project Name	Central Region Small and Medium Towns Development Project
Loan Reference	30286
Date of Effectiveness	N/A
Amount \$	\$53.22 million
Of which committed, \$	N/A
Executing Agencies	Provincial people's committees of Binh Thuan, Dak Nong, Khanh Hoa, Ninh Thuan and Phu Yen
Approval Date of Original Procurement Plan	13 October 2006

N/A = not available.

### B. Procurement Thresholds, Goods and Related Services, Works and Supply and Install

Procurement Method	To be used (Value \$)
ICB Works	Above \$2,000,000
ICB Goods	Above \$500,000
NCB Works	Below \$2,000,000
NCB Goods	Below \$500,000
Shopping Works/Goods	Below \$100,000

### C. Procurement Thresholds, Consultants Services

Procurement Method	To be used (Value \$)
Quality Cost Based Selection (QCBS)	Above \$200,000
Least Cost Selection	Below \$200,000
Single Source Selection	Below \$200,000
Force Account	Below \$200,000

### D. List of Contract Packages for Goods, Works, and Consulting Services

No.	Contract Description	Estimated Cost (\$'000)	Procurement	Advertisement	Prior Review <sup>1)</sup>
	<b>Binh Thuan Subproject</b>				
1.	<b>Phan Thiet: Drainage works.</b> Supply and installation of materials and equipment; construction of WSP; procurement of O&M equipment.	11,380	ICB	Q4 2008	Y
2.	<b>Phan Thiet: Engineering survey.</b> Topo survey and geological investigation for detailed design of drainage and wastewater management system.	169	NCB	Q2 2007	Y
	<b>Dak Nong Subproject</b>				
3.	<b>Gia Nghia town: Water supply and drainage.</b> Procurement of pipes, materials and O&M equipment, construction of water supply and drainage systems.	9,446	ICB	Q4 2008	Y
4.	<b>Gia Nghia town: Solid waste management.</b> Construction of landfill site, landfill access roads, and small waste storage stations.	509	NCB	Q2 2009	N
5.	<b>Gia Nghia town: Minor civil works.</b> Installation of small water supply pipes and house connections.	150	FA		N
6.	<b>Gia Nghia town: Engineering survey</b> Topographical survey and geological investigation for detailed design of water supply, drainage and solid waste systems.	156	NCB	Q2 2007	Y
7.	<b>Gia Nghia town: Procurement of goods.</b> Procurement of solid waste O&M equipment	276	NCB	Q2 2009	N

	<b>Ninh Thuan Subproject</b>				
8.	<b>Thap Cham town: Drainage works.</b> Supply and installation of materials and equipment for drainage system; construction of WSP; procurement of O&M equipment.	4,073	ICB	Q1 2009	N
9.	<b>Ca Na: Water supply works.</b> Procurement of pipes, materials and equipment, O&M equipment, construction of water supply systems.	2,135	NCB	Q3 2008	N
10.	<b>Ca Na: Minor civil works.</b> Installation of small water supply pipes and house connections.	100	FA		N
11.	<b>Thap Cham and Ca Na: Engineering survey.</b> Topo survey and geological investigation for detailed design of water supply system of Ca Na, drainage and waste water management system of Thap Cham	88	NCB	Q2 2007	N
	<b>Khanh Hoa Subproject</b>				
12.	<b>Cam Ranh town: Drainage works.</b> Supply and installation of materials and equipment for drainage system; construction of WSP; procurement of O&M equipment.	4,926	ICB	Q4 2008	N
13.	<b>Cam Ranh town: Solid waste management.</b> Construction of landfill site, landfill access roads, small waste storage stations.	622	NCB	Q3 2008	N
14.	<b>Ninh Hoa town: Water supply works.</b> Procurement of pipes, materials and equipment, O&M equipment, construction of water supply systems.	2,832	ICB	Q3 2008	Y
15.	<b>Ninh Hoa town: Minor civil works.</b> Installation of small water supply pipes and house connections.	120	FA		N
16.	<b>Cam Ranh and Ninh Hoa: Engineering survey</b> Topo survey and geological investigation for detailed design of water supply system of Ninh Hoa; drainage and solid waste management system of Cam Ranh.	128	NCB	Q2 2007	N
	<b>Phu Yen Subproject</b>				
17.	<b>Tuy Hoa and Song Cau: Drainage works.</b> Supply and installation of materials and equipment for drainage system; construction of WSP; procurement of O&M equipment.	9,970	ICB	Q3 2008	N
18.	<b>Song Cau: Solid waste management.</b> Construction of landfill site, landfill access roads, small waste storage stations.	195	NCB	Q3 2008	N
19.	<b>Tuy Hoa and Song Cau: Engineering survey.</b> Topo survey and geological investigation for detailed design of drainage system of Tuy Hoa, drainage and solid waste management system of Song Cau.	170	NCB	Q2 2007	N
	<b>Project</b>				
20.	<b>Consultant recruitment</b> International consulting firms in partnership with national consulting companies	4,087	QCBS	Q2 2007	Y
21.	<b>Training for Community Environmental Sanitation and Awareness</b> 5 packages, comprising 1 package each for Binh Thuan, Dak Nong, Khanh Hoa, Ninh Thuan, and Phu Yen, comprising public awareness education campaigns, social intermediation, and development of information and education materials.	383	SSS	Q2 2007	N
22.	Resettlement monitoring (independent)	30	LCS	Q3 2007	N
23.	Auditing for financial reports, 2 packages: (i) for PPMUs and (ii) for POEs.	160	LCS	Q4 2008	N

Prior review will be made for prequalification/bidding procedures to ensure that the Government meets ADB procurement guidelines. To expedite implementation, a post review, for the first bidding document will be undertaken for subsequent and similar future procurement of works/goods. See ADB's *Procurement Guidelines* (2006).

## **OUTLINE TERMS OF REFERENCE FOR CONSULTANTS**

### **A. Introduction**

1. The objectives of consulting services are to (i) assist PPCs, PCU and PPMUs with implementation; (ii) strengthen the capacities of implementing agencies through technical and managerial support and training; (iii) POEs and water supply and sanitation service providers to manage sustainable urban services by strengthening their management capacities; and (iv) improve the sustainability of urban services management at the national level by assisting the MOC department of urban infrastructure to prepare key urban management and tariff guidelines.

2. The project is scheduled for implementation over 5 years, and will require a total of 1,045 person months of consulting services (93 of international and 952 of national). Consulting services will be provided in one package through an international consulting firm in association with (a) national consulting firm(s). The international firm will be responsible for overall management of the consulting services, including quality assurance and reporting. Table A9.1 provides details of the consulting inputs required.

3. The international consultants are expected to spend 80% of the assignment in the field. Provincial agencies in each project province, and MOC in Hanoi, will provide suitable office accommodation for the consultant. Each PPC, PPMU, POE will make available to the consultant all relevant data, maps, and reports, and will also ensure access to all equipment purchased under the project at no cost to the consultant. The PCU and provincial authorities in each project town will provide counterpart and support staff to work with the consultant and will arrange necessary introductions to concerned government organizations, ministries, and departments. Each province will also provide translators and interpreters to work with the consultant.

### **B. Scope of Services**

4. Consulting services will comprise: (i) project implementation assistance to PCU and PPMUs, to include project management support and design and construction supervision of infrastructure construction works, (ii) institutional strengthening and capacity building, to include project management training for PCU, PPMU and POE personnel, technical training in urban services, finance and assets; and (iii) community development and public health awareness to include the good environmental hygiene practices, assistance to poor households to access WSS services and development of information, education, and communication materials, and training. Detailed terms of reference for consultants are in Supplementary Appendix B.

5. The specific tasks to be completed are:

#### **1. Engineering Design and Construction Supervision**

- (i) Review all project-related documents and update as necessary each provincial feasibility study report. Conduct engineering investigations to confirm site conditions; review design parameters, e.g., water quality data, drainage flows, solid waste collection; and arrange additional testing where necessary.
- (ii) Review project administration procedures prepared for previous ADB water supply and sanitation projects; prepare standardized administration procedures, operation manuals, reporting format, and applicable software for PCU and PPMUs.

- (iii) Prepare detailed engineering designs to include construction drawings, specifications, bill of quantity, cost estimates, and other documentation required for water supply, drainage and wastewater and solid waste management works; prepare contract packages for each component in each Project town in English and Vietnamese including specifications, conditions of contract, contract schedules, and cost estimates.
- (iv) Review and update: resettlement plans (RPs), particularly with regard to project-affected persons, their affected assets, compensation, and livelihood restoration measures; environmental management plans (EMPs) for construction and operation phases and incorporate EMPs in the civil construction contracts; and the gender action plan.
- (v) Assist the PCU and PPMUs in the prequalification of contractors, establishment of bidding procedures; supervise, inspect, measure, and control the quality of the construction works and the installation of equipment to insure compliance with contract drawings and specifications; assist POEs in commissioning and evaluating the performance of completed facilities and O&M of new equipment.
- (vi) Assist the PCU and PPMUs in the preparation of progress reports and project completion report.

## **2. Community Development and Public Health Awareness**

- (i) Discuss and review, through workshops and public consultations, the objectives and scope of work of the public health awareness program, suitability to local conditions, the benefits of improved environmental hygiene, and lessons learned from previous, similar projects.
- (ii) Develop a public health awareness program for each Project town. define the methodology, targeted areas, time and staff resources required, sequence of activities, monitoring indicators, and reporting requirements and formats; prepare the budget for the required activities.
- (iii) Monitor and evaluate the overall progress and impact of health awareness activities on the project. Liaise with the PPMUs and other provincial agencies for the effective integration of the programs and infrastructure development.

## **3. Institutional Strengthening and Capacity Building**

- (i) Assess training and organizational needs of participating POEs and PPMUs in management, accounting, budgeting, environmental planning and resettlement; prepare a capacity building program, with clearly defined scope, time, and monitorable targets, including on-the-job training and formal training.
- (ii) Assist POEs in developing time-bound action plans to include human resource and employment policies, planning procedures for accounting, asset management and services improvements, and operation and maintenance.
- (iii) Assist POE staff in setting up manual maintenance programs and contracts with equipment suppliers for all Project facilities and prepare detailed maintenance budgets, and implementing annual maintenance programs in each town.

- (iv) Prepare guidelines for cost recovery and tariff adjustments, asset valuation, affordable and innovative payment schemes, and institutional reforms needed to enable POEs to become financially viable and responsive.

### C. Reporting

7. The consultants are required to prepare and submit the following reports:

- (i) a comprehensive design report on each system including cost estimates for each POE, with site investigation reports for major structures such as intakes, water treatment plants, pumping stations, water storage reservoirs, drainage channels, water stabilization ponds, interceptor lines, and landfills as appendixes.
- (ii) monthly progress reports to each PPMU and PCU, summarizing progress achieved, difficulties encountered, and issues to be resolved; quarterly progress reports, within two weeks of the end of each quarter; and biannual progress reports to ADB.
- (iii) a final report on completion of consultant inputs and works completed to be submitted to the PPMUs, PCU, and ADB within one month of completion of consultant inputs.

**Table A9: Estimated Inputs for Consulting Services** (person-months)

Position	Consultant Person-Months		
	International	National	Total
1 Team Leader/WSS Engineering Specialist	57	0	57
<b>A. Design Phase</b>			
2 Deputy Team Leader/WSS Engineer	0	30	30
3 Water Supply/Sanitation Engineer	2	56	58
4 Drainage and Wastewater Engineers	5	90	95
5 Solid Waste Management Engineers	1	24	25
6 Civil Engineers	3	90	93
7 Mechanical/Electrical Engineers	2	36	38
8 Engineering Survey Experts	0	16	16
9 Hydrological/Hydraulic Experts	2	18	20
10 Geotechnical Engineer	0	6	6
11 Inventory and Cost Estimators	0	72	72
12 Procurement and Contract Management Specialist	6	24	30
13 Accounting/Financial Analyst	5	36	41
14 Institutional Development Specialist	3	24	27
15 CAD Operators/Drafters	0	72	72
<b>Subtotal (A)</b>	<b>86</b>	<b>594</b>	<b>680</b>
<b>B. Construction Phase</b>			
16 Deputy Team Leader/Civil Engineer	0	30	30
17 Construction Supervisors – Phan Thiet	0	54	54
18 Construction Supervisors – Gia Nghia	0	54	54
19 Construction Supervisors – Cam Ranh and Ninh Hoa	0	60	60
20 Construction Supervisors – Ca Na and Thap Cham	0	60	60
21 Construction Supervisors – Song Cau and Tuy Hoa	0	60	60
22 Procurement and Contract Management Specialist	3	0	3
23 Mechanical/Electrical Engineers	2	30	32
24 Environmental and Resettlement Specialist	2	10	12
<b>Subtotal (B)</b>	<b>7</b>	<b>358</b>	<b>376</b>
<b>Total (A+B)</b>	<b>93</b>	<b>952</b>	<b>1,045</b>

Source: Asian Development Bank estimates.



## SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

### A. Linkages to the Country Poverty Analysis

<b>Is the sector identified as a national priority in country poverty analysis?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Is the sector identified as a national priority in country poverty partnership agreement?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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**Contribution of the sector or subsector to reduce poverty in Viet Nam:**

Viet Nam has experienced rapid economic growth and urbanization over the past decade. Gross domestic product (GDP) maintained an average annual growth of about 7% and the urban population ratio has increased from 20% in 1990 to about 25% in 2005. Annual average GDP growth rate for 2006–2010 is targeted at 7.5%–8.0%. The urban population in the Central Region totaled close to 4.5 million in 2003 and is growing at 4.7% per annum. Since the last decade, urban infrastructure has been unable to meet the increasing demands of the growing urban population because of (i) continued rural–urban migration caused by greater farm mechanization in the rural areas and perceived higher incomes in urban growth centers; (ii) insufficient funds to expand urban infrastructure; and (iii) weak institutional arrangements for operation and maintenance of systems for long-term sustainability. This imbalance heightens environmental and health risks, and inhibits urban social and economic development in the Central Region.

The Project aims to alleviate the pressure of rapid urbanization in provincial and medium-sized towns in the Central Region and improve environmental conditions for better health and hygiene. The Project is in line with the Government's master plans for urban development in eight towns in five provinces: (i) Gia Nghia (Dak Nong); (ii) Phan Tiet (Binh Thuan); (iii) Thap Cham and Ca Na (Ninh Thuan); (iv) Cam Ranh and Ninh Hoa (Khanh Hoa); and (v) Tuy Hoa and Song Cau (Phu Yen). The Project will help achieve Viet Nam's Millennium Development Goal 7 on environmental sustainability. A community environmental improvement program provides awareness information and assistance for household and community improvements.

### B. Poverty Analysis

**Targeting Classification:** Targeted intervention

#### What type of poverty analysis is needed?

The Central Region is one of the poorest in Viet Nam, accounting for about 38% of the total poor. Living standards are often lower, with poverty levels higher than the national average. Poor and near-poor households are the most vulnerable to weak urban infrastructure and unsanitary conditions. The urban poor in the project towns live in underserved areas with inadequate water supply and sanitation facilities, dysfunctional or nonexistent drainage, frequent flooding, and limited access to solid waste collection. For instance, poor and low-income households are fishing households along the coastal areas in Phu Yen, Khanh Hoa, and Ninh Thuan. Poor toilet and septic tank facilities add to unsanitary conditions and environmental pollution. Improving environmental conditions will reduce high health care expenditures related to waterborne and environmental illness.

A poverty analysis was undertaken during project preparation. Socioeconomic surveys of 100 households in each project town were conducted. The survey also showed the wide gaps between low- and high-income households. The income per capita of the household head from the highest income stratum is D682,000 or almost seven times more than that of the lowest stratum (D97,000). A profile was created for each project town based on these surveys and secondary town data. An affordability analysis was also done to determine the appropriateness of tariffs under the Project for the poor and vulnerable households.

#### Is there a stakeholder analysis?

☒ Yes

☐ No

A stakeholder analysis was conducted during project preparation to identify key project stakeholders, their project-related interests, and their potential roles in project implementation. Primary stakeholders include town residents; households, especially female-headed households, affected by land acquisition and resettlement; Management Board for Urban Technical Infrastructure Projects and MOC; PPCs; public utility companies; and provincial Viet Nam Women's Union (VWU). Secondary stakeholders include relevant line agencies and mass organizations.

#### Is there a participation strategy?

☒ Yes

☐ No

A participation strategy has been streamlined into the project design and social safeguard documents to ensure that different stakeholders continue to participate during implementation. Consultations with local government officials and residents will be important, especially if the scope of any component changes. Continued discussions and subsequent disclosure of social safeguard documents will also be important to ensure affected people, especially vulnerable groups, are aware of proposed mitigation and rehabilitation measures. The involvement of the provincial VWU in the community environmental improvement program is critical to the Project's complementing physical infrastructure with awareness and community and household programs. The following actions are also important for implementing the community component: (i) timely disbursement of funds to the provincial VWU, and (ii) a designated focal point in the Government and one in the public utility companies to work directly with the provincial VWU.

### D. Gender Development

#### Strategy to maximize impacts on women:

In Viet Nam, females are generally responsible for conducting a variety of tasks related to household water and sanitation and community environmental improvements. Women are responsible for ensuring sufficient supply of clean water for family consumption (drinking and cooking). However, associated tasks differ for females living in urban and rural areas. Unlike in rural areas, distance to the nearest water source is not an issue in urban areas. In urban areas, improved access to safe water supply benefits women in terms of increased cost-savings and time. Improved drainage

and enhanced solid waste collection helps to eliminate standing rain and storm water and unsanitary wastes. Better access to water supply, improved drainage, and systematic solid waste collection help reduce health care expenditures for households and improve individuals' well-being.

Improvements in water supply and sanitation-related services may ease women's physical burden but might also increase their burden in managing scarce resources. Most women are willing to pay for improvements in water supply services but some said they were not, as in Cam Ranh (25%), Ninh Hoa (45%), Phan Tiet (56%), and Tuy Hoa (44%). Most are willing to pay from D5,000 to D 8,000.

A relatively high percentage of households headed by women reside in the project area because of high labor migration among males to urban centers to supplement their rural livelihoods. Female heads of households earn lower income per capita per month (D298,000) than male heads (D326,000). Highland towns (e.g., Gia Nghia) have a high percentage of ethnic minority groups such as the Ma and Edde, whose women are of slightly higher status than their coastal or lowland counterparts. A gender action plan is in Appendix 11.

Has an output been prepared? ☒ Yes ☐ No

#### E. Social Safeguards and Other Social Risks

Item	Significant/ Not Significant/ None	Strategy to Address Issues	Plan Required
<b>Resettlement</b>	<input checked="" type="checkbox"/> Significant <input type="checkbox"/> Not significant <input type="checkbox"/> None	The Project will require resettlement in five provinces. In accordance with ADB's policy on involuntary resettlement and Operations Manual (OM) F2, a resettlement plan for each province has been prepared for the subcomponents that are fully defined. A resettlement framework has been prepared also to guide in preparation during project implementation of Resettlement plans for complementary small, scattered, or networked components entailing minor impacts that can be identified only in connection with detailed engineering and technical design.	<input checked="" type="checkbox"/> Full <input type="checkbox"/> Short <input type="checkbox"/> None
<b>Affordability</b>	<input checked="" type="checkbox"/> Significant <input type="checkbox"/> Not significant <input type="checkbox"/> None	An affordability analysis was undertaken for the Project. It found that tariffs are affordable for most households above the poverty line (tariffs are within the targeted percentage of the average monthly household income of 6.5%). However, the analysis showed that households living below the poverty line (D800,000/household/month) find the tariffs 2% higher than the maximum affordability benchmarks. Specific actions and steps will help poor households that cannot afford to pay connection fees (deferred payment schemes, household grants).	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Labor</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	Construction, operation and maintenance of water supply, drainage, and solid waste systems will create jobs by upgrading and expanding urban services. Job or income losses are expected because of land acquisition and resettlement. However, wage labor in the area is sufficient. Income-generating provisions for those losing land will be required for inclusion in the resettlement plans. In project towns with a solid waste component, waste pickers will (i) be employed by the public works company or (ii) work at the new landfill sites. A capacity-building program will improve human resource development for project staff, public works employees, and the VWU.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Indigenous Peoples</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	Most people in the project area are Kinh. Ethnic minorities are found in Thap Cham (1.2%) and Gia Nghia (35.3%). Urban areas have few ethnic minority households. Specific actions have been integrated into the project design to ensure that ethnic minorities have equal access to project benefits, have culturally appropriate awareness and education materials, and are safeguarded against adverse impacts. In resettlement plans and the resettlement framework, ethnic minorities are entitled to equal compensation, resettlement and allowances, and additional support measures to help improve their socioeconomic status and retain high status of Ma and Edde women.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Specific Actions
<b>Other Risks and/or Vulnerabilities</b>	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None	None.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

## GENDER ANALYSIS AND ACTION PLAN

### A. Introduction

1. The Project includes actions that help enhance women's roles and their participation in decision making related to water supply, sanitation, and urban development. It aims to increase women's access to information, training, and capability building. The gender action plan is based on (i) a gender analysis that was conducted during project preparation; (ii) socioeconomic surveys completed in eight project towns; (iii) consultations with women of different ages and ethnic groups, government officials, and the Viet Nam women's unions; and (iv) Asian Development Bank (ADB)-assisted projects for water supply, sanitation, and urban development. The gender action plan is based on Viet Nam regulations and ADB policy on gender and development.<sup>1</sup>

2. In Viet Nam, females are generally responsible for a variety of tasks related to household water and sanitation and community environment improvements. They are key actors in collecting, using, and managing water in the household and in the community. Their access, use, and control of water and sanitation are invariably related to their status or position in their families, ethnic groups, and communities. In turn, the status or position of women is related to their access and control of resources such as education, employment, land, and other livelihood assets.

### B. Gender Analysis

#### 1. General Socioeconomic Information

3. **Households Headed by Women.** A high percentage of households headed by women reside in the project area because of high labor migration among males to urban centers to supplement their rural livelihoods. About 25% of households in the project towns are headed by females, except in Phan Tiet (45%), Tap Cham (41%), and Ca Na (39%). In Gia Nghia, only 19% of households are headed by women. Female heads of households earn, on average, lower income per capita per month (D298,000) than male heads (D326,000) except in Gia Nghia. Most households belong to the majority Kinh ethnic group. However, in Gia Nghia, about 9% of ethnic households come from Ma and Edde ethnic groups, where women hold slightly higher status positions.

4. **Educational Attainment and Employment.** More women (about 78%) than men (71%) in these project towns have some secondary education. Some project towns, however, have high percentage of women with lower education, such as Ca Na (92%), Ninh Hoa (89%), and Ninh Tuan (88%). About one third of households depend on agriculture and fishing for their livelihoods. The rest rely on employment in government, businesses, and the formal and informal labor market. Surveys show that a high percentage of women are employed in the business and service and domestic sectors. Women are also employed in solid waste management companies as waste collectors and street sweepers, but few are in management positions.

5. **Land Ownership.** Most land ownership certificates are still in the name of the male head of the household. In most cases, properties acquired after 1999 have the names of the husband and wife reflected in the certificate. The resettlement compensation package will need to ensure that women's rights to compensation and proper assets transfers are recognized.

#### 2. Relationship with Water, Sanitation, and Waste Management

6. Women are responsible for ensuring sufficient clean water for family consumption (drinking and cooking). However, associated tasks differ for urban and rural females. Unlike in

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<sup>1</sup> ADB. 2003. *Policy on Gender and Development*. Manila

rural areas, the distance to the nearest water source is not an issue in urban areas. In urban areas, improved access to safe water supply benefits women in terms of increased cost savings and time. Improved drainage and enhanced solid waste collection helps to eliminate standing rain and storm water and unsanitary wastes. Better access to water supply, improved drainage and systematic solid waste collection help to reduce health care expenditures for households and improve individual well-being.

7. Women, especially from the low-income households, have a hard time meeting their water supply and sanitation (WSS) needs. About 96% of women from Ca Na and 50% of women from Cam Ranh purchase drinking water from vendors. Most households surveyed indicated that they obtain water from stand posts, boreholes, open dug wells, rainwater, ponds, rivers, and open canals. Some women, especially in Ca Na and Cam Ranh, also purchase water for washing, particularly during the dry season. The exception was Phan Tiet, which has a high percentage of households with indoor connections.

8. The socioeconomic survey shows that women and men from low-income households spend more time (20 minutes or more daily) collecting water than those from higher-income households (16 minutes or less). Higher-income households consume more water and pay an average of D34,000 per month for water compared with lower-income households (D17,000). The cost of water is particularly high in Ca Na and Cam Ranh.

9. While most women are willing to pay for improvements in water supply services, a significant number were not: Cam Ranh (25%), Ninh Hoa (45%), Phan Tiet (56%), and Tuy Hoa (44%). This unwillingness to pay could increase women's burden of managing scarce household resources. Nevertheless, an overwhelming majority (95%) indicated that they were willing to pay D5,000–D7,000 per cubic meter ( $m^3$ ). Some households in Ca Na, Cam Ranh, Gia Nghia, and Ninh Hoa said they were willing to pay up to D8,000/ $m^3$ , as water there is expensive, especially in the dry season.

10. Most households (60%) from the lowest income stratum do not have toilets, almost double those (37%) in the project towns. Women in about two thirds of the households are responsible for disposing of human excreta in buckets to farmers and fishpond owners, or into the nearest stream, pond, or canal. Only a third of the households have their trash collected by a waste management company while the rest dispose of waste by other means (burning, burying, or scattering into canals, ponds, and rivers). About 58% also dispose of wastewater into their garden, empty lots, and open canals. The same proportion of the households do not want to connect waste water pipes to the public drainage system but most are willing to pay a one-time fee for water connection.

11. Most waste pickers at landfill sites are women. They often work long hours (10–12 hours) and earn less than men. They are exposed to pollution and unhygienic conditions and practices, and lack access to proper equipment and tools (e.g., push carts, disposal containers, hygienic masks, gloves, boots, and facilities for washing). The income earned through waste picking helps to supplement household income in times of scarcity.

### **3. Participation in Community Activities**

12. Fewer than one fifth (16%) of women decide on their own whether to participate in community activities. Women's participation in community activities and membership in mass organizations such as the VWU are influenced by income, education attainment, and the ability to make alternative arrangements for completing domestic tasks. Women have a large membership base in the VWU and are influential players in decision making related to WSS activities—both at the community and household levels.

### C. Gender Action Plan

13. The gender action plan has been prepared to highlight the project benefits for both men and women and how the Project addresses gender disparities in the WSS sector. The following are considered and highlighted as actions in the gender action plan (Table A11):

- (i) Women's participation will be enhanced during the Project. Consultations with women of all income and ethnic groups will take into account differences in access to resource and livelihood bases. Attention will be paid to the special needs of the poor, ethnic minority women, and members of households headed by females. The Project aims to reduce barriers to their participation in related activities and decision making. Efforts are also included to increase the participation and representation of women in decision-making structures and processes in public utility companies and the provincial project management units (PPMUs).
- (ii) The Project focuses attention on building government and institutional capacity in gender awareness. Gender training for project staff and technical staff will help increase awareness and their responsiveness to the different WSS needs of both men and women.
- (iii) The Project ensures that participation and consultation strategies are geared to encourage the involvement of women, ethnic minorities, and poor households in resettlement planning and implementation. The Project includes measures that give special attention to women in severely affected households (those that are physically displaced or lose 10% or more of their productive income-generating assets). Consultations with and assistance to severely affected women will be organized in close consultation with local branches of the women's union.

14. Implementation arrangements and estimated costs of the gender action plan have been integrated into the overall arrangements and total budget of the Project. Each PPMU will be responsible for implementing and monitoring gender action plan. An international community environmental sanitation and gender specialist and a community development specialist will help conduct gender awareness trainings for project units, establish sex-disaggregated indicators for a project performance monitoring and evaluation system, and coordinate with other specialists.

15. Resettlement plans will pay special attention to (i) the role of women's economic activities in restoring living standards; (ii) access to existing credit and agricultural extension for women, ethnic minorities, and poor households; (iii) joint registration of land use rights in the names of husband and wife, where households are allocated alternative agricultural and/or residential land; (iv) participation and consultation strategies that encourage the involvement of women, ethnic minorities, and poor households in resettlement planning and implementation; (v) attention to complaints and grievances by women, ethnic minorities, and poor households; and (vi) data disaggregated by sex and ethnicity to support resettlement planning and monitoring.

16. The PPMU will include information on the progress of gender action plan activities in quarterly progress reports prepared and submitted to the project coordination unit (PCU) for consolidation. The PCU will consolidate the information and ensure that an update on the gender action plan is provided to ADB in its semiannual progress reports. The midterm review will review updates and make adjustments.

**Table A11: Gender Action Plan**

<b>Project Component</b>	<b>Actions Proposed</b>
<b>Part A: Water Supply Development</b>	
	<ul style="list-style-type: none"> <li>Issues of affordability and access for male and female-headed households will be considered and addressed (e.g., water supply system tariffs).</li> <li>Households headed by females are eligible for equal compensation, additional support measures for rehabilitation, and asset transfers that help retain the higher status of ethnic women from Ma and Edde groups.</li> </ul>
<b>Part B: Drainage and Wastewater Management</b>	
	<ul style="list-style-type: none"> <li>Men and women will provide inputs on subcomponents before finalizing the details of larger subcomponents (e.g., open drains vs. covered ones).</li> <li>Households headed by females are eligible for equal compensation, additional support measures for rehabilitation, and asset transfers that help retain the higher status of ethnic women from the Ma and Edde.</li> </ul>
<b>Part C: Solid Waste Management</b>	
	<ul style="list-style-type: none"> <li>Both male and female waste pickers will have the option of (i) being employed by the public works company or (ii) continuing to work at the new landfill sites.</li> <li>Households headed by females are eligible for equal compensation, additional support measures for rehabilitation, and asset transfers that help retain the higher status of women from the Ma and Edde.</li> </ul>
<b>Part D: Community Environmental Sanitation and Awareness</b>	
<b>D.1. Public Awareness Education Campaigns</b>	<ul style="list-style-type: none"> <li>Promotional materials include the roles of both men and women in improving hygiene.</li> <li>Increase awareness of links between water and diseases among men and women.</li> <li>Education awareness and promotional materials will be gender sensitive and culturally appropriate so that they are able to reach different target groups.</li> <li>The VWU and project staff will discuss the Project with communities and institutions at all levels. At least 30% of the team shall be female.</li> <li>Encourage women's participation at meetings (e.g., gender-disaggregated focus groups, and meetings held when women can attend).</li> <li>Motivators, at least 50% female, will be trained and mass organizations mobilized.</li> </ul>
<b>D.2. WSS Assistance for Poor Households</b>	<ul style="list-style-type: none"> <li>Poor households headed by females will be given priority access funds for payment of connection fees and sanitation facilities, including septic tanks</li> <li>Written and oral information on schemes will be provided to both women and men. Focus group discussions will be disaggregated by sex to encourage questions and answers</li> </ul>
<b>Part E: Project Management and Institutional Strengthening</b>	
	<ul style="list-style-type: none"> <li>The provincial VWU will be member of each provincial PSC.</li> <li>At least 30% of the PPMU members will be female.</li> <li>At least one person in each PPMU will work with the VWU to implement part D.</li> <li>Consulting services will include an international community environmental sanitation and gender specialist (6 person-months) and a national community development and gender specialist (30 person-months) to work with the VWU's and with project gender issues.</li> <li>Indicators will be disaggregated by sex and ethnicity.</li> <li>Both female and male project staff members will have equal access to information and to participate in training and other capacity-building programs.</li> <li>Public utility companies will publicly announce and/or post job openings.</li> <li>Public utility companies, with the support of the VWU and consultants, will conduct training on leadership and management skills for female staff members.</li> <li>Public utility companies will comply with the International Labour Organization's (ILO) core labor standards,<sup>a</sup> as well as national laws on labor protection, safety, and equal pay.</li> <li>Implementation of special provisions included in resettlement plans (as outlined in para. 15, and in respective resettlement plans for each province)</li> </ul>

PMU = project management unit, PPMU = provincial project management unit, PSC = project steering committee, VWU = Viet Nam Women's Union, WSS = water supply and sanitation.

<sup>a</sup> ILO core labor standards include four basic rights and principles: (i) eliminating all forms of forced or compulsory labor, (ii) eliminating discrimination in respect of employment and occupation, (iii) eliminating child labor, and (iv) ensuring freedom of association and the effective recognition of the right to collective bargaining.

Source: Asian Development Bank estimates.

## SUMMARY RESETTLEMENT PLAN AND FRAMEWORK

### A. Introduction

1. A resettlement plan (RP) has been prepared for each of the five project provinces: Binh Thuan, Dak Nong, Khanh Hoa, Ninh Thuan, and Phu Yen. The RPs cover project components sufficiently designed to conduct the basic resettlement planning activities of census, inventory of losses, and a socioeconomic survey.

2. Each provincial Project has subcomponents as yet not designed, so resettlement planning cannot be undertaken. For components for which assessments were able to be made, the results were incorporated in the RP. For those which could not be assessed during the project preparation stage, a resettlement framework (RF) has been prepared to guide in their resettlement planning and implementation after detailed design.

3. The RF and RPs were prepared for all 13 candidate project towns, which were selected from 18 towns. Because the budget was limited, however, the Project will cover only eight towns: Phan Thiet, Gia Ngia, Cam Ranh, Ninh Hoa, Thap Cham, Cana, Phu Yen, and Song Cau.

4. The RF and RPs have been built upon the laws of the Government, principally the revised 2003 Land Law, Decree 197 (2004), and Decree 17 (2006), and ADB's policy on involuntary resettlement,<sup>1</sup> Operations Manual (OM) F2, and the public communications policy.<sup>2</sup> Provisions and principles adopted in the RF and RPs will supersede the provisions of relevant decrees currently in force in Viet Nam wherever a gap exists, as per Decree 17/2001/ND-CP (2001).

### B. Scope of Land Acquisition and Resettlement Impacts

5. About 59 ha will be lost because of improvements in drainage, flood protection, wastewater, sanitation, and solid waste infrastructure for the main project components described in the five RPs. For these main components, 154 households will be severely affected either by displacement of housing or loss of more than 10% of productive land, and 48 households will be marginally affected, for a total of 202 households (894 people). Involuntary resettlement effects will be most severe in or near landfill areas, wastewater treatment plants, and wastewater stabilization ponds.

6. Table A12 summarizes the known impacts and their estimated resettlement costs. The remaining subcomponents are expected to cause minimal impacts, but this is to be confirmed after detailed design, when priority will be given to avoiding or minimizing impacts.

7. Part D (community environmental sanitation and awareness) may require only minor land acquisition, if any, for building drains, footpaths, and solid waste collection units. Community proposals will be evaluated at the time of submission. The RF will guide any unforeseen land acquisition and resettlement planning during the Project. RPs for each project town will be prepared or revised for the ADB approval as needed.

<sup>1</sup> ADB. 1995. *Policy on Involuntary Resettlement*. Manila.

<sup>2</sup> ADB. 2005. *The Public Communications Policy of the Asian Development Bank: Disclosure and Exchange of Information*. Manila.

**Table A12: Assessment of Land Acquisition and Resettlement Impacts for Five RPs**

Project Town	Land Acquisition (ha)	Severely Affected Households	Marginally Affected Households	Total Impact		Estimated Cost (\$'000)
				Affected Households	Affected People	
<b>Binh Thuan Province</b> Phan Thiet	12.8	18	34	52	311	682
<b>Dak Nong Province</b> Gia Nghia	0.0	0	13	13	52	231
<b>Khanh Hoa Province</b> Cam Ranh Ninh Hoa	20.6 3.6	29 4	1 0	30 4	169 22	660 5
<b>Ninh Thuan Province</b> Thap Cham Ca Na <sup>a</sup>	9.2 0.2	52 1	0 0	52 1	243 5	266 0
<b>Phu Yen Province</b> Song Cau <sup>a</sup> Tuy Hoa	0.0 12.8	0 51	0 0	0 51	0 290	0 267
<b>Total</b>	<b>59.0</b>	<b>154</b>	<b>48</b>	<b>202</b>	<b>894</b>	<b>2,111</b>

<sup>a</sup> For Ca Na and Song Cau, no land acquisition is envisaged. However, there will be temporary resettlement impacts such as temporary land borrowing for drainage and laying of pipes. These linear elements can therefore only be assessed during the Project implementation.

Source: Consultant and Ministry of Construction estimates.

### **C. Project Principles and Entitlements**

8. The following resettlement principles are adopted for the Project:

- (i) Involuntary resettlement and loss of land, structures, and other assets and incomes will be avoided or minimized by exploring all viable options.
- (ii) All affected people are entitled to compensation for all lost and affected assets, incomes, and businesses, including permanent and temporary losses or impacts, at replacement cost and provided with rehabilitation measures sufficient to assist them to improve or at least maintain their pre-project living standards, incomes, and productive capacity.
- (iii) Lack of legal rights to the assets lost or adversely affected will not bar affected people from entitlement to such compensation and rehabilitation measures to achieve the stated objectives of the RPs and RF. Those without legal title to land and/or structures occupied or used by them (e.g., non-titled affected people) will be entitled to various options of resettlement assistance, provided they cultivated or otherwise occupied the land before the eligibility cut-off date. Resettlement assistance to non-titled affected people will include compensation for lost assets and restoration of income and living standards.
- (iv) In cases where relocation or displacement is required, all possible efforts will be made to maintain the social and cultural institutions of the resettled people and the host community.
- (v) RPs will be prepared and implemented with participation and consultation of affected people. The comments and suggestions of affected people and communities will be taken into account during the design and implementation of resettlement activities.
- (vi) ADB will not approve any civil works contract for any subcomponent to be financed from the loan proceeds unless the Government has satisfactorily completed payment of compensation for affected assets and any relocation to new sites, in accordance with the approved RP for the subcomponent. Rehabilitation measures must also be in place but not necessarily completed, as



these may be ongoing activities. Vulnerable households (households headed by females with dependents, disabled household heads, poor households, the landless, the elderly with no means of support, households without security of tenure, and ethnic minorities) will be compensated with respect for their cultural values and specific needs. Assistance for the poor and vulnerable will include measures to help them improve their socioeconomic status.

- (vii) Affected people who lose only part of their physical assets will not be left with a portion that will be inadequate to sustain their current standard of living. The minimum size of remaining land and structures will be agreed during the resettlement planning in consultation with affected people.
- (viii) As a priority, loss of agricultural land will be compensated with alternative land of equal size and productive capacity. If suitable replacement land is not available, at the “informed request” of affected people, compensation will be paid in cash at replacement value based on current market prices for agricultural land of the same category (productive capacity) as the affected land.
- (ix) Replacement land for agriculture, residential purposes and businesses will be provided with secure tenure status; all fees, sales taxes, or other surcharges associated with transfer of land title will be waived.
- (x) Compensation for houses and other structures will be determined according to replacement value for materials and labor to rebuild similar structures, at current market prices in the locality. In determining replacement costs, depreciation of assets and salvage value of materials will not be taken into account.
- (xi) In case of the relocation of affected people, replacement houses and/or agricultural land will be located as close as possible to the assets that were lost, and at locations acceptable to affected people. Relocated affected people will receive relocation and transition subsistence allowances.
- (xii) Adequate resources will be identified and committed during resettlement planning for each subcomponent and the overall Project. This includes adequate budgetary support fully committed for each subcomponent and made available to cover the costs of land acquisition, compensation, resettlement, and rehabilitation within the agreed implementation period for the subcomponent; and adequate human resources for supervision, liaison and monitoring of land acquisition, resettlement and rehabilitation activities.
- (xiii) Reporting, monitoring, and evaluation mechanisms will be identified and set in place as part of the resettlement management system. Monitoring and evaluation of the land acquisition, resettlement and rehabilitation processes, and the final outcomes will be conducted by an independent monitoring agency.
- (xiv) RPs will be translated into Vietnamese, or where necessary, the local language, and placed in commune offices for the reference of affected people as well as other interested groups.

9. The project entitlements are designed to cover compensation, resettlement, and rehabilitation for lost assets and incomes and restore or enhance the livelihoods of all affected people. Affected people will not only receive compensation in cash or in kind (e.g., replacement land or materials) at replacement cost for affected assets and income losses, but various rehabilitation measures will also be provided to help them restore their livelihoods and income levels. Special assistance will be provided to the vulnerable affected people to help them improve their socioeconomic status.

#### **D. Consultation, Grievance Mechanism, and Disclosure**

10. People potentially affected by the main subcomponents have been informed about the project scope and impacts and that they are eligible for compensation and assistance. A specific public consultation and disclosure plan has been prepared for each RP and entails consultation

and disclosure activities to be undertaken during detailed resettlement planning and implementation.

11. The RF and RPs will be translated into Vietnamese. Copies of the RF and RPs, in both English and Vietnamese, will be distributed to the provinces. The public information booklets prepared for the five provinces have been translated into Vietnamese and will be distributed to all affected people before loan appraisal, while copies of the RPs will be placed in the respective district and commune offices. The draft RF and RPs submitted to ADB for review and approval will be uploaded on ADB's resettlement website before loan appraisal; the final RPs and RF agreed by Government and ADB will also be uploaded on ADB's website. The updated and new subcomponent RPs prepared after detailed design will also be disclosed to affected people and uploaded on ADB's website.

12. A well-defined grievance redress and resolution mechanism will be established consistent with the legal process for resolution of disputes in Viet Nam. However, since the system is oriented primarily toward disputes between people, as opposed to between people and the government, it will be strengthened. Provincial resettlement committees will record all grievances and complaints as well as their final resolution. The independent monitoring agency will be responsible for checking the procedures for and resolutions of grievances and complaints, and may recommend further measures to be taken to redress unresolved grievances.

13. All affected people will be made fully aware of their rights and the detailed procedures for filing grievances through the public information booklet. All affected people who present complaints will be exempt from all administrative fees incurred and will be provided with free legal representation should they lodge appeals to the courts.

#### **E. Gender and Ethnicity Issues**

14. Highland towns such as Gia Nghia have a high percentage of ethnic households, where women come from ethnic minority groups such as the Ma and Edde and hold slightly higher status positions than their coastal or lowland counterparts. Four affected ethnic minority households were found in Gia Nghia but none in the other areas for which RPs have been prepared. Specific actions have been integrated into the project design to ensure that ethnic minorities have equal access to project benefits, have culturally appropriate awareness and education materials, and are safeguarded against adverse impacts. In RPs and the RF, ethnic minorities are entitled to equal compensation, resettlement, and allowances, and additional support measures to help them improve their socioeconomic status, and help retain the higher status of women from the Ma and Edde.

15. RP preparation and implementation will pay special attention to the following issues: (i) role of women's economic activities in restoring living standards; (ii) access to existing credit and agricultural extension for women, ethnic minorities, and poor households; (iii) joint registration of land use rights in the names of husband and wife in instances where households are allocated alternative agricultural and/or residential land; (iv) participation and consultation strategies that encourage the involvement of women, ethnic minorities, and poor households in resettlement planning and implementation; (v) attention to complaints and grievances lodged by women, ethnic minorities, and poor households; and (vi) disaggregated data collection on gender and ethnic minorities to support resettlement planning and monitoring. Special attention will be given to women in severely affected households (households that are physically displaced or who will lose 10% or more of their productive income-generating assets). Consultations with and assistance to severely affected women will be organized in close consultation with local branches of the Women's Union. A project-specific gender action plan has been developed and is included as Appendix 11.

## **F. Implementation Arrangements and Schedule**

16. Each provincial people's committee (PPC) will be the executing agency for its respective project component and will have overall responsibility for it. Each PPC will establish a provincial resettlement committee with overall responsibility for approval and implementation of the project RPs, approving resettlement budgets, and issuing decisions on land acquisition. A provincial project management unit (PPMU) will be established in each province to manage and monitor all day-to-day project implementation activities, including resettlement planning and implementation. PPMU functions will include preparation and implementation of new and updated RPs, establishing and maintaining an affected person database for internal monitoring and making this available to the independent monitoring agency, and integrating civil works with land acquisition and resettlement activities. The PPMU will establish a resettlement working group (RWG) staffed mainly by members of the Land Administration Department to undertake the resettlement-related functions of the PPMU. The RWG will coordinate implementation of the consultation program and income restoration measures with the mass organizations, including the women's union, NGOs, and other community organizations and government departments.

17. Project consultant resettlement specialists will provide technical expertise to the project coordination unit (PCU) established under Management Board for Urban Technical Infrastructure Projects. One international consultant with periodic input and a one full-time national consultant will help PPMUs prepare new and updated RPs and detailed resettlement planning, implementation, and internal monitoring and reporting procedures, and will provide formal and on-the-job training in all aspects of resettlement planning and implementation.

18. The overall Project will be implemented over 5 years starting in 2007. Resettlement activities will commence only after the project supervision consultants and the independent monitoring agency have mobilized. ADB will not approve award of a civil works contract for any subproject or subcomponent unless the PPMU has (i) satisfactorily completed, in accordance with the approved relevant RP for that Project or subcomponent, compensation payment and relocation to new sites; and (ii) ensured that the rehabilitation assistance is in place and the area required for civil works is free of all encumbrances.

## **G. Monitoring and Evaluation**

19. RP implementation will be regularly monitored by the PPMUs and RWGs. Quarterly monitoring reports will be submitted to ADB. An independent monitoring agency will be engaged by the PCU to conduct external monitoring and evaluation, focusing on the social impacts of the Project and whether affected people are able to improve or at least restore their pre-project living standards, incomes, and productive capacity. Two monitoring activities will be undertaken each year until all resettlement activities have been completed. A post-resettlement evaluation will also be conducted. Independent monitoring reports will be submitted to the EA and to ADB.

## **H. Resettlement Budget and Flow of Funds**

20. The Project's estimated resettlement cost is around \$2.11 million. Adequate budgetary support will be committed and made available to cover all resettlement-related costs within the agreed implementation period. The funds will come from the loan. Each PPMU will be responsible for channeling funds to compensate land acquisition and resettlement to the RWGs. The PPMUs and RWGs will be responsible for payment directly to affected people with respect to land, crops, trees, houses, other structures and any allowances, and for delivery of rehabilitation measures.

## ENVIRONMENTAL ANALYSIS

### A. Introduction

1. This summary initial environment examination (IEE) aims to briefly describe the Project's potential adverse impacts, proposed mitigation measures, and environmental management plans. It is based on preliminary environmental examinations undertaken during project preparation to (i) identify the environmental impacts of project components and (ii) recommend measures to mitigate adverse impacts and enhance positive impacts arising from its implementation.

2. The Project is classified under category B, according to ADB's *Policy and Environmental Assessment Guidelines* (2003). The IEEs were prepared following ADB's environmental policy,<sup>1</sup> Operations Manual, and *Environmental Assessment Guidelines*, and the relevant Government of Viet Nam environmental policies and guidelines, specifically Circular 490/1998-BICHCNMT (29 April 1998), Guiding the Making and Evaluation of Reports on the Assessment of Environmental Impacts of Investment Projects. The IEEs will be approved by the Department of Natural Resources and Environment (DONRE) or provincial people's committees.

### B. Project Description

3. The Central Region is among the least developed areas of Viet Nam and home to many ethnic minority groups, especially in the highland areas. Many of the urban areas in this region suffer from water shortages in the dry season; the wet season floods have adverse environmental and socioeconomic impacts. The Project will develop, expand or improve water supply, drainage, wastewater management, and solid waste management systems in eight towns in the provinces of Phu Yen, Khanh Hoa, Ninh Thuan, Binh Thuan, and Dak Nong. The Project has five main components: (i) part A: water supply development and expansion; (ii) part B: drainage and wastewater management; (iii) part C: solid waste management; (iv) part D: community environmental sanitation and awareness; and (v) part E: project management and institutional strengthening. The Project will be implemented over 5 years commencing from the first half of 2007. Detailed engineering designs are targeted for completion by mid-2008. Projects are scheduled for completion in 2010–2011.

### C. Description of the Environment

4. **Climate.** Binh Thuan, Khanh Hoa, Ninh Thuan, and Phu Yen are coastal provinces in the southern Central Region, in the monsoon tropical zone, affected by sea climate, with 3–4 months of rainy season from September to December that accounts for 75–80% of the total annual rainfall. Dak Nong is a high mountain province in the highland Central Region, affected by temperate climate. It experiences 3 months of rainy season from August to October, accounting for 76% of the total annual rainfall.

5. **Air Quality and Noise.** Based on available data, dust concentration in project towns, as of 2004, ranged from 0.40 (Gia Nghia) to 0.58 mg/m<sup>3</sup> (Cam Ranh), exceeding at least 1.3 times, at most twice, the Viet Nam (VN) standard. Concentration of CO, SO<sub>2</sub>, NO<sub>2</sub> in Project cities/town were within VN standard. Noise levels ranged from 60 (Phan Thiet) to 80 dBA (Thap Cham). Only two of the six towns with data met the VN standard.

6. **Topography and Soils.** There are seven main soil groups in the provinces of Phu Yen, Khanh Hoa, Ninh Thuan, and Binh Thuan. Sandy soil is found in the coastal plains; alluvial soil in downstream areas of rivers; grey soil in semi-dough mound areas; yellow-red soil in hill/mountain areas with high slopes; yellow-red humus soil in mountains of elevation 900–1,000

<sup>1</sup> ADB. 2002. *Environment Policy*. Manila.

m; valley soil in river valleys; and gravely-eroded soil in slope terrain. Dak Nong has three main soil groups. Grey soil and soil that is formed by weathered basalt stone largely make up the Province. Alluvial soil is concentrated in areas near rivers.

7. **Surface Water.** In Phu Yen, two rivers traverse the project towns of Song Cau and Tuy Hoa. Cau river, a small river in the north, has a catchment area of 146 km<sup>2</sup>, length of 28 km, and an annual average discharge of 4.1 m<sup>3</sup>/s. Da Rang river, located downstream, drains Tuy Hoa town. In Khanh Hoa, the two main rivers are Cai Nha Trang, which has an annual average discharge flow of 55.7 m<sup>3</sup>/s, and a dry monthly average discharge of 7.32 m<sup>3</sup>/s, and Cai Ninh Hoa, which has an annual average discharge of 23.9 m<sup>3</sup>/s and a dry monthly average discharge is 0.6 m<sup>3</sup>/s. In Ninh Thuan the Cai Phan Rang river has a catchment area of 1,929 km<sup>2</sup> and a total length of 246 km. Hydraulic works, e.g., weirs and dams, have been constructed to supply water for domestic, industrial, and agricultural uses. In Binh Thuan, the Ca Ty river discharges directly to the sea and is affected by the rise and fall of the tides. It has a catchment area of 820 km<sup>2</sup>, length of 65 km, annual average discharge of 10.9 m<sup>3</sup>/s, and peak flood discharge at 5% probability of 1,030 m<sup>3</sup>/s. The Cai Phan Thiet river has a catchment area of 1,050 km<sup>2</sup> and length of 87 km. In Dak Nong two main river systems, the Serepok and Dong Nai, have high hydropower potentials. The Dak Tik river, a tributary of Da Dang–Dong Nai river system, runs through Gia Nghia.

8. Water quality analyses done by Pasteur Institute in October 2005 show that, in general, excluding TSS and bacteria counts, water quality of rivers and streams that run through project town still meet surface water class-A standards for domestic water supply. Meanwhile, water bodies that will be receiving effluents from wastewater stabilization ponds have coliform concentrations exceeding VN standards by 140-1,100,000 times. Those in Tuy Hoa and Phan Thiet have high levels of TSS.

9. **Groundwater.** Groundwater potentials in Ninh Thuan, Binh Thuan and Dak Nong Provinces are not abundant compared with Phu Yen and Khanh Hoa. Total potential exploitation volume in Phu Yen is 1,210,000 m<sup>3</sup>/day, but Ninh Thuan is only 205,640 m<sup>3</sup>/day, Dak Nong is 260,000 m<sup>3</sup>/day. Groundwater quality in Binh Thuan and Phu Yen Provinces is still good. In Cam Ranh Town of Khanh Hoa, groundwater is polluted by NO<sub>3</sub>, SO<sub>4</sub>. In Ninh Thuan and Dak Nong Provinces, groundwater has high levels of coliform counts.

## D. Forecasting Environmental Impacts and Mitigation Measures

### 1. Issues and Concerns Relative to Siting and Design

10. The proposed sites and design of subcomponents are confronted with minimal degree of environmental issues and concerns. There are national parks and protected areas within the project provinces. However, they are quite far (20–50 km) from the project towns and significant adverse impacts on biodiversity in those protected areas will not be expected.

11. **Water Supply.** Raw water sources for Gia Nghia, Can Na and Ninh Hoa towns will be supplied from Dak Tik River,<sup>2</sup> Dinh River and Ban Da Lake respectively. The IEEs and the site visits confirm adequate capacity of the water sources. The catchment areas for the raw water sources are predominantly shrub, crop and some secondary forests. No adverse industrial or agricultural runoff to surface water is expected. While specific mitigation measures to protect raw water sources are not needed at this stage, need for specific protection measures will be reviewed during implementation. The proposed raw water treatment process—coagulation,

<sup>2</sup> The Dak Nong hydroelectric scheme is under construction and is expected to complete construction by 2010. If the reservoir for the multipurpose dam is not completed by the commencement of the Gia Nghia water supply system, the existing partly constructed water treatment plant will be completed and the Dak Tik river in Nghia Binh commune will be used as a raw water source.

mixing, sedimentation, filtration, and chlorination—will ensure compliance with the national drinking water quality standards, and that sludge from the water treatment process will also be treated in a sludge lagoon or settling basin before discharge into the receiving rivers.

12. **Drainage and Wastewater Management.** Main environmental concerns are odor and pollution of water bodies from the wastewater stabilization ponds. Given the projected level of economic development, waste stabilization ponds were chosen as the best method of treatment to achieve the required effluent standards.<sup>3</sup> The inlet works will be covered with removable covers to minimize odors. Sludge accumulation in the ponds is expected to be slow. After 3–6 years, sludge will be covered and retained on site at the treatment facility for 6–12 months until all pathogens have been destroyed. After testing, final disposal may be on agricultural land as fertilizer or at the landfill. The targeted towns for this component have existing or proposed landfills within a reasonable distance.

13. **Solid Waste Management.** The proposed sanitary landfill is small in scale (60 ton/day for Gia Nghia and 100/day for Cam Ranh). Hospitals and clinics are required to have on-site treatment facilities. Interviews and site visits to the existing dumpsites confirm a low risk of mixed disposal of solid and medical wastes. Leachate will be collected and treated in a biological pond with provision for pumped recirculation. Septic tank sludge will be dewatered in separate ponds located at the landfills and the sludge will be disposed to the landfill. The waste cells, leachate and septage ponds will be lined with a compacted clay layer and base cells and ponds will be at least 1 m above the wet season water table. Because of low groundwater level in the proposed site and the proposed measures, potential risk of groundwater contamination is low. There are no residential areas within 1 km. A fenced landfill with a 25 m buffer zone will prevent unauthorized access and minimize odor.

## 2. Project Impacts

14. **During Construction.** Potential environmental impacts during construction are generation of dust and noise, soil erosion caused by excavation, surface and groundwater contamination by spoil, oil and grease, and wastes. Those impacts are short term and will be minimized by proposed mitigation measures and good engineering and construction practices. PPMU and other relevant authorities will monitor and supervise the construction activities including replanting of trees, working safety, sanitation, and health care of workers.

15. **During Operation.** Existing O&M manual and emergency and inspection plans will be reviewed and revised as needed to improve the operation performance to ensure delivery of safe drinking water and minimize potential risk overflow and flooding of raw sewage. Surface and groundwater water quality testing will be conducted regularly to ensure compliance with drinking water quality and wastewater standards, and to detect any sign of groundwater contamination caused by leachate. Proposed landfill sites for Gia Nghia and Cam Ranh have adequate areas to ensure availability of sufficient soil cover. Periodic monitoring and inspection will be conducted to maintain daily soil cover after disposal of wastes. Waste pickers will be employed to recover recyclable wastes at the separation area adjacent to the landfill site and to provide income-generating opportunities.

## 3. Project Benefits

16. The Project will bring about the following benefits that far outweigh all aforementioned adverse impacts: (i) enhanced environmental sanitation and public health (particularly reduced incidence of water-related and waterborne diseases); (ii) reduced incidence of flooding; and (iii) induced socioeconomic growth, which is expected to pressure local authorities to meet rising

<sup>3</sup> The key parameters for discharge to river are BOD 50 mg/L and 10,000 FC/10mL in accordance with TCVN 5945: 1995. Industrial Wastewater Discharge Standards.

demand for basic infrastructure services. Part A (community environmental sanitation and awareness) will complement the environmental monitoring and management plan by increasing awareness of health, hygiene, and sanitation practices and by implementing community-level environmental improvement activities, which will contribute to the overall sustainability of the improved water supply and environment sanitation in the project towns.

#### **E. Institutional Requirements and Environmental Monitoring Plan**

17. The PPC in each of the five provinces will be the executing agency and will be primarily responsible for allocating the required counterpart funding and providing policy directions through the provincial steering committee (PSC), which will be chaired by the provincial people's committee (PPC) vice chair and be represented by the members of Department of Construction (DOC), Department of Planning and Investment (DPI), Department of Finance (DOF), DONRE, Viet Nam Women's Union (VWU), and other relevant institutions recommended by the PPC. The project steering committee (PSC) will report to the PPC.

18. A PPMU will be established in each province to manage and monitor day-to-day implementation activities, and comprise representatives of provincial water supply company, urban environmental company, VWU, Department of Health (DOH) and other relevant institutions. An environmental management unit (EMU) will be set up within the PPMU to be responsible for implementation of environmental mitigation measures and monitoring. The EMU will be headed by a full-time technical staff member and one administrative staff member.

19. The Project will collaborate with the Pasteur Institute, Department of Science and Technology, and DOH and to test water quality. Environmental monitoring results will be documented to ensure that signs of adverse impacts are detected at the earliest possible time. Monitoring results before and during construction will be reported monthly by the designated environment specialist in each PPMU. An annual monitoring report will be prepared by the EMU and submitted to the PPMU head, who will in turn submit to DONRE for endorsement to the PPC, which will submit annual reports to ADB.

20. About 0.6% of the total project costs will be allocated for environmental mitigation measures and monitoring. An international environmental monitoring and resettlement specialist and national environment monitoring specialist will be recruited to ensure (i) update of environmental monitoring plan based on detail design, (ii) provision of adequate environmental requirements in the bidding documents and contracts, (iii) conduct of environmental monitoring, and (iv) preparation of environmental monitoring reports.

#### **F. Conclusion and Recommendation**

21. The preliminary environmental assessment indicates that the adverse environmental impacts of the Project, as a whole, will be minor. Mitigation measures can be undertaken without difficulty through proper engineering design, incorporation of recommended mitigation measures, and community participation. The adverse impacts will be greatly offset by improvements in health, sanitation, and environmental conditions for the urban residents of the eight project towns.

22. The preliminary environmental assessment confirmed that the Project is under category B according to ADB's guidelines. No further study or detailed environmental impact assessment needs to be undertaken.

## ECONOMIC ANALYSIS

### A. Introduction

1. The economic analysis has been undertaken in accordance with the Asian Development Bank's (ADB) *Guidelines for the Economic Analysis of Projects*, *Handbook for the Economic Analysis of Water Supply Projects*, *Framework for the Economic and Financial Appraisal of Urban Development Sector Projects*, *Handbook for Integrating Poverty Impact Assessment in the Economic Analysis of Projects*, and *Handbook for Integrating Risk Analysis in the Economic Analysis of Projects*.

2. The estimated costs and benefits of major subprojects were valued at their economic prices using the domestic price numeraire, which adjusts border price equivalent values to their equivalent domestic prices and entails the application of shadow price adjustments to convert the estimated financial costs to their equivalent. The shadow price adjustment factors used were (i) foreign costs, 1.10; (ii) unskilled labor, 0.60; (iii) skilled labor, 2.00; and (iv) local materials, 1.00. Capital and recurrent costs, inclusive of physical contingencies, in constant 2006 prices were converted into economic costs by subtracting all transfer payments, including taxes and duties, and applying the appropriate shadow price adjustment factors.

3. The economic valuation of the water supply and drainage project components were based on the capital and O&M costs of the least-cost alternative as indicated by the calculated average incremental costs. Small project components scattered throughout the participating project towns such as solid waste management and community environmental sanitation and awareness were examined using the cost-effectiveness criteria.

### B. Benefits

4. **Water Supply Development and Expansion.** The capacity of the existing water supply systems in Ninh Hoa and Gia Nghia will be expanded from a combined 3,000 m<sup>3</sup>/day to 17,500 m<sup>3</sup>/day in response to the projected additional demand in these towns as a result of accelerated economic growth by 2015. A new water supply system with a capacity of 2,000 m<sup>3</sup>/day will be developed in Ca Na. A total of about 98 km of new transmission and distribution pipes will be installed and an estimated 18,000 new connections will be added. More than 6,800 ha of service area will be involved with about 13,200 households benefiting from the proposed works. The major benefits quantified include (i) resource cost savings on the non-incremental water consumed due to the switch from alternative sources such as tube wells, surface wells, rivers, water vendors or even households with piped supply to the new water supply; and (ii) the household's valuation or willingness to pay for incremental water supply. Non-quantified benefits include (i) increase the security of uninterrupted access to improved drinking water quality, (ii) reduced the risk of exposure to waterborne pathogens in delivered tap water, (iii) improve water distribution efficiency, and (iv) reduce losses from nonrevenue water.

5. **Drainage and Wastewater Management.** The Project will develop complete, integrated stormwater drainage, wastewater collection and wastewater treatment systems in the five cities or towns of Song Cau, Tuy Hoa, Gia Nghia, Cam Ranh, Thap Cham, and Phan Thiet. Drainage and wastewater works constitute approximately 40% of the estimated project cost. More than 23,000 ha of service area will be involved. About 105,000 households in the 40 wards comprising nine project towns will benefit from the proposed works. The drainage and wastewater management subcomponents in each town will significantly improve the residents' economic welfare. Anticipated economic benefits were quantified by estimating (i) the health benefits accruing to the residents, (ii) savings resulting from reduced flood damage and losses, and (iii) annualized incremental increase in the values of affected land. Health benefits results from the residents' improved personal hygiene, public health, and environmental conditions, and reduced medical expenses associated with waterborne and water-related diseases. These



health benefits are particularly critical for infants, women, and the elderly who spend most of their time at home. Valuation of these health benefits was based on discussions with representatives from each town and the results of the socioeconomic surveys.

6. The capacity of the existing water supply systems in Ninh Hoa and Gia Nghia will be expanded from a combined 3,000 m<sup>3</sup>/day to 17,500m<sup>3</sup>/day in response to the projected additional demand in these towns as a result of accelerated economic growth by 2015. A new water supply system with a capacity of 2,000 m<sup>3</sup>/day will be developed in Ca Na (Table A14.1).

**Table A14.1: Water Supply and Demand Analysis in Project Towns**

Town	Existing Water Supply			Projected Demand by 2015			
	Population	Coverage (% HH)	Capacity <sup>a</sup>	Population	Coverage (% HH)	Added Capacity <sup>a</sup>	Total Capacity <sup>a</sup>
Ninh Hoa	23,000	60	1,500	43,750	80	4,000	4,000
Ca Na	18,000	0	0	25,000	80	2,000	2,000
Gia Nghia	35,000	20	1,500	81,175	85	12,000	13,500
<b>Total</b>	<b>76,000</b>		<b>3,000</b>	<b>149,925</b>		<b>16,500</b>	<b>19,500</b>

HH = household.

<sup>a</sup> m<sup>3</sup>/day.

Source: PPTA consultant report.

7. For the drainage and wastewater management component, the Project was designed to increase existing coverage and to service the requirements of the projected urban population in the project towns by 2015 at rates ranging from 40% to 70% of the total households (Table A14.2).

**Table A14.2: Drainage and Wastewater Management: Existing and Proposed Coverage**

Town	Capacity in 2005			Capacity by 2015	
	Population	Coverage (m/capita)	Projected Population	Coverage (m/capita)	Coverage after Project (%)
Tuy Hoa	135,000	0.20	158,000	0.60	70
Song Cau	19,000	0.20	35,000	0.40	40
Cam Ranh	90,000	0.20	106,000	0.60	45
Thap Cham	36,000	0.60	52,000	1.10	65
Phan Thiet	158,000	0.40	162,000	1.00	70
Gia Nghia	25,000	0.20	84,000	0.60	60
<b>Total</b>	<b>463,000</b>		<b>597,000</b>		

m = meter.

Source: PPTA consultant report.

8. **Other Benefits.** The Project will generate considerable economic benefits that have not been quantified mainly because of data and technical constraints. The community environmental and sanitation awareness provides targeted pro-poor interventions to improve health conditions in the towns in a more sustainable manner and is expected to generate significant pro-poor benefits in the form of improved hygiene and sanitation practices through better awareness of, and access to, water supply and sanitation facilities. The introduction of a solid waste management services and facilities will pave the way for substantially cleaner town environments. The Project will provide some of the critical urban–rural links required to ensure that the benefits of economic growth permeate all sectors of the participating provinces, particularly the urban poor who remain isolated by physical and social barriers. As the Viet Nam economy continues to grow at an accelerated pace, the urban centers in the central region including those in the Project's participating towns will play an increasingly pivotal role in supporting the economic development of the entire region.

### C. Results of the Economic Analysis

9. The economic evaluation of the water supply project components was based on the capital and O&M costs of the least-cost alternative as indicated by the calculated average incremental economic costs which range from D2,669/m<sup>3</sup> to D5,767/m<sup>3</sup>. Increasing the supply of water in the project towns will greatly enhance the economic well-being of the residents. Valuation of the non-incremental benefits accruing to the town residents was estimated using the average supply price of all alternative sources in the without-project situation. The average supply price was used as the proxy for consumers' willingness to pay, which is difficult to quantify and tends to be understated by residents when surveys are conducted. The prices for tube well supplies, surface wells, and river sources, as well as water purchased year-round or during the dry season from water vendors or other households with piped supply were considered in estimating the average supply price. Incremental sales were valued at the proposed financial tariffs. The major indicators of economic viability of the proposed water supply works in the selected project towns are summarized in Table A14.3.

**Table A14.3: Economic Evaluation of Water Supply Development and Expansion**

Town	Base Case EIRR	Capital + 10%	O&M +10%	Benefits -10%	All -10%	Delay Benefits
Ninh Hoa	17.08%	15.84%	16.90%	15.52%	14.16%	14.42%
Ca Na	16.96%	15.66%	16.81%	15.36%	13.97%	14.38%
Gia Nghia	14.17%	13.13%	14.06%	12.90%	11.78%	12.27%

Source: PPTA consultant report.

10. All base-case economic internal rates of return (EIRRs) exceeded the economic opportunity cost of capital, which was assumed at 12%, ranging from 14.17% to 17.08%, confirming the economic robustness of the proposed project town components. Sensitivity analysis conducted on parameters—including a 10% increase in costs (likely to result from delayed or prolonged implementation and inflationary factors), a 10% decrease in benefits (likely to result from poor quality implementation causing a deterioration in willingness to pay which can be measured by a stronger reluctance to pay increased tariffs), and delays in the realization of benefits (likely to be caused by failure to establish efficiently-functioning provincial project management units [PPMUs] on time)—showed that the EIRRs will be most vulnerable to changes or delays in the realization of anticipated benefits.

11. The major indicators of economic viability of the proposed drainage and wastewater management works in the participating towns are summarized in Table A14.4. Base-case EIRRs calculated varied from 12.08% to 24.42%, exceeding the ADB's 12% economic opportunity cost of capital, and confirming the economic robustness of the proposed project components.

**Table A14.4: Economic Evaluation of Drainage and Wastewater Management**

Town	Base Case EIRR	Capital + 10%	O&M +10%	Benefits -10%	All -10%	Delay Benefits
Cam Ranh	23.44%	22.05%	23.41%	21.88%	20.51%	20.26%
Tuy Hoa	22.64%	21.28%	22.60%	21.10%	19.74%	19.56%
Phan Thiet	22.06%	20.71%	22.03%	20.55%	19.22%	19.07%
Thap Cham	21.08%	19.77%	21.06%	19.61%	18.31%	18.23%
Gia Nghia	22.91%	21.54%	22.88%	21.37%	20.02%	19.81%
Song Cau	24.42%	23.00%	24.39%	22.83%	21.43%	21.11%

Source: PPTA consultant report.

12. **Overall Economic Rate of Return.** Estimation of the overall EIRR reaffirmed the robustness of the Project. The base-case EIRR, calculated at 20.87%, is above the economic opportunity cost of capital. A summary of the EIRRs calculated for the water supply and

development component, the drainage and wastewater management component, and the overall Project is shown in Table A14.5. The sensitivity analysis conducted also demonstrated that the overall EIRR is most sensitive to the actual values of the realized benefits and to delays in the receipt of such benefits. Sensitivity analysis conducted on parameters—including a 10% increase in costs (likely to result from delayed or prolonged implementation and inflationary factors), a 10% decrease in benefits (likely to result from poor quality implementation), and delays in the realization of benefits (likely to be caused by failure to establish efficiently functioning PPMUs on time)—showed that the EIRRs will be most vulnerable to changes in the anticipated benefits, i.e., decreases in health benefits, savings from reduced flood damages, and anticipated improvements in land values.

**Table A14.5: Overall Economic Evaluation of the Project**

Description	Base Case EIRR	Capital + 10%	O&M +10%	Benefits -10%	All -10%	Delay Benefits
Water Supply Development	15.56%	14.41%	15.42%	14.15%	12.90%	14.42%
Drainage and Wastewater	22.49%	21.13%	22.46%	20.96%	19.62%	19.44%
Overall Project	20.87%	19.57%	20.81%	19.38%	18.07%	18.03%

Source: PPTA consultant report.

13. **Distribution and Poverty Impact Analysis.** The quantified benefits of the Project were distributed among the following: (i) the consumers, who will benefit from the increased water supply and improved drainage and wastewater management in the project towns; (ii) the Government and the economy, who will lose when the economic costs exceed the financial costs; (iii) the labor sector, which stands to gain when the financial cost of labor exceeds its opportunity cost; and (iv) the water supply and sanitation providers, who could lose because the proposed tariffs are less than the economic benefits. The distribution of net economic benefits of the Project, calculated at the discount rate of 12%, is shown in Table A14.6. The poverty impact ratio (PIR), defined as the proportion of the total net economic benefits of the Project accruing to poor and calculated at 29.92%, indicates the pro-poor thrust of the Project. The PIR is above 12.6%, the estimated average share of the poor in GDP for Viet Nam.

**Table A14.6. Distribution of Net Benefits and Poverty Impact Ratio**

Item	Financial Returns (1)	Economic Returns (2)	Difference (2) – (1)	WSS Providers	Economy/ Government	Labor	Consumers	Total
<b>A. Distribution of Project Effects</b>								
Output	173,850	1,250,813	1,076,963				1,076,963	<b>1,076,963</b>
Capital Costs	583,142	591,203	8,061		(14,510)	6,449		<b>(8,061)</b>
Operating Costs	623,741	632,906	9,165					
Net Benefits	(449,891)	617,907	1,067,798	(449,891)				<b>(449,891)</b>
<b>B. Poverty Impact Ratio Calculation</b>								
Gains/(Losses)				(449,891)	(15,890)	6,725	1,076,963	<b>617,907</b>
% of Poor				12.6	12.6	75.0	22.2	
Gains/Losses to the Poor				-56,686	-2,002	5,044	238,547	<b>184,903</b>
<b>Poverty Impact Ratio</b>								<b>29.92%</b>

( ) = negative; WSS = water supply and sanitation.

Source: PPTA consultant report.

## SUMMARY FINANCIAL ANALYSIS

1. The financial analysis has been undertaken in accordance with the Asian Development Bank's (ADB) *Guidelines for Financial Management and Analysis of Projects*. The financial analysis is conducted on the basis of with and without the Project to arrive at incremental benefits and costs and undertaken for three components proposed for project provinces: (i) part A: water supply development and expansion; (ii) part B: drainage and wastewater management; and (iii) part C: solid waste management. The sustainability objective of the financial analysis is to assess the ability of the project components to generate revenues sufficient to cover capital and operating costs as measured by financial rates of return (FIRRs) that meet or exceed the weighted average cost of capital (WACC) used to finance the projects.

### A. Key Assumptions

2. Key assumptions applied in the financial analyses are (i) the financial analysis on project entities incorporates recommendations for institutional development including tariff reforms, and considers only the incremental revenues and costs (capital expenditures and operation and maintenance [O&M]) directly associated with individual components; (ii) the FIRR and average incremental financial cost (AIFC) are calculated over the 14 year period, from 2007 to 2020, which incorporates the preparation, construction, and operating periods of the respective components; (iii) all revenues and costs are expressed in dong on an incremental basis in constant 2006 prices, with exchange rate of D15,900/\$1.0; and (iv) incremental revenues are equal to, the projected incremental volume of water sold multiplied by the recommended water tariffs (by user group) for water supply; the projected incremental revenue of water sales (as a proxy indicator) multiplied by surcharge tariffs (by user group) in case of drainage and wastewater management; and the incremental volume of solid waste collected multiplied by the recommended solid waste tariffs (by user group).

3. Another key assumption is the estimation of required average tariffs to fully recover all component financial costs. This has been done by calculating the AIFC for all projects, i.e., the present values of capital expenditures and O&M costs at financial prices divided by the present value of the volume of (i) water sold, (ii) water sales equivalent as a proxy, and (iii) solid waste collected for each year over the life of the respective components. The present values are calculated by discounting all cash flows at the WACC. The AIFCs are the minimum tariff required for full cost recovery. These are then compared with willingness-to-pay and affordability studies per the socioeconomic and city-specific surveys, and a recommended tariff structure is proposed. These tariffs have been used in the financial analysis, segmented per user group (domestic, commercial, and industrial) based on usage and affordability.<sup>1</sup> Where AIFCs are higher than the recommended tariffs, the difference represents a required financial subsidy from local authorities.

4. The proposed phased tariffs are summarized in Tables A15.1 to A15.3. For the drainage and wastewater component, a full 10% surcharge on water tariffs is recommended to be in place by 12 months after loan effectiveness. It is, however, noted that the tariff schedule should be reexamined during the implementation period to reflect changes between the dates of this report and actual construction of the civil works. The detailed recommended tariffs, full calculations for AIFC and cost-recovery proposals are in Supplementary Appendix J.

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<sup>1</sup> Domestic users are households while commercial users are business premises (registered and unregistered), and established institutions include schools, hospitals, and Government administrative offices. Industrial users are defined as those involved in medium- and large-scale production of commercial commodities, and not sole service user groups. In this regard, tariffs for specific users that cannot be categorized into groups should be defined on a case-to-case basis and may vary from town to town

**Table A15.1: Recommended Phasing of Water Tariff Schedule (D)**

Town User Group	Gia Nghia		Ca Na		Ninh Hoa	
	Start	1 Year	Start	1 Year	Start	1 Year
Domestic	3,600	4,000	3,600	4,000	3,600	4,000
Commercial	7,200	8,000	5,400	6,000	7,200	8,000
Industrial	5,400	6,000	4,500	5,000	5,400	6,000

Source: PPTA consultant report.

**Table A15.2: Recommended Phasing of Drainage and Wastewater Tariff Schedule (D)**

Town User Group	Gia Nghia		Phan Thiet		Thap Cham		Tuy Hoa		Cam Ranh	
	Start	1 Year	Start	1 Year	Start	1 Year	Start	1 Year	Start	1 Year
Domestic	360	400	360	400	450	500	225	250	315	350
Commercial	720	800	468	520	684	760	315	350	450	500
Industrial	540	600	648	720	468	520	450	500	315	350

Source: PPTA consultant report.

**Table A15.3: Recommended Phasing of Solid Waste Tariff Schedule (D)**

Town User Group	Gia Nghia		Cam Ranh		Ninh Hoa	
	Start	1 Year	Start	1 Year	Start	1 Year
Domestic	10,800	12,000	10,800	12,000	10,800	12,000
Commercial	108,000	120,000	108,000	120,000	108,000	120,000
Industrial	513,000	570,000	513,000	570,000	513,000	570,000

Source: PPTA consultant report.

5. WACC calculations are based on the financing structure of projects whereby onlending arrangements are estimated from 0% to 5% debt terms and opportunity cost of Government funding at 11.5%. See Supplementary Appendix J for calculation of WACC.

6. Costs have been provided for O&M including depreciation for all projects and include projected new capacities and assets. See Supplementary Appendix J.

### C. Affordability Analysis

7. AIFC levels for collecting tariffs were assessed with monthly household income levels and monthly bills for water supply, wastewater and drainage, and solid waste were estimated at an average of around 4.8% of household incomes across project towns and household segments. Poor user groups will suffer greater impact from the tariffs and so, to achieve a domestic below-poverty-level positive poverty impact and affordability levels of 5%, tariffs have been adjusted to provide some cross subsidy with other user groups. For instance, 10% of monthly average revenues are considered suitable for calculating tariff levels for industrial and commercial users and typical payment patterns at present and in line with willingness-to-pay studies. It is not recommended, at least in the short run, to increase tariffs for these user groups until commercial and industrial activities are better developed in all project towns.

8. The affordability analysis for water supply, drainage and wastewater, and solid waste collection services by user groups is outlined in Supplementary Appendix J. For the domestic users, households in all project towns (even those with income at the poverty line of D1,024,000 per month) are willing to pay up to 6.5% of monthly household income. One of the measures to support poor groups could be that provincial people's committees and/or town people's committees (PPCs/TPCs) pay for the nonrevenue and public-use through-puts at higher tariffs to better able the POEs to recover the tariff revenue as scheduled.

**D. PPC and/or TPC Community Services Obligation Payments (Transparent Subsidies)**

9. WSS services normally include nonrevenue and public use throughputs. The nonrevenue water, drainage/wastewater and solid waste generated by public premises are recommended to be paid for by the PPCs/TPCs to cover costs of processing these throughputs. Payments should be made through community service obligation payments factors to be determined by the specific tariff study during and after the implementation phase. It is further recommended that the PPCs/TPCs in all towns should enter into service agreements with POEs for the annual transfers of such payments direct to these accounts to ensure their financial sustainability. For drainage and wastewater components, PPCs/TPCs are recommended to pay for the capital costs by way of transparent subsidies.

**F. Financial Internal Rate of Return and Sensitivity Analysis**

10. The FIRR of the water supply development and solid waste management components are estimated on the basis of tariffs outlined above and their projections for water supply and solid waste collection based on project components. For drainage, the AIFC versus recommended tariff comparisons show the difficulties of cost recovery. Subsidies required have been estimated and Government will be required to provide for these. Table A15.4 and A15.5 outline the FIRRs and sensitivity analyses for WSD and solid waste management components. The base-case and case-sensitive FIRRs are all higher than the WACC of 2.0%.

11. The sensitivity analysis is conducted to test the robustness of the model. The FIRRs are identified to be most sensitive to the revenue reduction of 10% and revenue delay (1 year). As such, it is recommended that the PPCs and/or TPCs and POEs strictly follow the recommended tariffs and implementation schedules. It further implies that the factors delaying project implementation should be well under control and minimized to ensure the project financial viability.

12. Drainage is considered to be financially unsustainable because of largely nonrevenue-generating services. Hence, subsidies will be needed to cover O&M costs that have been projected, and will be provided by the Government.

**Table A15.4: FIRRs for Water Supply Development and Expansion**

Town	Base Case FIRR	Capital + 10%	O&M +10%	Benefits -10%	Delay Benefits
Ninh Hoa	3.9%	3.2%	3.8%	2.9%	2.8%
Ca Na	4.5%	3.6%	4.3%	3.4%	3.0%
Gia Nghia	7.0%	6.0%	6.8%	4.6%	4.7%
All Towns	5.9%	4.9%	5.5%	4.6%	3.9%

FIRR = financial rate of return, O&M = operation and maintenance.

Source: Financial analyst estimates.

**Table A15.5: FIRRs for Solid Waste Management**

Town	Base Case FIRR	Capital + 10%	O&M +10%	Benefits -10%	Delay Benefits
Gia Nghia	7.8%	6.5%	6.6%	5.0%	4.9%
Cam Ranh	11.7%	10.2%	9.7%	8.1%	7.1%
Song Cau	9.1%	7.6%	6.4%	4.6%	3.8%
All Towns	9.8%	8.3%	8.0%	6.4%	5.8%

FIRR = financial rate of return, O&M = operation and maintenance.

Source: Financial analyst estimates.