CURRENCY EQUIVALENTS
(as of 01 October 2010)

Currency Unit — Vietnamese Dong (VND)
VND 1.00 = $0.00005
$1.00 = VND 19,250

ABBREVIATIONS

ADB — Asian Development Bank
AFD — Agence Française de Développement
CDTA — Capacity Development Technical Assistance
CERWASS — Center for Rural Water Supply and Sanitation
CSP — Country Strategy and Program
GDP — Growth Domestic Product
GTZ — Deutsche Gesellschaft für Technische Zusammenarbeit
HCMC — Ho Chi Minh City
IEC — Information, Education and Communication
JICA — Japanese International Cooperation Agency
JFPR — Japan Fund for Poverty Reduction
JSC — Joint Stock Company
KfW — Kreditanstalt für Wiederaufbau
MARD — Ministry of Agriculture and Rural Development
MDG — Millennium Development Goal
MFF — Multitranche Financing Facility
MOC — Ministry of Construction
MONRE — Ministry for Natural Resources and Environment
NRW — Non-Revenue Water
NSO — Non-Sovereign Operations
NTP — National Target Program
OCR — Ordinary Capital Resources
ODA — Official Development Assistance
PC — People’s Committee
PPC — Provincial People’s Committee
PPP — Public Private Partnership
PPTA — Project Preparatory Technical Assistance
Southeast Asia Department Working Paper
June 2010

Viet Nam
Water and Sanitation Sector Assessment, Strategy and Roadmap

Asian Development Bank
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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>PSP</td>
<td>private sector participation</td>
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<tr>
<td>RWSS</td>
<td>Rural Water Supply and Sanitation</td>
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<tr>
<td>SEDP</td>
<td>socio-economic development plan</td>
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<tr>
<td>SOE</td>
<td>state-owned enterprise</td>
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<tr>
<td>U3SAP</td>
<td>Unified Sanitation Sector Strategy and Action Plan</td>
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<tr>
<td>URENCO</td>
<td>Urban Environmental Company</td>
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<tr>
<td>VBSP</td>
<td>Viet Nam Bank for Social Policies</td>
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<tr>
<td>VDG</td>
<td>Viet Nam Development Goal</td>
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<tr>
<td>VWSA</td>
<td>Viet Nam Water Supply and Sewerage Association</td>
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<td>VWU</td>
<td>Viet Nam Women’s Union</td>
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**NOTE**

In this report, "$" refers to US dollars.
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I. INTRODUCTION

1. This document is the result of a joint analysis of the water and sanitation sector in Vietnam by the Government of Vietnam and the Asian Development Bank. It summarizes the current status of the sector, its main requirements and the areas that would be suitable for future ADB support. The sector is considered to include urban and rural water supply, sanitation, wastewater collection and treatment (municipal and industrial), as well as urban drainage. This document is intended to provide the basis for a program of support in the coming ten years.

2. The assessment recognizes the achievements gained in improving coverage for both water supply and sanitation, in urban and rural areas, during the last two decades. Official statistics for monitoring the achievement of Millennium Development Goals record that Vietnam in 2006 reached 92% overall coverage for improved water supply, and 65% for sanitation, compared with 52% and 29% in 1990, respectively. Underlying these data, however, are significant gaps in the quality and reliability of service, and in the financial and institutional sustainability of the agencies responsible for providing these services. The policy and legal basis for the sector is relatively strong, in particular with the recent issue by Government of two key Decisions, detailing a vision, targets and implementation measures.

3. Analysis of the sector suggests that key areas requiring attention are (i) financial sustainability; (ii) efficiency of decentralized sector institutions; (iii) urban wastewater management to reduce pollution of water and soil; and (iv) data on utility assets and performance. It is proposed in this document that ADB focuses its future program on (i) assisting sub-national government in fulfilling their role in the safe and cost-effective disposal of wastewater in urban areas and industrial zones, to meet Government's environmental targets; (ii) assisting water supply companies to introduce and apply effective business practices including asset management processes, in particular to enable the Government's non-revenue water reduction program; and (iii) improving the capacity of national and provincial government to plan and deliver integrated province-wide water and sanitation development programs to benefit people in both rural and urban areas.

II. SECTOR ASSESSMENT: CONTEXT AND STRATEGIC ISSUES

A. Sector Context

4. Country context. Vietnam has made the transition from a centrally planned economy to a market-oriented system with unprecedented success. This transition has been made possible by political stability, a government commitment to economic reforms, and targeted programs to provide basic public infrastructure. From 1993 to 2006, poverty declined from 85.7% to 48.4%, Gross Domestic Product (GDP) per capita increased from $288 (1993) to $1,050 (2008 estimate), and economic output rose by an average of 7.5% per year (GDP, 1995–2006). The share of the labor force engaged in agriculture has declined from 71% to 54%, while that in industry increased from 8.6% to 14.5% (1995 to 2007). Between 2001 and 2006, industrial production and domestic and international trade grew at an average annual rate of 17%, while foreign direct investment increased by almost 650%. Vietnam became a member of the World Trade Organization in January 2007. The Government of Vietnam is increasingly recognizing the private sector's pivotal role in economic development and job creation. Preliminary estimates indicate that the private sector generated almost 90% of the 7.5 million jobs created during the 5 years to 2005, of which 64% were generated by small enterprises.
5. **Sector outline.** The water and sanitation sector in Viet Nam has achieved significant progress in both physical infrastructure, legal and institutional terms, with considerable support from not just government but especially development partners. However, constraints are emerging that are the consequences of strong economic growth averaging nearly 8% over the past 15 years. This growth has put pressure on the environment, and has created a shortfall in the capacity to manage and finance the expansion of infrastructure facilities, in particular at lower levels of government. Failure to interest private investment to any significant degree is further constraining the potential for growth of the water and sanitation sector in Viet Nam.

6. **Growth of the urban sector in Viet Nam.** Economic development is reflected in the rapid growth of urban areas. With a population of 85.8 million, 25.4 million or 29.6% now live in urban areas, an increase from 19.5% in 1990. Urban populations in Indonesia (43%), Philippines (64%), and Malaysia (63%) are still significantly higher. Viet Nam's recent shift towards a manufacturing economy is causing an accelerated growth of commercial and industrial zones, attracting residential growth in urban areas and fuelling an increasing need for urban infrastructure and basic urban services. About 70% of GDP is generated in urban areas. The urban population growth rate has averaged 5.4% per year during the past 10 years. As the transition towards an urban-based manufacturing economy has only recently taken hold, there is no indication that this urban growth will level out soon. It is expected that by 2020 the urban population will comprise 41.6 million (40%) of Viet Nam's projected population of 104 million. Most of the urban growth is occurring in the metropolises of Ho Chi Minh City (population 7.1 million) and Ha Noi (6.4 million, whose expanded boundaries now include Ha Tay Province), followed by Hai Phong and Da Nang. The next tier of secondary cities (see para. 22 on urban classification) is experiencing lower growth rates. As a result, the primary conurbations are receiving large inflows of migration, becoming more congested, and experiencing increasingly serious social and environmental problems. At the same time, secondary cities are stagnating. If the neglect of secondary city development continues, the spatial and economic disparities will further constrain not only urban development, but also social stability and Viet Nam's overall economic development.

7. **Urban poverty in Viet Nam** has declined from approximately 25% in 1993 to around 4% in 2006. Rural poverty in the same period declined from 66% to 20%. However, urban poverty data for the major cities need to be qualified against indications of considerable under-reporting of poverty amongst recent or transitory migrants from rural areas. There are some indications that urban poverty has shown a slight increase in recent years. The changing nature of urban poverty may affect policies on providing water services to informal settlements, and tariff structures for such supplies.

8. **Rural development.** Despite some growth in rural industries, agriculture still forms the mainstay of the rural economy in Viet Nam, employing 25.4 million people (or 54% of the total labor force) while contributing 22% of the GDP in 2007–2008. Since the onset of the era of doi moi (or renovation) in 1986, spontaneous rural-to-urban migration in Viet Nam has become a major social and economic phenomenon. With the transition to a market-oriented economy, and the de-collectivization of communes, the mobility of labor increased dramatically. While there has been general economic growth in Viet Nam during this period, the diversification of sources of income in rural areas has been minimal. Rural poverty has seen a substantial reduction with land reform, price liberalization and better access to markets. Between 1998 and 2002, the proportion of the rural population living below the poverty line declined significantly from 46% to 36%. However, given that the largest part of the population lives at or slightly below the poverty line, minor adjustments in the poverty line can change poverty figures dramatically. The Ministry of Labor, Invalids and Social Affairs' (MOLISA) proposal to revise the rural poverty
threshold upwards from VND200,000 to VND350,000 per month (or from approximately $11 to $19 per month) will have the effect of substantially increasing the numbers of people living in poverty. Poverty incidence also varies by location, with parts of the northwest characterized by rates of nearly 50%. Such remote areas—often dominated by ethnic minority groups—are characterized by very low agricultural productivity and concomitantly high rates of poverty. Rural poverty is more severe. With the benefits of the economic boom of the past couple of decades accruing disproportionately to urban populations, the gap between urban and rural poverty is growing ever wider. As a result, 88% or approximately 22 of 25 million people below the official poverty line, live in rural areas. In order to alleviate the serious incidence of rural poverty and bridge the gap between wealth creation in rural and urban areas, greater investment in infrastructure and resources is still required to improve urban-rural linkages as well as rural economic productivity in all its facets.

B. Sector Performance and Issues

9. Overall National and MDG Targets. Goal 7 and Target 7C of the Millennium Development Goals (MDGs), on environmental sustainability and access to safe water and sanitation respectively, are claimed to have been met for the urban sector in Viet Nam. Overall water supply coverage for 2006 ("population using improved sources") was stated to be 98% for urban areas and 90% for rural areas. However, more reliable information is required on the nature and the quality of the water supply service provided in terms of hours of acceptable service, delivery pressure, and on the quality of the water supplied, in particular in rural areas. Similarly, the population using improved sanitation facilities in 2006 is officially quoted at 88% for urban areas and 56% for rural areas. According to a mid-term assessment report, progress in meeting the MDG related to rural sanitation is lagging in Viet Nam but still achievable by 2015.

10. The Government has issued targets for the same indicators, Viet Nam Development Goals (VDGs), which are targeted through the Socio-Economic Development Plan (SEDP) process. The VDG sanitation target "ensuring that all wastewater in towns and cities is treated by 2010" will not be reached. Some statistics will count "access to sanitation" as having achieved a target of safe disposal. In reality, the still widespread use of unmaintained septic tanks in urban areas and latrines in rural areas does not represent a safe or final form of treatment in areas with high population densities. Future programs will therefore need to target human waste disposal in such areas. Achievements in treating waste from export processing and industrial zones have fallen behind the Government's SEDP targets, with only 45% of industrial zones expected to have some form of centralized treatment plant by 2010, against a target of 100%. Many of the central treatment plants already installed are not operational: lack of enforcement of receiving water standards means there is little incentive for industries or for industrial zone operators to spend on treating wastewater.

11. Surface water resources. Viet Nam depends heavily for its water resources on international rivers. More than 60% of the total river water discharge originates outside its borders, from six river basins. This includes the two river basins where most of the population lives, and where most economic and agricultural activity takes place. For the Mekong, 95% of its annual flows originate from upstream countries. About 40% of the water from the Red River-Thai Binh River systems originates in China.

12. Nationally, nearly 82% of the consumptive use of river water is for agriculture, with a further 11% for aquaculture. Only 5% is used by industry, and 3% in urban areas. These latter two uses are forecasted to rise to 9% and 5%, respectively, by 2020. As an annual average,
river water availability per capita stands at over 9,800 m$^3$/cap/year nationally. However, more significant is the water availability per river basin, during the dry season. Most at risk of exceeding projected water needs in 2020 are the basins of the Dong Nai, the Southeast River Cluster, Ma, Kone and Huong.

13. **Groundwater.** Viet Nam has an estimated total renewable “groundwater potential” of almost 63,000 million m$^3$ per year. Per capita distribution of renewable groundwater varies widely across the country. In the sparsely populated north-west, the groundwater potential is 3,770 m$^3$/cap/year. At the other end of the scale, in the Mekong delta, only 84 m$^3$/cap/year is available. Groundwater is the source of drinking water for an estimated 55% of the population: 34% of the urban population and 65% of the rural population. The widespread use of groundwater by municipal and commercial supplies in Ho Chi Minh City (HCMC) and Ha Noi has led to a sinking of water levels by more than 30 m. Nationwide, there is insufficient information on the quality or the safe yield of groundwater to allow for accurate planning for its use as a sustainable resource.

14. Access to safe drinking water in urban areas of Viet Nam has improved from 87% in 1990 to 98% in 2006. In addition to improved coverage, reliability of supply and quality of the water supplied have also improved. Rural water supply coverage similarly increased from 43% to 90% in the years from 1990 to 2006 but there is little information on changes, if any, in the quality or reliability of rural water supplied.

15. Despite impressive achievements in the sector, there is evidence that the development of the water and sanitation sector is not keeping pace with the overall economic development. The needs of the population, industry and commerce in both urban and rural areas for effective water and sanitation services are not being met to the standards set by government. In large towns, the development and rehabilitation of distribution systems has not matched the expansion of production capacity (treatment and transmission). Coverage in district towns is often still below 30%, significantly less than in the larger urban areas. Over 200 out of approximately 650 district towns do not have any piped systems (MOC data). Investments in water supply have been reliant on concessional loans, which are being phased out. Agencies established to provide water and waste management services are not yet financially self-sufficient and are still relying on subsidies. Income from water fees rarely cover more than operational costs. Furthermore, wastewater discharges caused by increasing urban, industrial and commercial activity, and by a resultant increased consumptive water use, are all threatening the essential natural resources of water, soil and air. Accepted water quality standards for receiving waters are not actively enforced. In rural areas and especially small towns, the natural self-cleaning capacity of the environment to assimilate waste products is being exceeded for the first time, creating the need to initiate action on waste management and treatment services in such areas.

16. Some of the critical issues that face the sector according to the recent ADB Water Sector Review are (i) the poor performance and inefficiency of urban water supply companies in service delivery; (ii) the failure of urban water supply infrastructure to keep pace with economic development, and the serious lag in urban sewerage and drainage infrastructure; (iii) the lack of alignment of water tariffs to business needs and their inability to cover costs; (iv) wastewater tariffs that are far below treatment costs, with any revenues accruing to provinces rather than to service providers; and (v) the absence of clear mechanisms for determining the price of assets, and a lack of consistent regulations on asset management.
17. Many of the issues raised can be dealt with under legislation that has been adopted recently, the impact of which is yet to be fully realized. Of particular importance are (i) Decree 117/2007, requiring water supply tariffs to be set to full cost recovery, with calculation of tariff according to Inter-Ministries Circular 95/2009 and Circular 100/2009, and (ii) Decree 88/2007 requiring sanitation to be charged through a surcharge of the water tariff at a minimum of 10% to achieve recovery of the operation and maintenance costs. The Government's targets for the sector, as recorded in two recent “Decisions” to support the implementation of the Decrees are ambitious, in particular on the targets for non-revenue water (NRW) to be reduced to 15% by 2025 and for wastewater collection and treatment. However, there is no indication of the financial implications of these targets, or of the skills required.

18. Climate Change. Many cities located in the coastal zone of Viet Nam are likely to experience early impacts of climate change, in particular due to sea level rising. Sea level rise and saltwater intrusion will affect freshwater sources for domestic and industrial use and may therefore reduce available water supplies. Intakes for water supply treatment facilities may have to be relocated further upstream because of water with excessively high salinity levels reaching deeper inland. On the other hand, higher sea levels will reduce the opportunity to drain stormwater and wastewater from urban areas. Drainage of urban stormwater and wastewater, as well as flood protection schemes have all to be redesigned based on a revised assessment of risks. Climate change adaptation therefore needs to be at the core of the planning process. This will have an impact on issues such as the location of the intakes of water treatment plants, as well as the design of discharges of drainage and wastewater schemes.

19. Source Protection. The Water Sector Review (WSR) for Viet Nam provided a detailed baseline on the availability of water resources, using river basins as the units of analysis. The WSR emphasized the threat of future lack of water availability in certain basins, in particular the Southeast River Cluster, Dong Nai, Ma, Kone and Huong basins (see para. 9 above). The WSR anticipates a growth in the use of groundwater for a range of socio-economic needs including rural water supply, but expresses concerns about the lack of accurate information on the sustainable availability of groundwater, its quality and the potential for recharge. In some areas, the presence in groundwater of naturally occurring arsenic as well as wartime dioxin residues limits the uses to which this water can be put without adequate treatment. Recommendations in the WSR stress the need for water conservation in all basins and for protecting the quality of receiving water, i.e., enforcing existing water quality standards. Both have clear implications relevant to urban water and sewerage systems, e.g., the need to reduce abstractions (by managing demand through the tariff system), to reduce wastage in the water supply system, and to reduce untreated waste being discharged into the river systems.

20. Governance and Sector Risks. Viet Nam's water supply and wastewater policies are comprehensive and ambitious, transforming the water sector from a social to a business focus. They aim to strengthen sector institutions in order to promote efficiency and conservation, expand access to reliable water supply, provide safe drinking water, and promote wastewater management. Responsibility for water and wastewater is decentralized to local government, and private sector participation in service delivery is encouraged. Greater emphasis is placed on increased cost recovery through user charges to cover capital investment requirements and to reduce the need for subsidies. One of the major sector risks is the involvement of newly equitized water and wastewater companies in non-core businesses, with a high risk of making bad investments. This is a regulatory risk for both central and local governments: water and wastewater companies should be required to ring-fence their water business accounts. Another risk is the reluctance of local governments to raise tariffs in line with Government policies that
aim to make the water and wastewater sector financially sustainable and to attract private financing to the water and sanitation sector.

C. Subsectors situation

21. The fundamental differences in the nature of issues on water supply and sanitation for urban and rural settings demand a disaggregation of the assessments of these subsectors as well as of proposed strategies and approaches.

22. Urban areas in Viet Nam are classified in two ways: (i) by administration, and (ii) by hierarchy. By late 2009, the administrative classification of the 754 urban centers recognized nine cities directly under central government, 99 under provincial government, and the remaining 646 small towns administered by the districts concerned. The hierarchical classification is based mainly on population, with additional parameters such as proportion of labor force in non-agricultural occupations, population density, level of infrastructure, administrative role and position of urban centers within regions. In addition to the two special cases of Ha Noi and HCMC, five classes are recognized (see Appendix 2 for a more detailed table on the classification of cities and urban areas).

(i) Class 1: 7 cities, with population over 500,000
(ii) Class 2: 14 cities, regional centers, with population over 250,000
(iii) Class 3: 45 provincial cities and towns, with a population over 150,000
(iv) Class 4: 40 provincial towns, with a population over 50,000
(v) Class 5: 646 small towns with populations over 4,000

23. Towns in Class 3 and higher are generally served by water supply systems that are managed by dedicated water supply companies, members of the Viet Nam Water Supply and Sewerage Association (VWSA) and subject to national benchmarking. These water supply companies have completed the equitization process at 30 June 2010, as required by Prime Minister Instruction 854/2009. Equitization would constitute a first step towards being able to take loans from commercial banks. Class 4 and 5 towns, often collectively known as “district towns”, are usually served by state-owned water supply and drainage companies under provincial governments. An unknown number is served by small informal private schemes. For the immediate future, this category of towns will require access to concessional Official Development Assistance (ODA) loans for any future capital works.

24. Urban Water Supply. Water supply systems in urban areas of Viet Nam have seen a rapid growth in coverage. Most investment over the past two decades has gone into expanding production (intake, treatment and transmission) with less than 15% being directed at distribution improvement. The development focus is now shifting to measuring and benchmarking the verifiable performance of water companies and to improving coverage in small towns and peri-urban areas of the larger cities. Management efficiency, and thereby the interest of private sector operators and investors, is constrained or compromised by a lack of accurate or up-to-date information on the extent, functioning and condition of assets.

25. In urban areas, the population with access to “improved water sources” is officially quoted as 98%. However, only 59% of the urban population has a house connection. The
remaining 39% ("other improved sources") has access to water through shared standposts or protected wells. Data from the Water Sector Review (2009) indicate a wide range in access to clean water, from around 70% for Class 1 towns to less than 15% for Class 5 towns. Coverage in the cities in the mountainous and central regions is below 50%, whereas cities in the delta regions have an average coverage of 85% or more. Of the 754 towns, only about a third have any form of piped water supply. The semi-formal private sector has responded to this absence of public services by installing and operating small systems in peri-urban areas, small towns and rural areas. However, few data are available on this sub-sector, which is still unregulated.

26. There are 68 urban water supply companies with a combined installed capacity of 5.5 million m$^3$/day, but operating at 3.9 million m$^3$/day. Restrictions in the capacity of the transmission or distribution network and unaccounted-for water are the main reasons for the gap between installed and operating capacity. Service provision across these companies averages 21.6 hours per day, with 55 companies supplying 18 hours per day or more. Average supply ranges between 80–90 litres per capita per day (lpcd) to 120–130 lpcd in the larger cities at a low service pressure, compared to a national design target of 120–150 lpcd. As many as 96% of connections are metered but much of the distribution system is in poor condition; low water tariffs and lack of accountability have provided little incentive for water companies to maintain the distribution network. Non-revenue water is reported as having been reduced from 39% in 2000 to around 30% in 2009. These official averages however mask UFW values that are as high as 75% in some urban areas. Furthermore, questions have been raised by VWSA on the reliability of the data on non-revenue water provided by its members.

27. Benchmarking of system performance – as coordinated by the VWSA – does not yet include any measuring or reporting of energy efficiency. On recent ADB Project Preparatory Technical Assistance (PPTA), the energy efficiency indices ranged from 0.17 kWh/m$^3$ to 0.23 kWh/m$^3$. Discussions with the Ministry of Construction (MOC) have suggested adding an energy efficiency component to the performance improvement initiatives, which currently focus on the reduction of non-revenue water.

28. The VWSA liaises closely with the MOC and acts as an important conduit of coordination and dissemination for water supply and drainage companies. However, its operating strengths and effectiveness are constrained by its limited manpower and means of operation. VWSA will need additional means should it be considered to take a prominent role in (a) introducing and collecting data on additional performance indicators, and (b) disseminating experience and knowledge in the process of strengthening capacity.

29. Financially, water supply sustainability has been hampered by low tariffs. Legislation enables water supply companies and local government to increase tariffs, but local political considerations often prevent the timely application of tariff adjustments. Affordability and willingness-to-pay surveys have indicated that consumers are prepared to pay for improved services. Water bills on average are 1.1% of urban household income. Most water supply companies recover at least operation and maintenance costs, with an average working ratio close to 0.7. However, few if any companies achieve full cost recovery, if depreciation, replacement and financing costs are included. Urban water supply systems are therefore still subsidized to a large measure by their respective governments, on a non-targeted default basis. The average collection period for water charges is less than 30 days.

30. **Ownership.** Decision No. 38/2007/QD-TTg on the equitization of urban water supply and wastewater and drainage companies, in particular in the larger cities, has important implications for the structure of and the nature of control in water supply companies. Lack of clarity on the
ownership of the assets of water supply systems (distribution, transmission, treatment) poses a threat to the effective operation and maintenance of the service, and will lead to a gradual deterioration in the value of the assets. Similarly, this lack of clear definition of ownership and responsibility will deter private sector operators – in particular, international ones – from seeking involvement in the sector in Viet Nam.

31. **Private sector participation** in urban water supply systems in Viet Nam has been limited and nearly exclusively involves bulk water supply. In HCMC, a Malaysian firm has been operating the Binh An treatment plant (140,000 m$^3$/day) successfully since 1994, on a BOT basis. The Thu Duc 2 treatment plant in HCMC was operated by an Infrastructure Investment Joint Stock Company (JSC), but shares are now for sale. The raw water pumping station supplying water to Ha Noi, including a transmission main from Hoa Binh, is owned and operated by VINACONEX, a JSC.

32. **Urban Wastewater and Sanitation.** The expansion of water treatment and distribution facilities in recent years has increased the per capita water consumption, in particular in urban areas. As a result of this increasing water use, more wastewater is being generated, causing concerns about the environmental impact of untreated discharges. According to 2008 MOC data, less than 10% of urban wastewater is treated (250,000 m$^3$/day, out of 3 million m$^3$/day), though this is a stated Government priority. Serious environmental degradation and health concerns are caused by water pollution from untreated human waste and unregulated discharge of industrial wastewater. In 2009, wastewater treatment plants were under construction in Da Nang, Ha Long, HCMC (Binh Chanh), Ha Noi (Kim Lien and Truc Bach) and Hue. Others are planned in about a dozen small towns under bilateral funding from Finland and Germany. The first examples of fully segregated systems of wastewater collection, followed by sewage treatment, are in Da Lat and Buon Ma Thuot, supported by DANIDA (Danish International Development Agency) grant funding. Under the ADB Central Region Small and Medium Towns Development project, waste stabilization ponds are being built in Tuy Hoa (Phu Yen Province), Cam Ranh (Khanh Hoa Province) and Phan Thiet (Binh Thuan Province).

33. **Indicators on urban sanitation require careful qualification.** Officially, the fraction of the urban population that “is using improved sanitation facilities” has increased from 62% to 88%. Sanitation in the major cities is said to be available to 98% of the population, but this figure includes access to a “sanitary latrine”; it gives no indication how the human waste thus collected is disposed of. In fact, the majority (75%) of households in provincial towns are not connected to any form of local or central sewerage system, but only to a septic tank. With the exception of Hai Phong, no towns offer a reasonable septic tank desludging service.

34. **The growth of industries is the backbone of Viet Nam’s rapid economic development.** The provision of industrial zones is part of the Government’s strategy of attracting international and national investors to the industrial sector. In December 2008, 219 industrial zones were established, occupying over 60,000 ha, with another 91 (on 3,500 ha) planned by 2015. However, only 60 industrial zones have an operating central wastewater treatment plant. There is little data on the functioning of these plants, or on the level of pre-treatment provided by individual industries. With the current weakness in enforcing wastewater discharges, there are few incentives either for industries or for industrial zone managers to incur costs on treating wastewater.

35. **Investment in drainage, sanitation and solid waste improvements in provincial and district towns has been relatively small.** To date, expansion and rehabilitation of the drainage and sanitation in provincial and district towns has relied primarily on allocation of limited budgets
from central or local governments and some ODA funds for drainage and sanitation to complement water supply development. Most investment in the drainage and wastewater subsector has focused on developing drainage infrastructure to reduce flooding in the major cities. As a result, the drainage and sanitation systems in most provincial and district towns are incomplete.\(^{34}\)

36. The financial impact of the poor sanitation practices in Viet Nam has been estimated at 1.8\% of GDP. Economic losses, mainly due to health impact, pollution of water resources and the environment in general, were estimated at $780 million.\(^{35}\)

37. Government’s strategies on urban sanitation and industrial wastewater are formulated in Decree 88/2007 (under MOC’s guidance), recently accompanied by Decision 1930/QD-TTg, which provides future targets. Decree 88 allows households that are connected to a drainage system to be charged as a surcharge to the water tariff at a minimum of 10\%, to achieve cost recovery of running costs. Local authorities are to subsidize the remaining costs. An earlier Decree 67/2003 issued under the guidance of the Ministry of Natural Resources and Environment (MONRE), specifies that water users can be charged for discharging to the environment, as an “environmental protection charge”.

38. **Funding and financing.** Critical to expanding the investment in sanitation systems is the establishment of a stronger financial basis. A “service” component needs to be identified, as the basis for charging for wastewater collection and treatment services, utilising the concept of service to enable ring-fencing of costs and to define a basis for charging. Profit and loss entities for provision of sanitation services need to be recognized or created. In order to reach a compromise between environmental and financial goals, and to enable a hydraulic functioning of the collection system, the connection of households to such systems needs to be enforced, but without charge to such households.

39. **Rural Infrastructure.** Lagging investment in essential rural infrastructure and services in Viet Nam is restricting the incomes of rural communities and their potential for growth. The rapid growth of private enterprises in urban areas has created an increasing demand for labor in both the formal and informal economy, which is met by unprecedented population movements from rural areas. Better rural infrastructure will attract more private investment and thus help counter migration to towns and cities by lifting rural households out of poverty and promoting more equitable growth. The failure to address rural infrastructural needs will otherwise result in an entrenchment of social and economic inequity between urban and rural populations. Even within rural areas, ethnic minorities have remained at the fringes of development due, among other things, to their relative geographic isolation. Some ethnic minority areas are better integrated and better provisioned in developmental terms but these are the exceptions.

40. **Rural Water Supply.** Rural water supply coverage in Viet Nam has grown from 43\% in 1990 to 90\% in 2006. However, the efficiency and sustainability of existing schemes is variable and often at risk. In terms of the level of service, 8\% get piped water in their homes or yards, 82\% have access to water from improved sources outside the house, and 10\% still depend on unimproved drinking water sources, including unprotected dug wells and springs, vendors using carts, bottled water, and untreated surface water.\(^{36}\) In the dry season, water quality in unimproved sources deteriorates markedly as quantity falls and the contaminant load rises, increasing the incidence of both water-washed and water-borne diseases. Of established stand-alone rural water supply schemes, so far the majority have been grant-funded by ODA but since 2004 a growing number have been built using multilateral loans. Both types rely heavily on community-based management when, in fact, local capacity for operation and maintenance – in
organizational, technical and financial terms – is lacking. Capacity building and monitoring and evaluation need greater support but investments in both these areas have proven inadequate so far. Commune People’s Committees are supposed to guide the establishment of management boards for water supply and sanitation but members – drawn from villages within communes – lack the skills needed to carry out their tasks efficiently. The financial sustainability of rural schemes is undermined because households are either reluctant or unable to pay for water supply. Willingness to pay often remains a mere indication and, after schemes have been built, people either do not use them at all or use them sparingly, supplementing them with water from unimproved sources, resulting in an unintended overcapacity of schemes themselves. This issue may be resolved by designing differential treatment systems that take into account the range of local water uses.

41. **Rural Sanitation.** From 1990 until 2006, a remarkable 47% of Viet Nam’s population gained access to improved sanitation. Sanitation coverage of rural households improved from 21% in 1990 to 56% in 2006, yet 16% of the rural population continues to practice open defecation. The remaining rural populace uses either communal (3%) or unimproved (25%) sanitation facilities. However, a high proportion of existing toilets are unimproved and even the usage of those that are improved is less than sanitary. The widespread practice of using night soil as fertilizer has led to toilets being seen primarily as a means to collect and store excreta rather than dispose of it safely. Similarly, in the southern deltaic region, so-called fish pond toilets allow fish meant for human consumption to be bred on human faeces. Furthermore, coverage figures based on infrastructure provision alone must be interpreted with care since provision does not always imply user acceptance. With growing rural population densities and legitimate concerns about water source pollution, poor sanitation behavior has become a major environmental concern. Programs therefore need to focus more on building a fundamental awareness of proper sanitation and thereby rectifying poor sanitation behavior. For households and communities willing but unable to make this transition due to financial constraints, it is important to combine subsidy programs with comprehensive information on the range of available technological options. Opportunities to collaborate with bilateral development agencies already working in this area should be explored, especially on promising approaches like Community-Led Total Sanitation, Community Health Clubs, microcredit for sanitation, and Sanitation Marketing.

42. **Sector Issues and Constraints**

(i) **Policy Environment, Plans and Financing.** Government’s current economic objectives are formulated in the SEDP for 2006–2010. Some of the main SEDP objectives relevant to infrastructure include (i) the provision of essential infrastructure, especially water supply and sanitation, to poor households in cities and towns across the country; (ii) introduction of governance reforms to support devolved planning and implementation of infrastructure projects; (iii) mobilization of resources for adequate operation and maintenance; and (iv) enhancement of cost recovery for infrastructure investments by setting and collecting appropriate tariffs and fees.

The draft SEDP for 2011–2015, which is expected to be ratified by the National Assembly in 2011, places greater emphasis on environment protection and waste management, in particular from industrial zones. Additional focus can be expected in the new SEDP on (i) more effective management of water resources, consistent with the recommendations of the Water Sector Review; and (ii) an improvement of the business environment for enterprises.
Three key legislations have been enacted in 2007 for water supply (Decree 117/ND-CP), sanitation (Decree 88/ND-CP) and solid waste (Decree 59/ND-CP). The water supply legislation demands that water supply companies are fully equitized and that they operate on a full cost recovery basis with a reasonable profit. The sanitation legislation requires the Urban Environmental Companies (URENCOs) to equitize and to operate on a cost recovery basis with subsidies from the central government for capital investment. Circular 09/2009/TT-BXD (May 2009) defined details on implementation of Decree 88. Decision 1930/QD-TTg (November 2009) provided further detailed targets for 2025 and vision for 2050 on domestic sanitation and industrial wastewater. It emphasizes the application of the “polluter-pays” principle, especially for industry, and moving towards cost recovery for drainage overall.

*Subsidies.* Water supply services in Viet Nam are available at tariffs which are still set too low. The inadvertent impact of this is a government-subsidized service for both residential and commercial users. The main objective of the concept of subsidies in the provision of infrastructure or services should be to fill the gap between acceptable user fees and actual costs of a service which is judged to be essential, socially or environmentally valuable, or both. Government’s present policy of low-tariff for water supply effectively constitutes a non-targeted subsidy for a service for which consumers are willing to pay more. The practice encourages wastage and benefits high-end users. Higher tariffs would encourage resource saving, and would enable government to subsidize essential services where willingness and ability to pay is less likely.

(ii) **Institutional Environment, Capacity and Governance.** A key component of Viet Nam’s reform program of the past two decades has been the process of devolving responsibilities to decentralized agents. For the water and sanitation sector, of particular relevance is the devolution of authority for implementation to provincial and lower levels of government, and to administrative and service delivery units. The crucial development issue that follows in the wake of such devolution is the question of accountability: upward accountability in terms of compliance to agreed regulations and standards, and downward accountability, delivering an adequate service to an assigned group of users or consumers.

The main institutional issue for the sector therefore is whether sub-national government is capable of effectively fulfilling its devolved role in planning, implementation, management and operation of essential services, and whether effective instruments are in place to hold it accountable for doing so. Accountability in the delivery of these services requires transparency and public access to performance data. Achieving this will require not only a gradual cultural shift but also considerable support in introducing revised processes and acquiring new skills.

(iii) **Implications of policy and institutional issues on sector provision.** More specific implications of government decisions and their enforcement, on the functioning of sector agencies include (i) a failure to enforce regulatory frameworks, with an impact, for instance, on the financial viability of water companies, (ii) the high risk for newly equitized water and wastewater companies to diversify and run non-core business operations; (iii) the tendency to fragment water
operations without redefining management responsibilities, thereby obscuring clear responsibilities and targets; (iv) the divergence between public service delivery, coverage and profitability; (v) a skills-gap for technical planning and management in water companies and local level government, which therefore cannot keep pace with the changing scope and increasing complexity of their roles and responsibilities, such as the reduction of non-revenue water, asset inventory and management, modern operational management techniques, financial sustainability; (vi) the (international) private sector’s lack of confidence in the prevailing regulatory framework for investment in the sector, compounded by an absence of reliable data on the nature and condition of assets; and (vii) high levels of water losses (both technical and commercial), which are not being dealt with systematically.

43. **Political Economy Influences.** A considerable expansion of water and sanitation infrastructure is required to match the strong sustained growth of the economy, in particular in manufacturing and services. The ability of the sector to grow in response to this is predicated on securing funding for capital investment, for operation and maintenance, and for access to essential specialized services. Government has created the potential for significant increases in user charges, by introducing legislation for tariff increases, but sub-national government or agencies have not implemented the tariff increases to the extent required for sustainable operation. Achievement of the Government’s targets on water and wastewater tariffs, and the intention to make water supply companies financially self-sustaining by 2025, is thereby at risk.

44. Performance of the sector is influenced by the way in which accepted government policy and legislation are being actively enforced. Government’s intention to privatize water companies through the gradual process of equitization has not yet had the impact that may have been intended. Private ownership of a share of the system assets was not backed up by clearly defined and verifiable performance indicators, and therefore did not lead to efficiency gains or performance improvement. The process to date has been characterized by a loss of management control, with no (short term) benefit to either consumers or (potentially, in the long term) to the condition of the system’s assets. Instead, the equitization of water and wastewater companies is providing these companies with a Business License and a de facto authorization to grow outside their areas of core competence, posing a major threat to service delivery, due to a lack of proper regulation and control.

45. Further, significant impact on the functioning of the sector must be recognized in the failure to adequately enforce standards on emission and discharges. In the Government’s efforts to encourage the growth of manufacturing industry, investors have not been forced to install waste treatment or mitigation facilities, despite the existence of legislation for this purpose. The impact of these decisions – to prioritize industrial growth over control of discharges and environmental protection – is a deterioration of the national water resources.

46. **Key Constraints and issues.** In urban water supply, access to improved water supply in major urban areas has generally reached government targets. Nevertheless, weaknesses remain in reliable data on the effective functioning as well as the assets of many water supply companies. Together with remaining gaps in compliance with the legislation intended to protect the sanctity of the Contract, these conditions prevent substantive interest of the private sector for management and investment. The operating costs of water supply companies are only partially covered by the income from tariffs. In general, water supply companies are not run on business principles, and do not utilize performance indicators against which efficiency can be measured and benchmarked. For smaller urban centers, service levels are still below
government standards and targets.

47. In urban sanitation and wastewater management, environmental conditions demonstrate the shortfall of investment in physical infrastructure and management systems. Less than 10% of towns have any form of central wastewater collection and treatment systems. An estimated 75% or more of urban households use septic tanks. No data are available on the efficiency of their functioning. In the absence of desludging services, septic tanks do not provide any significant form of treatment, and wastewater will continue to pollute both groundwater and surface waters. In rapidly developing urban areas with increasing population density, higher per capita water consumption, and increasing water use, more environmentally acceptable means of wastewater disposal are required. The scale, complexity and cost of the programs necessary to improve urban sanitation on any significant scale are beyond the scope of most provincial and city local governments. Industrial wastewater — which constitutes the largest fraction of the estimated organic waste load on surface water and is likely to contain toxic and refractory substances — is only treated in a few instances and poses the most severe threat to water as a resource.

48. Despite progress achieved in rural water infrastructure, critical difficulties remain in water quality as well as operation and maintenance of projects once built, and in the functioning of the Center for Rural Water Supply and Sanitation (CERWASS) as the main government organization responsible for planning, and monitoring and evaluation. Rural communities opt for a level of service which is not always financially or technically feasible but is supported by CERWASS nevertheless, affecting the long-term sustainability of schemes. Sources are contaminated by domestic wastewater (grey and black), industrial effluent and agricultural runoff or leachate containing harmful pesticide and fertilizer residues, in particular during the dry season, when water quantity decreases and the concentration of pollutants rises. Health risks are high because many households still depend on these unimproved sources for all their water needs. Water quality needs to be addressed as a priority. Options for differential treatment, including water kiosks and improved household treatment should be explored. Groundwater depletion is a serious problem in some areas, where water supply schemes rely on pumping water from underground aquifers. In coastal areas, this leads to saline intrusion. Relevant policies drafted by MONRE will have to be implemented in order to avoid a further deterioration of the situation.

49. In the sanitation subsector, the construction of toilets — household, communal and institutional — continues with National Target Program (NTP) II supporting sanitation in schools and clinics. The Viet Nam Bank for Social Policies (VBSP) has made over 700,000 sanitation loans to households in the period up to May 2009. More funding needs to be allocated to raise rural awareness about the benefits of proper sanitation and hygiene, and to build local management capacity for both water supply and sanitation. Institutional and legal support for social and economic mechanisms to induce sanitation behavioral change within communities is also required.

D. Key Sector Development Needs, Opportunities and Indicators

50. Having reached over $1,000 GDP per capita, Viet Nam is rapidly becoming a middle income economy, with a growing manufacturing base. Although still faced with areas of severe poverty and inadequate level of services, the nature of Viet Nam’s development needs have changed. The response from development partners and the nature of their involvement is changing as a result. Total ODA flows are smaller than foreign direct investment and remittance flows, with ODA making up some 5% of GDP and 11% of total investments. Of central
relevance to the sector, Government policy states that urban water supply systems should be financially self-sufficient. This policy is reflected in ADB’s position to move future lending for Viet Nam in general, and the urban water sector in particular, to Ordinary Capital Resources (OCR) lending rather than Asian Development Fund (ADF).

51. To meet the level of investment required to upgrade the water and sanitation infrastructure in Viet Nam, private sector funding is essential. In the present phase of development, the sector requires assistance in gaining investor confidence through policy, legal, procedural and institutional reforms that meet international standards.

52. Assistance with the expansion of urban water supply systems should continue, with a focus on smaller towns. For the larger cities, the emphasis will be on assisting their water supply companies to be run on modern commercial business principles, e.g., using the operational and financial expertise of successful (regional) water operators in partnership or twinning arrangements, contributing towards eventually gaining access to private sector funding.

53. Policy changes by the Government in the management and ownership structure of water and sanitation utilities will place fundamentally new demands on the range and depth of staff skills. Involvement with the private sector, whether in service, management or ownership roles, will call for greater experience in such matters as the use of performance indicators, contract management, and investment in capital markets. In parallel, the increasing sophistication and expansion of water supply systems as well as the expected growth of wastewater management facilities will place new requirements on the nature of system management and operation skills. As a result, the sector will require considerable retraining as well as new recruitment. To achieve a significant impact, a sustained program for a gradual but targeted transformation of human resources for all utilities will be required, which will need to be supported through the involvement of key national institutions such as the VWSA.

54. A further key development priority necessary for the coming decade in Viet Nam is an improvement in the active protection of its natural resources. Already reflected in the (draft) SEDP for 2011–2015, the Government intends to place greater emphasis on waste management and environmental protection. Focusing on the most significant sources of waste generation, with the greatest potential for causing lasting environmental damage, priority should be given to dealing with waste generated in industrial zones. Programs need to combine public sector investment in central waste collection and treatment, with enforcement of regulations on emission and receiving water standards, in order to provide adequate incentives to private sector to invest in waste (pre)treatment facilities.

55. The investment required to achieve government target coverage for the sector has been estimated at $750 million for urban water supply and $1.4 billion for urban sewerage (a 10-year program covering 2005–2015, 2004 estimates). A more recent estimate for the urban water supply sector puts the investment required at $2 billion (for 100% coverage of the urban population, program to 2020; 2008 estimates). Other estimates on urban sanitation investment needs project a range from $4.3 to 16.2 billion, depending on technologies selected, for a 10-year program up to 2020 (2008 estimates).
III. SECTOR STRATEGY

A. Government Strategy, Policy and Plans

56. The Government's current SEDP (2006-2010) includes specific initiatives related to urban development, and stresses the importance of realizing key MDGs and VDGs on water supply and sanitation. The Government plans stress the need for institutional reforms, including efforts to (i) restructure the MOC to refocus its functions in development planning, sector policy formulation, regulations, training, and technology transfer, and to terminate its direct involvement in business activities; (ii) clearly define the roles and responsibilities of various Government agencies involved in the water and sanitation sector and encourage better cooperation among these sector agencies; (iii) improve provincial capacity to manage provincial-level water supply, sanitation and drainage development programs; (iv) provide training and capacity building on project implementation and operation and maintenance, encourage service providers to become self-financing and gradually eliminate subsidies; (v) create the legal basis for providing urban public services, with enhanced enforcement; (vi) promote community education and awareness, particularly on drainage and sanitation issues; (vii) mobilize additional financial resources; (viii) protect water sources; (ix) upgrade technology and materials; and (x) develop human resources.

57. Government's policies for urban infrastructure development are presented in the Orientation Plan for Urban Development to 2020 (1998) which designates a hierarchy of urban settlements with a focus on developing satellite cities and managing rural-urban migration by promoting economic development in secondary cities. The Plan aims to (i) develop urban centers as economic growth centers, (ii) develop and modernize technical and social infrastructure to attract investment and improve living standards, (iii) reduce gaps in economic development and living standards between urban and rural areas, and (iv) ensure sustainable urban development. It recognizes the need to strengthen and improve the efficiency of urban management systems and policies. Since April 2009, this has been revised to become the Orientation Plan for Urban Development to 2025 and Vision to 2050, which places emphasis on the role of comprehensive town development projects to promote socioeconomic growth.

58. Orientation plans for urban water supply and drainage to 2025 aim to (i) enable 100% access to water supply for all by 2025; (ii) reduce non-revenue water to 25% by 2015 and 15% by 2025; (iii) improve and complete urban drainage and sewerage systems to ensure a minimum of 80% coverage by 2025; (iv) require enterprises to have on-site treatment for toxic liquid waste; (v) provide waste collection systems that treat solid and liquid wastes; and (vi) gradually rehabilitate and clean all canal systems. However, the Orientation Plan did not take into consideration the transition to a market-oriented economy, the move towards decentralization and the increased rate of urbanization, which have resulted in a financing gap in the development of infrastructure and urban services.

59. The critical planning document relevant for urban areas is the "Masterplan", with its primarily spatial orientation, prepared under the auspices of MOC. Masterplans need to be approved by the People's Committees of the towns or cities concerned. Any infrastructure masterplans and feasibility studies need to be based on the respective valid town or city Masterplan, e.g., for population forecasts and land-use projections. Delay in achieving final approval of the Masterplan is a frequent obstacle in effective planning and timely implementation of sector improvement programs.
60. Objectives and targets for solid waste management are specified in the SEDP and the National Urban and Industrial Zones Solid Waste Management Strategy to 2020. Priorities include (i) enforcement of the Law on Environmental Protection; (ii) increased investments in solid waste infrastructure systems; (iii) promotion of awareness and strengthening of training in solid waste management and environmental protection; (iv) improvement in and reform of cost recovery; (v) strengthening of institutions; and (vi) adoption of appropriate modern equipment and technology. Cities and provincial towns should collect and dispose of at least 85% of urban and industrial solid waste in appropriate landfills by 2010, 90% by 2015, and 95% by 2020.

61. Other Development Partner Support. Coordination in the sector is implemented through the Viet Nam Urban Development Forum for urban water supply and sanitation, and the Rural Water Supply and Sanitation Partnership (RWSSP) at the Ministry of Agriculture and Rural Development (MARD), and was assessed through the Water Sector Review. The World Bank's strategy is to work through Urban Infrastructure Investment Funds to finance municipal infrastructure, and use a program or sector approach for rural water supply and sanitation. The Agence Francaise de Développement (AFD) is targeting climate change adaptation and mitigation measures and energy efficiency. The Japan International Cooperation Agency (JICA) is financing several urban masterplans as well as major municipal sewerage and wastewater treatment projects. Belgian Technical Cooperation (BTC) has funded wastewater collection and treatment in two coastal towns in Binh Thuan Province. In addition, BTC is supporting MONRE, at central and provincial levels, in a capacity building program for assessing and managing water resources. Similarly, at MONRE, German technical assistance through the Federal Institute for Geosciences and Natural Resources is assisting in collecting groundwater information for selected provinces.

62. ADB has several ongoing partnerships, mostly with the United Nations Human Settlements Program (UN-HABITAT), AFD and JICA, and recently with Korea, through the Economic Development Cooperation Fund (EDCF) and the Export-Import Bank of Korea (KEXIM). Some bilateral agencies have approached ADB for further cooperation in the water supply and sanitation sector. The governments of France and Spain have offered to finance, on a bilateral basis, feasibility studies that would be appraised by an ADB project team as part of loan processing; this was pioneered with the World Bank on Ha Noi water supply and HCMC sanitation. ADB is involved in a dialogue with the World Bank’s Water and Sanitation Program on the Government’s Unified Sanitation Sector Strategy and Action Plan (U3SAP). ADB’s future urban wastewater program is being designed taking cognisance of similar programs funded under bilateral aid from Finland, Denmark and Germany, and in collaboration with the ongoing GTZ capacity building activities for the sector.

B. Retrospective of ADB Sector Support Program to Date

63. ADB program to date. The Bank’s involvement in the water and sanitation sector in Viet Nam commenced in the early 1990s. Initial involvement focused on institutional and planning support to HCMC, followed by a first loan aimed at the rehabilitation of the city’s water supply and sanitation systems. A sequence of three provincial towns’ water supply and sanitation loans provided the basis for improving essential infrastructure in over 30 provincial towns. Consistent with Government’s policy to encourage economic growth away from the major cities, two subsequent loans supported the integrated development of environmental infrastructure and services in small to medium towns in provinces of the Central Region. A loan on Rural Water Supply and Sanitation for the Central Region was approved in November 2009. Further loans are under preparation to support the expansion of water supply systems in HCMC, Hai Phong City, Da Nang City and Thua Thien Hue Province.
ADB’s current strategy for the water supply and sanitation sector focused on the Water Financing Partnership Facility (WFPF), in which Viet Nam was a target country for doubling investment lending in water and sanitation by 2010. In 2008, ADB launched the preparation of the four urban water supply projects (see para. 0) to test the new legislation and its applicability, especially in terms of institutional reform. An investment loan for HCMC water supply is being processed in partnership with ADB's Private Sector Operations Department (PSOD). The proposed project in Thua Thien Hue Province will address both urban and rural water supply and sanitation at the provincial level to promote a comprehensive increase in coverage across the entire province, and also to reduce urban-rural disparities and develop urban-rural linkages through future integrated water resources management. In this, the Hue proposed investment loan is a radical change from the traditional sector approach of rural water supply and sanitation currently followed by the NTP. Since 2009, the government has been focusing additional investment in sanitation. ADB responded by organising a sanitation dialogue with Viet Nam in Manila and in Viet Nam which concluded that there were possibilities for financing in areas like industrial wastewater and sanitation for coastal cities.

Evaluation. An independent external evaluation of the Bank’s performance in the water and sanitation sector rated ADB’s assistance to the sector as "successful on the low side". The Sector Assistance Program Evaluation (SAPE) recommended that future programs should (i) support the performance of executing agencies in consultant procurement to reduce delays in the final design process; (ii) include the formulation of performance indicators for water and environment companies, linked to funds disbursement, as a better means of monitoring business planning and delivery; (iii) include a gradual increase of tariffs as a condition for loan appraisal or effectiveness, combined with Information, Education and Communication (IEC) components to explain links between tariff increases and service improvements to consumers; and (iv) encourage the establishment of sustainable wastewater business units based on cost recovery principles, whether linked with water supply companies or, preferably, as independent entities. A separate self-evaluation of the rural water supply program, quoted in the Country Strategy and Program (CSP), focused on the importance of community involvement in program formulation, the need for strengthening awareness, the role of the Viet Nam Women’s Union (VWU) in working at grassroots level in environmental health improvement, and finally the need to involve the Provincial People’s Committees (PPCs) in community development activities because of budget implications.

Lessons Learned and Better Practices. Analysis of recent external assistance to the sector suggests that greater impact could be achieved if programs are designed and implemented with more consistent observance of agreed policy, strategy and realistic covenants amended from time to time. Lasting project impact and a platform for a sustained scaling-up of sector projects can only be achieved with financial and institutional sustainability of respective utility companies. The financing gap for the sector in Viet Nam is such that Government and ODA sources are not sufficient to fund essential investment without additional fund flows from the global private sector. However, the current institutional and legal environment does not provide sufficient confidence to leverage domestic and international capital markets. The Government is working on an update of the Public Private Partnership (PPP) legislation, but a consensus is required among donors on the form and shape of PPP for Viet Nam, with competition as a prerequisite. Furthermore, Government issued Decree 108/2009/ND-CP on Concession Contracts for Private Sector Participation in the infrastructure sector, including water and sanitation, and Decree 04/2009/ND-CP on investment incentive mechanism for the environmental sector.
Program design will therefore include components that work explicitly towards these objectives: increasing water tariffs to raise income, and thereby reduce non-targeted subsidies and provide better incentives to reduce wastage; reducing non-revenue water, to increase company revenues and as an indicator of improved operational control and discipline; improved access to operational and financial data, to enable more effective management and as a prerequisite for public accountability.

C. ADB's Sector Forward Support Program

Government and ADB Plan Alignment. The Government of Viet Nam’s current SEDP’s objectives relevant to the water sector include: (i) provision of essential infrastructure, especially water supply and sanitation, to poor households in cities and towns across the country; (ii) improvement in socioeconomic development planning to include both countrywide and interregional dimensions; (iii) integration of infrastructure plans into masterplans and land-use plans; (iv) introduction of governance reforms to support devolved planning and implementation of infrastructure projects; (v) mobilization of resources for adequate operation and maintenance; and (vi) enhancement of cost recovery for infrastructure investments by setting and collecting appropriate tariffs and fees.

ADB’s sector program within the CSP 2007–2010 was consistent with these policies. In particular, ADB’s current water supply program for major cities aims to strengthen the financial basis of water supply companies. The Government has further requested support with the implementation of city comprehensive socioeconomic development projects to finance urban infrastructure, focusing on medium size towns in the Central Region. A two-pronged strategy on (a) urban sanitation for coastal cities and climate change; and (b) industrial wastewater management was agreed between ADB and the Government at the April 2009 Thanh Hoa Sanitation conference. This was reinforced by more recent requests from the Government to assist with the treatment of both solid and liquid waste from industrial zones, in support of the Prime Minister’s instructions to more actively enforce standards on pollution prevention.

Against the background of considerable achievements in reaching policy targets for the sector, certain critical challenges for the future are now emerging. Firstly, the water and sanitation sector has failed to attract significant private sector interest. This must be attributed to the (i) fundamental uncertainty about the ownership of water supply assets; (ii) lack of reliable information about the location, functioning and value of infrastructure assets; (iii) within the regulatory environment, still ongoing ambiguity on responsibilities; and (iv) lack of confidence in the sources of income because of failure to enforce water tariff increases within a reasonable timeframe. Secondly, the growth in industrial and commercial activity has not been matched with a parallel strengthening of controls on waste discharges or the enforcement of environmental standards and regulations, leading to the degradation of essential natural resources. Thirdly, the process of decentralization and devolution of the responsibility for planning and management of infrastructure — from central to provincial and city governments — will put first-time demands on the skills and capacity of sub-national government agencies. As a consequence of this devolution process, sub-national government institutions, agencies and service organizations now need to be held accountable: upwards, to comply with standards and regulations, and downwards, to deliver the services entrusted to them. And finally, future preparation for investments in infrastructure, in particular in the coastal zones, will now need to place climate change adaptation measures at the core of the planning process. Future ADB programs for the sector will need to be designed around these main emerging challenges.
71. **Knowledge Gaps.** Knowledge and data are required in critical areas to support informed prioritization, planning and design of future programs as well as their effective implementation. More detailed data are required about the assets of water supply and sanitation infrastructure (their location and condition, functioning, and assessed value) as a basis for effective management and to instil private sector confidence in the sector. More information is required about current urban wastewater collection methodologies and their impact on the environment, to enable the formulation of appropriate strategies and technology choices that achieve environmental objectives and are (i) affordable, (ii) manageable, and (iii) suitable for future scaling-up or expansion. The process of drafting and finalizing urban masterplans needs to be accelerated, to be linked with actual infrastructure needs, and to provide a relevant but flexible basis for preparing infrastructure feasibility studies. More quantitative data is required on the sustainable availability, recharge behavior and quality of groundwater, to enable informed decisions to be made on its long term suitability as a source of water supply for rural, urban, agricultural or industrial purposes. Detailed information is required about the nature and extent of capacity building needs at sub-national levels of government, to support their increased role in the planning and delivery of infrastructure programs, in particular in drainage and wastewater management.

72. **Policy and Strategy Drivers.** The formulation of the sector strategy recognizes the continuing shift towards an industrial and manufacturing economy, and the resultant changing requirements for infrastructure provision, simultaneous with the need for better protection of the essential resources of water, air and soil. The strategy is explicitly designed to give substance to Government’s initiatives to decentralize planning, financing and decision making. Programs will need to provide funds, or leverage other sources of investment funds, together with the legal and institutional changes that are required to allow the sector to respond to these developments.

73. **Strategy Outline.** Consistent with Viet Nam’s move towards middle income status, the policy intentions of Government as defined in its SEDP and the nation’s present level of development, ADB’s strategy for the sector has been revised and expanded for the short term, to 2013. In outline, the strategy shall target three areas of activity, or Support Areas: (1) strengthening the business practices and financial basis of (urban) water supply companies, e.g. with the systematic introduction of performance indicators, asset inventory and management systems, and measures to improve energy efficiency; (2) a coordinated approach towards municipal and industrial wastewater management improvements; and (3) a move towards provincial programs, integrating urban, industrial and rural target areas for water supply and sanitation, by working with the provincial government. For the entire program, the dialogue with central government institutions will focus on their role in formulating policy and monitoring achievements against objectives and targets, and integrating climate change mitigation and adaptation measures.

74. A fourth support area will build on an anticipated, longer term (2015–2020) consolidation of the water and sanitation sector in Viet Nam, following the equitization program completed in June 2010. Water companies are currently operating as publicly owned One Member Limited Companies and will gradually transform into Joint Stock Companies, following the examples in Vung Tau, Song La and HCMC. The program will initiate projects based on PPPs to enhance skills (leasehold and management contracts), financing (concession and divestiture) and non-sovereign operations (NSO) in the Viet Nam water supply and sanitation sector, based on the lessons learned from industrial wastewater management. Water companies and financially sustainable State-Owned Enterprises (SOEs), such as PetroVietnam (or Viet Nam National Oil and Gas Group) and Electricity of Viet Nam, are targeted for NSO and investment so as to
promote environmental and financial sustainability with access to carbon credits and energy efficiency programs, facilitated by ADB in collaboration with other development partners.

75. **Support Area 1: Urban Water Supply Program:** The main lending component within the water supply support area will be a Multitranché Financing Facility entitled “Viet Nam Water Sector Investment Program”. The institutional foci will be on improving operational performance, with support linked to MOC’s recently launched program on the reduction of NRW; expanding water systems to peri-urban areas with high poverty incidence; and making water supply companies effective and financially viable, and thereby of interest to private sector partners for management or operations. Further technical assistance will target the availability of and access to reliable and up-to-date information on water systems and their functioning.

(i) **MFF “Viet Nam Water Sector Investment Program”** (2010–2020) would initially cover four major cities (HCMC, Hai Phong, Hue and Da Nang), subject of PPTAs during 2009/2010. The objectives of the MFF are to strengthen the commercial operation of water supply companies and boost investment to expand system capacity. The line of credit would be used in the future to fund water supply projects in secondary cities, committed to implement institutional reform.

(ii) **Capacity Development Technical Assistance (CDTA) “Implementing Business Processes for Water Companies and Defining the National NRW Program”** (2010/2011), to promote an overall improvement of the operational and financial performance of water supply companies by defining levels of service through a participatory approach; selecting key performance indicators and defining service contracts between the local government and the water company. The CDTA will initially work with the four water companies that were subject of recent PPTA in Da Nang, HCMC, Hue and Hai Phong; and the two water companies in Binh Duong and Phu Yen Provinces, which are completing their investment plans under the Third Provincial Towns Water Supply and Sanitation Project (Loan 1880-VIE). The CDTA will focus on two key aspects: (i) preparing action plans with qualitative and quantitative targets for key performance indicators, including setting water tariffs at full cost recovery; and (ii) ensuring the availability and active use of operational data that permit effective asset management, in particular the reduction of non-revenue water. The latter will be achieved through the definition of activities and methodologies to implement a sustainable NRW program with built-in self recovery mechanisms, in line with MOC’s Orientation Plan for Urban Water Supply to 2025 with vision 2050 (Decision 1929/2009/QD-TTg), at the national level.

76. **Support Area 2: Sanitation and Wastewater Management Program:** The strategy intends to support the Government in its SEDP commitment to protect the country’s natural resources more effectively, in order to allow continued sustainable growth and equitable development. Untreated discharges from industrial zones are recognized as the single most significant threat to the environment. A combination of direct investment, leveraging of private sector funding and compliance interventions have the potential to have the greatest beneficial impact in this area.

77. ADB will support the Government in urban sanitation programs as part of its city comprehensive socio-economic development plans. In particular, ADB will assist with the formulation of city sanitation strategies in a selection of Class 2 or 3 towns, which are likely to
be among the first to be affected by climate change. Options need to include considerations of a mix of conventional sewerage and low cost sanitation, centralized or decentralized systems, separate or combined wastewater and stormwater systems, and separate or combined municipal and industrial wastewater systems. Other program components may involve dedicated programs for schools, recycling and reuse of water and organic material, and strengthening community awareness. Choices will depend on the socio-geographical environment, population density, levels of water usage, affordability, institutional arrangements and access to skills. A major city wastewater program may be included as a result of ongoing dialogues with Government and development partners.

(i) **PPTA Industrial Wastewater (2010/2011):** preparation of a sector loan for industrial wastewater management, includes (a) sovereign loans to local governments to fund central wastewater treatment plants in industrial zones; (b) non-sovereign loans or facility for private sector investments to increase and improve pre-treatment for high-polluting industries; and (c) an institutional component, to improve the enforcement of existing environmental regulations on discharges and to provide incentives to industries to invest and participate in clean-up programs. The PPTA will include the preparation of a pilot Provincial Industrial Pollution Control Action Plan and a pilot Sector Industrial Pollution Control Action Plan to promote both geographic and sector approaches.

(ii) **Cities Sanitation Strategies:** Up to 10 cities will be selected in 2010/2011 to conduct a rapid assessment of the sanitation status, and to define technically and financially sustainable solutions for sanitation and climate change proofing. The City Sanitation Strategies will provide the basis for future operations and methodology to design and implement wastewater and sanitation projects in Viet Nam.

(iii) **CDTA “Support to Central and Local Governments in Implementing Urban Environment Projects” (2010/2011):** To prepare for the effective and large scale implementation of urban environmental improvement programs, by jointly analysing urban sanitation alternatives, formulating a range of strategy options and thereby strengthening skills and awareness at appropriate levels of government.

(iv) **PPTA “Coastal City Urban Environment and Climate Change Project” (2010/2011):** To prepare a project aimed at secondary coastal cities (Do Son / Kien An, Sam Son, Dong Hoi), which are likely to experience the early impacts of climate change. Preparation and implementation of the project will give substance to the policy debate on both decentralization and pragmatic sanitation improvement alternatives for urban areas in Viet Nam, in the context of climate change.

(v) **PPTA Preparing MFF “Supporting the Viet Nam Sanitation Sector” (2011/2012):** Building on the lessons learned from the CDTA on urban environment improvement, a line of credit will be set up to allow investment in the sanitation sector, parrelling the MFF in the water supply sector. The MFF will support the new institutional reforms in the sanitation sector in Viet Nam and assist Government in the implementation of U3SAP.
78. **Support Area 3: Provincial Program:** Traditionally, rural water supply and sanitation programs have been centrally designed and implemented, while recent urban water supply and sanitation projects have been designed and implemented locally, through delegated management. In line with Government's policy of decentralization of ODA management through Decree 131/2006/ND-CP and its successor, the objective will be to strengthen the role of provincial government in the delivery of water and sanitation services and improve coverage throughout the province for urban, rural and industrial customers. This approach is being piloted in Thua Thien Hue Province (part of the MFF for water supply). This would be the first step before planning integrated water resources management projects in river basins over several provinces.


(ii) **JFPR Delivering Safe Water and Sanitation to Poor Rural and Peri-Urban Communities in Thua Thien Hue Province, Central Region, Viet Nam** (2011): Preparation and implementation through grant funding for water supply and sanitation services of communities outside the current service areas of the Hue Water Supply Company. A similar grant program would be launched in other cities on a need basis.

(iii) **PPTA Integrated Water Resources Management** (2012/2013). Provincial program to be planned in coordination with ADB Southeast Asia Department's Agriculture, Environment and Natural Resources Division (SEAE), combining upstream resource considerations together with downstream needs for irrigation, as well as urban, rural and industrial water supply and sanitation, in the context of climate change and water security.

79. **Support Area 4: Private Sector Financing.** With all program components, the potential for alternative financial mechanisms will be reviewed and presented to the Government, when considered appropriate. These may be opportunities for leveraging full private sector investment, linked with ADB lending, knowledge products, access to Carbon Market Initiative, energy efficiency and climate change funding facilities through the Clean Energy Financing Partnership Facility. Non-sovereign loans may be considered for private sector operators in areas such as water treatment and distribution system management, or for investment in environmentally sustainable technologies that would mitigate climate change and improve the environmental sustainability of water and wastewater companies and financially sustainable SOEs that are interested in improving their environmental sustainability. An initial attempt will be made with the Saigon Water Supply Company (SAWACO) in HCMC through the MFF for water supply. Another opportunity would be to design the Ha Noi wastewater management project as a PPP together with JICA. Initial discussions have been held with PetroVietnam on Nghi Son and Dung Quat refineries, to finance environmental infrastructure and to assist with the provision of water and wastewater services under delegated management. Though ADB's operations will focus on water supply, sanitation and wastewater management, it may selectively support other urban subsectors such as solid waste management if there are opportunities to promote PSP or PPP. By providing technical assistance, ADB can assist the Government in the preparation of demonstrational PSP/PPP projects. ADB can also provide direct financing for such projects and credit enhancement to catalyze funds from private sector funders and capital markets.
80. **Program Outline.** The design of the water and sanitation sector program for Viet Nam is based on a strategy of supporting the Government in its policies of decentralization and improving governance at sub-national level by designating the provincial government as the main actor at the heart of the planning, development and implementation of the water supply and sanitation sector, resource protection and strengthening the business environment. It recognizes the need for a considerable investment in infrastructure to allow the country to fuel and sustain its growth while maintaining its policies on poverty reduction, reducing the urban-rural gap and addressing integrated water resources management, based on future water resources legislation. It further acknowledges that substantive change is required in the operating conditions of water supply and drainage companies before international private financing can be attracted to the sector.

81. **Resource Allocations.** The ADB water and sanitation program will rely extensively on OCR and to some extent on NSO, mostly through PPP. Project preparation will maximize cofinancing from bilateral donors to finance feasibility studies which will be appraised by the ADB Project Team for loan financing with about two PPTA per year and at least one CDTA or Project Advisory Technical Assistance (PATA) per year. ADB will develop model projects for the water and sanitation sector and act as a catalyst for additional cofinancing with other development partners, including bilateral ones. ADB's water and sanitation program is expected to be about $300 million per annum over the next five years with additional NSO (up to $100 million per year), starting from 2012.
### IV. SECTOR ROADMAP AND FRAMEWORK

<table>
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<tr>
<th>Country Sector Outcomes</th>
<th>Country Sector Outputs</th>
<th>ADB Sector Inputs</th>
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<tbody>
<tr>
<td>Outcomes with ADB Contribution</td>
<td>Targets with Indicators &amp; Baselines</td>
<td>Outputs with ADB Contribution</td>
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<tr>
<td>Water supply: Stronger sub-national agencies responsible for water supply provision</td>
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- Expanding sustainable access to safe water by strengthening the operational and financial basis of water supply companies
- More reliable and relevant corporate performance indicators, to reflect commercial role

- Selected water supply coverage and performance indicators, e.g., (i) coverage by piped water supply; (ii) per capita consumption; (iii) NRW; (iv) tariffs; (v) operating ratios.

- Formulation and acceptance of revised Performance Indicators
- Formal guidance for water supply companies on equitization
- Strengthened role for MOC and VWSA in monitoring performance of water supply companies
- Technical support through MOC to selected / pilot water supply companies to achieve NRW reduction targets

- MFF Viet Nam Water Supply (2010–2020)

- JFPR Delivering Safe Water and Sanitation to Poor Rural and Peri-Urban Communities in Thua Thien Hue Province
- Grant programs in other provinces
<table>
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<tbody>
<tr>
<td><strong>Outcomes with ADB Contribution</strong></td>
<td><strong>Indicators with Incremental Targets</strong></td>
<td><strong>Main Outputs Expected from ADB Interventions</strong></td>
</tr>
<tr>
<td>Wastewater: Funding mechanisms and procedures in place and understanding improved that will assist Government in achieving its targets on improved urban sanitation, including wastewater collection and treatment</td>
<td>• Improved waste management at industrial zones and thereby improved protection of water resources • Improved access to funding for wastewater treatment</td>
<td>• Code of Practice agreed and Performance Indicators accepted • Technical procedures manuals accepted and in active use.</td>
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<tr>
<td>Industrial: More central wastewater treatment operating in industrial zones, and access to funding for pre-treatment.</td>
<td>• Indicators on % of industrial zones with operating central treatment system; fraction of waste water produced treated; % compliance on meeting discharge standards</td>
<td>• Improved pragmatic Government regulations and procedures accepted and in use • At Central government level: code of practice defined to deliver role in monitoring and guiding the implementation of Decree 86 • At Provincial government: mechanisms in place for planning, prioritising and budgeting for urban sanitation improvement programs • At URENCOs: technical and operational manuals and management guidelines prepared and accepted</td>
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Wastewater:
Funding mechanisms and procedures in place and understanding improved that will assist Government in achieving its targets on improved urban sanitation, including wastewater collection and treatment.

• Improved waste management at industrial zones and thereby improved protection of water resources
• Improved access to funding for wastewater treatment

**Main Outputs Expected from ADB Interventions**

- Improved pragmatic Government regulations and procedures accepted and in use
- At Central government level: code of practice defined to deliver role in monitoring and guiding the implementation of Decree 86
- At Provincial government: mechanisms in place for planning, prioritising and budgeting for urban sanitation improvement programs
- At URENCOs: technical and operational manuals and management guidelines prepared and accepted

**Ongoing and Planned ADB Operations**

- PPTA and Loan "Central Region Coastal Cities Urban Environment and Climate Change" (2010–2011)
Problem Tree and Issues Matrices

WATER AND SANITATION SECTOR PROBLEM ANALYSIS

National Impacts

Urban infrastructure and services not keeping pace with overall economic development, thereby threatening to hold back further equitable growth and sustainable development. Water and soil polluted by uncontrolled waste discharges, creating risk to health and development in certain regions.

Sector Impacts

Low efficiency of water supply systems; high non-revenue water; systems not expanding to peri-urban areas.

Systems in rural and small urban areas not sustainable; no clear responsibility for operation and maintenance.

Water supply companies not run on business principles; not prepared for equitization.

Very few urban areas with wastewater collection and treatment; surface and ground water polluted by urban and industrial wastewater.

The agencies responsible for water supply and wastewater management are not prepared for the delivery of their tasks in fulfilling government targets, as detailed in Decrees 117 and 88, and Decisions 1929 and 1930, respectively.

Core Sector Problem

Financial: no access to capital markets; inadequate funding for system expansion

Technical: urban areas expanding rapidly; growth of water infrastructure not always keeping pace; skills available at local level not suited for growing complexity of systems.

Institutional: decentralization is still in process; sub-national government and their agencies not fully prepared for decentralized responsibilities.

Main Causes

Financial:
No data available on the water system assets as essential condition to attract private sector involvement in medium term future.

Technical:
Tariffs not sufficient to cover running costs.

Institutional:
Rural water systems often in disrepair. Constructed on grant basis without sustainable operational basis. Little or no fees charged, no local skills to maintain.

Deficient Sector Outputs

Aging water supply systems, struggling to cope with rapid growth in demand. Septic tanks widespread but now no longer an acceptable solution (on environmental grounds) when urban population densities and water use increase.

Equitization process has not resulted in improved efficiencies. Water and drainage JSCs involved in non-core activities. No incentive to expand distribution systems to marginal areas.

Decisions on raising tariffs not with water and drainage companies but still with PPCs who have little incentive to increase tariffs. Government not yet prepared to control untreated wastewater from industry.
<table>
<thead>
<tr>
<th>Core sector/subsector issues (constraints and problems)</th>
<th>Government Plan</th>
<th>Policy, institutional, investment action and resource gap needs</th>
<th>Remarks (on plan relevance and feasibility, implications)</th>
</tr>
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<tbody>
<tr>
<td>• Most water supply companies are not prepared for task of equitization or target of financially self-sustaining operation.</td>
<td>• All water supply companies to be equitized by July 2010 and financially self-supporting through tariff and local governments' subsidies.</td>
<td>• Legal framework and policy guidelines in place, but without resource implications or clear prioritization.</td>
<td>• Implementation of government intentions and achieving targets requires a focused long term program of strengthening water supply companies to operate along business principles, with greater efficiency and based on asset management, with clear-performance indicators, as part as a condition to be of interest to capital markets.</td>
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<tr>
<td>• Water companies do not have data on assets, as prerequisite for improved management efficiency and private sector involvement.</td>
<td>• Local governments are made responsible for implementing and managing water supply and wastewater projects, while central government remains in charge of planning, and monitoring and evaluation.</td>
<td>• Severe skills shortage at level of utility companies and local government to deal with financial, planning, management and implementation tasks.</td>
<td>• Long term gradual program of training and capacity building required, using combination of instruments including internal twinning arrangements and establishing clear incentives.</td>
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<td>• No reliable information on coverage by water supply systems in district towns (Class IV and V). Possibly considerable investment required to improve coverage.</td>
<td>• Coverage to be extended to 100% for all major cities and towns (Class IV and above)</td>
<td>• Water utility companies in their present form are not attractive to private sector investment because of uncertainty surrounding the regulatory framework and its enforcement, tariff levels, lack of reliable data from the water industry on assets and operational efficiencies.</td>
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<td>• Rural water supply organization fragmented. Unclear responsibility for operation and maintenance has led to supply-driven schemes failing into disrepair.</td>
<td>• NRW to be reduced to 25% by 2015 and to 15% by 2025 for Class IV urban centers and above.</td>
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Table A1.1: Links between Sector Issues, Government Plan, Gaps and ADB Summary Assessment of Plan Feasibility
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<tr>
<th>Core sector/subsector issues (constraints and problems)</th>
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<th>Policy, institutional, investment action and resource gap needs</th>
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<tr>
<td>• Collection and treatment of urban wastewater less than 10%. Now a decentralized responsibility of provincial and city government.</td>
<td>• Government targets full coverage of Class I, II and III towns by 2025.</td>
<td>• Legal framework, Government targets and policy guidelines in place, but financial and human resource implications of Government targets not identified.</td>
<td>• Gradual program proposed to support decentralized responsibility by capacity building combined with identification of funding sources from local, international and private sources.</td>
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<td>• Potential wastewater tariffs that local government can or is prepared to levy are insufficient to meet operation and maintenance costs.</td>
<td>• Financing capital expenditure through State Budget and operating expenditures through wastewater tariff and local Governments' subsidies.</td>
<td>• Local government agencies and utility companies not prepared for dealing with planning, implementation and management responsibilities.</td>
<td>• Strong reliance on soft ODA to finance sanitation sector</td>
</tr>
<tr>
<td>• Inadequate awareness of environmental threat, or sense of urgency to deal with it. At sub-national level, insufficient experience on range of technology options available, e.g., decentralized wastewater treatment systems.</td>
<td>• Protection of resources given greater emphasis in new SEDP 2011–2015.</td>
<td>• Support required to local government authorities as owners and managers of industrial zones to provide essential central treatment, and to enforce existing discharge standards.</td>
<td>• Unlikely to meet universal coverage by 2025.</td>
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<tr>
<td>• Wastewater from most industries, including industrial and economic zones is discharged to rivers without treatment, and thereby reduces the availability of essential freshwater resources.</td>
<td>• Government targets aim to treat wastewater from 80% of industrial zones by 2015 and 100% by 2025.</td>
<td>• Need to encourage industries to provide pre-treatment, through combination of enforcement of legislation and private sector loans.</td>
<td>• Government recognized missing the 100% coverage for industrial wastewater management by 2010 with only 40% achieved.</td>
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<tr>
<td>• Further concern about the pollution of the soil and thereby groundwater as a result of uncontrolled waste discharges by industry.</td>
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Table A1.2: Summary of Sector Issues, Government Action, Development Partner and ADB Support, Key Lessons

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<tr>
<th>Core Issue and Government Action</th>
<th>Other Development Partner Support</th>
<th>ADB Support</th>
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<tr>
<td>• Water supply companies need strengthening to meet targets of financial self-sufficiency. Government has determined water supply companies to be run as businesses, and is committed to major NRW reduction program.</td>
<td>• Various development partners (World Bank, Finland, Belgium), provide support to the (urban) water supply sector through project support, as stand-alone water supply projects or within urban infrastructure activities. Support to the rural water supply sub-sector is channelled through the framework of a National Target Program (NTP). An NTP III is under preparation, with support from DFID (Department for International Development, UK).</td>
<td>• Current program support aims to provide a line of credit through a MFF in 2010, initially for four identified major cities, with others invited to submit applications, supported in parallel by a CDTA in 2010/2011. • Central Region Rural Water Supply and Sanitation loan VIE-2609, signed February 2010. Additional involvement in promoting to extend the service responsibility of urban water supply companies to also cover rural areas. • Future support to the rural water supply proposed through province-wide integrated approach.</td>
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<tr>
<td>• Major gap between present level of treating urban wastewater and government targets. Policies and guidelines on drainage of wastewater and stormwater for urban areas in place with ambitious targets, but without identification of resources to deal with shortages in skills and financing.</td>
<td>• Support to the sector from World Bank (through WSP, in urban sanitation management strategies), JICA (funding infrastructure in two major cities), GTZ/KfW (small to medium town solid waste and wastewater management) and Finland (small town water supply and sewerage)</td>
<td>• ADB proposes to establish a sustainable framework of support to sub-national government to assist and encourage them in their role of implementing and managing urban wastewater systems. Framework to consist of a pragmatic array of technical options (defined using the City Sanitation Strategy program in 2010), a locally based network of training facilities and identification of appropriate sources of financing, defined under a CDTA in 2010/2011 and followed by a PPTA for Coastal Cities Urban Environment and Climate Change in 2011.</td>
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<tr>
<td>• In its efforts to encourage investment in industrial development, government has allowed industrial zones to be established without enforcing adequate treatment of discharges. In the formulation of the coming SEDP 2011–2015, Government has placed renewed emphasis on protection of natural resources to recover this situation.</td>
<td>• World Bank funded an inventory (2009) of industrial zones in two major river basins (Dong Nai, Red River), now preparing for investment through International Development Association. GTZ / KfW / research in industrial zone in Can Tho, focusing on treatment technologies for major industrial sectors; and Canadian International Development Agency on capacity building of local governments for monitoring and enforcing.</td>
<td>• PPTA approved to prepare sector loan for industrial wastewater management, to include (a) sovereign loan to local governments to fund central wastewater treatment plants in industrial zones; (b) non-sovereign loans or facility for private sector investments to increase and improve pre-treatment for high-polluting industries; and (c) institutional component to improve the enforcement of existing environmental regulations on discharges, to provide incentives to industries to invest and participate in clean-up programs.</td>
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Appendix 2 30

Sector Institutions

1. **Overview.** The Ministry of Construction (MOC) is responsible for sector development planning and policy formulation, regulations, training, and technology transfer at the national level. The Provincial People’s Committees (PPCs) are responsible for urban infrastructure development, including water supply, sanitation and drainage development in the provinces. Town People’s Committees (TPCs) are usually responsible for administration of the town urban infrastructure, water supply and sanitation services. Drainage, wastewater treatment and solid waste services are provided by the Urban Environment Companies (URENCOs) in the largest cities.

2. At the national level, MOC is mainly responsible for (i) urban and rural planning and policies; (ii) construction standards, rules and regulations; (iii) technical and financial guidelines for evaluating construction projects and for managing urban infrastructure; (iv) research and education for urban infrastructure; and (v) human resource development for urban infrastructure investment and maintenance. MOC is also involved in monitoring and administering major urban development projects. Other key organizations related to the sector include the (i) Ministry of Planning and Investment (MPI), which is responsible for advising the Government on investment planning and the utilization of externally funded assistance and direct foreign investment; (ii) Ministry of Finance, which prepares and administers the budget and is responsible for the disbursement of externally funded projects; (iii) Ministry of National Resources and Environment, which is responsible for environmental protection and monitoring; (iv) Ministry of Health, which is responsible for promoting environmental health education and for drinking water quality testing; and (v) Viet Nam Women’s Union (VWU), which is a Government-funded mass organization with central, provincial, and district level offices, and which plays a major role in community mobilization, health education and microfinance initiatives.

3. **Provincial and Municipal Governments.** At the provincial level, the PPC exercises executive authority over all provincial functions. The line ministries have their corresponding departments in the structure of the provincial government. Provincial governments, i.e., PPCs, are responsible for urban water supply and sanitation services in the provinces, and, in the past, have assigned the state management function for urban infrastructure and services to the provincial Department of Construction or to People’s Committees at lower levels.

4. People’s Committees (PCs) at city, district or town levels are responsible for administering cities, districts or towns, respectively. The City, District or Town People’s Committees (CPC, DPC or TPC, respectively) are each supported by various professional units (divisions, offices or companies), which assist the PC to carry out its state management functions, providing continuity in administration and management from the central to community level. The divisions or companies operate under the direction and management of the PC with regard to staffing, organization and performance.

5. PPCs in all provinces have set up provincial water supply companies to provide urban water supply services to provincial capitals and large urban centers in the provinces. Many of these are also responsible for drainage and wastewater services. Companies under provincial, city, district or town administration provide water supply services to provincial towns and district towns. The main function of the water supply companies is to manage the provision, operation, and maintenance of piped water supply, including billing customers and collecting revenue. However, many water supply companies are involved in a range of other activities to meet local needs or to supplement company income, such as construction or building supplies services.
6. In cases where a province is notified as a “city”, the provincial water company is theoretically responsible for rural water supply as well. However, due to low rates of willingness to pay for water in some rural areas, the challenging terrain, the isolated nature of settlements, etc., water companies are reluctant to assume responsibility for what may be viewed as loss-making schemes. Additionally, sanitation issues are not always within their remit. In all notified “city provinces”, the provincial Center for Rural Water Supply and Sanitation (CERWASS) is due to be subsumed within its counterpart water company. Rural water supply should therefore continue to fall within CERWASS’ sphere of activity. (The responsibility for rural sanitation, including health and IEC, in most provinces has been transferred to the Center for Preventive Health within the provincial Department of Health.) Currently, however, this is by no means certain. The notification of rural districts as “urban” is meant to bridge the gap in infrastructure and service provision between urban and rural areas. Paradoxically, this new administrative status may sometimes have the opposite effect for water supply and sanitation. In Can Tho Province, for instance, CERWASS is still responsible for those wards in “urban” districts that are more rural in nature, and where the prospect of returns on investments by a newly equitized Can Tho Water Supply Company is unlikely. Consequently, the classification as “urban” actually has a negative impact on such areas because they are no longer eligible for funds as rural areas under MARD regulations for NTP II. Neither are they a priority for the provincial water company. Disregarding the ground reality, the population in rural Can Tho Province is not “rural” anymore. So these de jure “urban”, but de facto “rural” areas are already beginning to fall through the cracks as far as water supply and sanitation are concerned.

7. The key sectoral policy for rural water supply and sanitation is the National Rural Clean Water Supply and Sanitation Strategy (NRWSS) of 2000. The main agency responsible for its implementation is the Ministry for Agriculture and Rural Development (MARD), in particular the CERWASS established by it. Both MARD and its constituent CERWASS have counterparts in every province of the country. The national goal is to provide all rural people with sufficient clean water and hygienic latrines by 2020. For the period of 2006–2010, the Rural Water Supply and Sanitation National Target Program II (RWSS NTP II) is the main program for implementing the NRWSS. It aims to provide 85% of the rural population with clean water (at 60 lpcd), 70% of rural households with hygienic latrines and 100% of rural schools, clinics and other public institutions with clean water and hygienic latrines. The program is supported by a consortium of three international donors – Denmark, Australia and the Netherlands – and follows the main principles of cost recovery, demand responsiveness and collaborative funding (with contributions from private and community-based organizations). Due to the finance gap in the RWSS sector and the paradigm of cost recovery, microcredit schemes have become a popular element of RWSS policies this last decade. These are overseen by MARD in conjunction with the Viet Nam Bank for Social Policies, which in turn operates the program as a group-based lending scheme administered by VWU. Begun in 2004, microcredit for RWSS became a country-wide program by 2006. Beneficiaries of the program are households that either do not have water supply- and sanitation-related constructions or those that have sub-standard constructions. While the intention of the microcredit program is good, it has the unintended consequence of excluding the poorest households in the country. Since the VWU earns a service fee for administering loans, it is reluctant to extend loans to the poorest households whose repayment capacity is limited or non-existent. Given this perverse incentive structure, the welfare of the poorest households depends more on the provincial Department of Labor, Invalids and Social Affairs, which has no direct links with CERWASS. Apart from this, CERWASS too needs to be more flexible about the range of improvements possible with micro-loans for water supply, e.g., household water treatment systems.
8. *Drainage and Wastewater.* Autonomous drainage and wastewater companies have been established in the major cities of Ha Noi, Hai Phong and Da Nang. In the remaining provinces, provincial water supply and drainage companies, municipal urban environmental companies or urban public works companies (UPWCs) provide drainage and wastewater services in the urban centers. Most of the companies are SOEs under city, district or town administration. In a few provinces, provincial URENCOs have been established by PPCs to provide urban environmental services throughout the province. Many of the URENCOs and UPWCs are also responsible for solid waste management services and other public services in their city, district or town. Private cooperatives and private sector companies also participate in solid waste management activities in provincial and district towns. URENCOs and UPWCs are essentially self-accounting SOEs operating in accordance with Decree 56 (1996) and the Law on State Enterprises (2003). They lack commercial orientation and rely largely on subsidies from PCs to fund operation and maintenance of the drainage, wastewater, solid waste and other public services. They supply public services in compliance with policies, plans, prices, price frames or fees stipulated by the State, and operate mostly on a non-profit basis.

### Classification of Cities and Urban Areas

<table>
<thead>
<tr>
<th>Class</th>
<th>Type</th>
<th>No. of towns</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>National centers. Very large cities, which play an important role in national development. Population &gt;1.5 million in case of Special City and &gt;500,000 for Class I City. Average population density &gt;120-150 persons/ha</td>
<td>2 and 7</td>
<td>Under Central Government administration. Includes Ha Noi and HCMC, which are both classified as &quot;Special City&quot;. Hai Phong, Da Nang, Can Tho,</td>
</tr>
<tr>
<td>2</td>
<td>Regional centers. Large cities, which play an important role in development of a territory. Population &gt;250,000. Average population density &gt;100 persons/ha</td>
<td>14</td>
<td>Under provincial administration.</td>
</tr>
<tr>
<td>3</td>
<td>Provincial cities or towns. Large-medium size towns, which play an important role in development of a province or sector in a territory. Population &gt;150,000. Average population density &gt;80 persons/ha.</td>
<td>45</td>
<td>Under provincial administration.</td>
</tr>
<tr>
<td>4</td>
<td>Provincial towns. Small-medium size towns, which play an important role in development of a province. Population &gt;50,000. Average population density &gt;80 persons/ha.</td>
<td>40</td>
<td>Some under District, others under provincial administration.</td>
</tr>
<tr>
<td>5</td>
<td>District towns. Small towns, which play an important role in development of a district. Population &gt;4,000. Average population density &gt;20 persons/ha.</td>
<td>646</td>
<td>Under District administration.</td>
</tr>
</tbody>
</table>

References


ADB. 2009c. Report and Recommendation of the President to the Board of Directors: Thanh Hoa City Comprehensive Socioeconomic Development Project. Manila (Loan io2511-VIE).


Notes

1. Solid waste management and broader urban planning and development issues are not included in this analysis or in strategy formulation, other than where required as part of the assessment.

2. ADB 2009b (Key Indicators): population below $2 per day. MDG 1 indicator $1.25 per day purchasing power parity reduced from 63.7% (1993) to 21.5% (2006). National data "below poverty line": 37.4% (1998) to 16.0% (2006)

3. ADB 2009b, tables 1.11 and 1.12.


5. ADB 2009b, Table 1.3, page 117.


8. ADB 2009b, Tables 1.1, 1.8, 1.11, 2.4.


11. ADB 2009b, Table 7.3, page 126.

12. ADB 2009b, Table 7.3, page 127.


14. Data in these paragraphs are from the Water Sector Review Report (ADB 2009f).

15. A country with an annual per capita water endowment of < 1,700 m$^3$ is under water stress.

16. ADB 2009f.


19. See also ADB Viet Nam Agriculture and Natural Resources Sector Assessment, Strategy and Roadmap; under preparation.


21. ADB 2009b (Key Indicators), and WHO / UNICEF 2008.

22. Compare with "other improved sources", e.g., 55% for Indonesia, 27% for Philippines and 15% for Thailand.

23. ADB conducted a pilot study on informal supplies in My Tho. A recent AFD research paper discussed small private operators in HCMC: "Le role des petits opérateurs privés à Hô Chi Minh Ville, Viet Nam", AFD, March 2010.


25. ADB PPTAs 2009 for Ho Chi Minh City, Hai Phong, Da Nang and Hue.


28. ADB 2009b, Table 7.3.

29. ADB 2009f.

30. ADB 2006.

31. ADB 2006.


34. Ibid.


Such as codified in Decree 131/2006: Issue of Regulation on Management and Utilization of ODA.

See, e.g., ADB 2009a.

Governments of Viet Nam, Australia, Denmark and the Netherlands. 2009b.

Ibid.


World Bank 2004 (Castalia).

ADB. 2009f.


ADB 2009d.


Following the strategic approach used in the Thanh Hoa City Comprehensive Socioeconomic Development Project, Loan 2511-VIE, 2009.

Notes for Appendix 2
1 Nadine Reis, personal communication, 2 December 2009
2 Government of Viet Nam 2006, National Target Program.
3 Nadine Reis and Peter P. Mollinga. 2009.