



VIETNAM'S INFRASTRUCTURE CHALLENGE

Workshop Edition

Water Supply and Sanitation Strategy

Building on a solid foundation



The World Bank in Vietnam
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As Vietnam becomes richer it faces challenges in adapting its infrastructure policies and institutions. While the old challenges of providing basic services to all remain, new challenges are emerging, such as accessing new sources of finance, refining planning processes, preparing for rapid urbanization, improving the efficiency of infrastructure service providers, developing stronger institutions to encourage private finance of infrastructure or direct private provision of infrastructure, and developing more targeted approaches to poverty alleviation.

This report on Water Supply and Sanitation Strategy – Building on a Solid Foundation is one of six volumes dealing with *Vietnam's Infrastructure Challenge*. Other volumes deal with Infrastructure Cross Sectoral Issues, Urban Development, Transport, Telecommunications, and Electricity. The work for these volumes was carried out between 2004 and 2006 by World Bank staff and consultants.

This workshop edition of the report has been prepared as a means of inviting feedback on its contents from the Government and other stakeholders, prior to final publication.

Abbreviations

ADB	Asian Development Bank
BOO	Build-operate-owned
BOT	Build-operate-transfer
BSP	Bank for Social Policy
CAPEX	Capital expenditure
CERWASS	Center for Rural Water Supply and Sanitation
CGPRS	Comprehensive Growth and Poverty Reduction Strategy
DAF	Development Assistance Fund
DARD	Department for Agriculture and Rural Development
DOH	Department of Health
DOSTE	Department of Science, Technology and Environment
FDI	Foreign Direct Investment
GoV	Government of Vietnam
GSO	General Statistical Office
HCMC	Ho Chi Minh City
HR	Human Resource
IEC	Information, Education and Communication
JBIC	Japanese Bank for International Cooperation
JICA	Japan International Cooperation Agency
JV	Joint venture
MARD	Ministry of Agriculture and Rural Development
MDGs	Millennium Development Goals
MoC	Ministry of Construction
MoF	Ministry of Finance
MONRE	Ministry of Natural Resources and Environment
MPI	Ministry of Planning and Investment
NEA	National Environmental Agency
NRW	Non-revenue water
NRWSS	National Rural Water Supply and Sanitation Strategy
NTP	National Target Program
O&M	Operation and Maintenance
OBA	Output-based aid
ODA	Official Development Assistance
OPEX	Operating expenditure
PC	People's Committee
PLC	Public Limited Company
PPP	Public Private Partnership
RWSS	Rural Water Supply and Sanitation

SOCB	State-owned commercial banks
SOE	State-owned enterprises
UDC	Urban Drainage Company
URENCO	Urban and Environment Company
VBARD	Vietnam Bank for Agriculture and Rural Development
VBSP	Vietnam Bank for Social Policies
VDGs	Vietnam Development Goals
VLSS	Vietnam Living Standards Survey
VND	Vietnam Dong (Currency)
VUWSDP	Vietnam Urban Water Supply Development Project
VWSA	Vietnam Water and Sanitation Association
WHO	World Health Organization
WSC	Water Supply company
WSP	Water and Sanitation Program
WSS	Water Supply and Sanitation

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Preface

This study was undertaken to assist the World Bank dialogue with the GoV and other donors/partner organizations in supporting WSS reform; to guide World Bank lending and technical assistance in the sector; and to provide a useful source of information on existing studies and data.

The report is organized as follows: The Executive Summary outlining the key issues for the sector and proposing a way ahead. Chapter

I sets the scene by describing the policy and institutional framework of water supply and sanitation sector in Vietnam. Chapter II describes the sector structure and provision of services, Chapter III goes into the details of sector financing and investment needs with Chapter IV analyzing the sector performance. Chapters V and VI include the summary of the issues facing water supply and sanitation in Vietnam and recommended actions.

Executive Summary

Introduction

From 2001 - 2005, Vietnam showed a remarkable growth rate of more than 7.0% annually¹, making it the world's fastest growing economy after China. Also in the same period the proportion of poor households has been reduced from 17.5%, in 2001 to 7.0 % in 2005² Still, Vietnam is not a rich country and the productivity and well-being of its population remain below their potential. Slow progress on state-owned enterprise reform, as well as continued weaknesses in the lending decisions by state-owned commercial banks and government lending institutions may lead to capital misallocation and weaken long-term growth.

At the end of 2005, it is estimated that about 73.2%³ of the population in Vietnam is concentrated in rural areas. Vietnam is urbanizing rapidly, albeit slower than other East Asian countries but urbanization pressures will place a particular strain on the country, especially in financing infrastructure. Such pressures might be reduced if there is a rapid improvement of well being in rural areas (including better water and sanitation services).⁴

In the water and sanitation sector the level of access to services is mixed. According to the WHO-UNICEF Joint Monitoring Program (JMP) rural access to water supply and sanitation in

2002 is, respectively, 68% and 26%. The corresponding access rates in urban areas are 93% water and 84% sanitation. However other studies have indicated lower levels of access.⁵

Investment needs to meet the Vietnam MDGs in both rural and urban water and sanitation by 2020 are tentatively estimated at \$600 million annually - which is roughly 4 times the annual investment in the last 10 years. This past investment, particularly in the urban sector, has been predominantly from ODA (nearly 85% of the \$1 billion invested). Given that donors are unlikely to massively increase their support for the water supply and sanitation sector in Vietnam, it is clear that the financing gap will have to be funded from within the country - either from government, or through borrowing in the capital markets. The latter would be funded by surpluses generated from higher user fees, and increasing efficiency of service providers.

The challenges faced by Vietnam to meet the Vietnam MDGs in water supply and sanitation are not unlike those to be found in most developing countries. Investment needs are huge, compared to the revenue base. Low tariffs make it impossible to expand services using internally generated funds. This is often exacerbated by low efficiency and weak technical and managerial capacity. Efficiency

1. 2001: 6.9%; 2002: 7.08%; 2003: 7.34%; 2004: 7.8%; and 2005: est. at 8.4% - Vietnam Growth and Reduction of Poverty, annual progress report of 2004-2005, Hanoi November 2005

2. Source: Vietnam Growth and Reduction of Poverty, annual progress report of 2004-2005, Hanoi November 2005

3. Source: Vietnam Growth and Reduction of Poverty, annual progress report of 2004-2005, Hanoi November 2005

4. Taking stock 2003. Consultative Group Meeting, December 2003

5. Figures from Vietnam MDG Report, April 2004 show figures of rural water & sanitation at 40% and 11.5% respectively, and urban water & sanitation at 76% and 68% respectively.

and customer responsiveness are further reduced by the limited incentives for management and owners. Service provision is dominated by the public sector leading to overlapping roles and responsibilities, multiple objectives and poor focus on service delivery. Inappropriate design standards are used leading to higher capital costs, and adverse impact on tariffs and affordability. Sanitation is considered a private good requiring support to mobilize, and thus maximize the benefits to accrue from a new water supply.

However, compared to other developing countries, the Vietnamese sector is dynamic and rapidly changing and there are many positive aspects on which to build a sound future for WSS in the country.

Commercial practices in the urban sector rival the best in the world. Collection rates are above 95% with collection periods typically being less than 30 days, whilst the recent Circular 104 is putting upward pressures on tariffs. This provides a sound foundation from which to mobilize investment capital for further expansion, and to fund adequate maintenance and rehabilitation. All water companies already cover their operating costs from user fees with a national average working ratio of a very creditable 0.63.

In addition the last two years have seen a number of important institutional changes. In four water companies equitization is under way to change the legal framework under which the companies operate. The sector has also seen increasing use of the private sector, for example in the use of operating contracts in district towns and the proposed PPP contract to improve leakage management in HCMC. In rural water supplies, fundamental change to the role of CERWASS is under way through a new Bank financed project - leading to the creation of

rural water supply companies and refocusing CERWASS on its policy and regulatory role.

On finance a new lending window has been established in DAF to provide long term, non subsidized, financing for WSS investments and to illustrate sector opportunities to other lenders. Whilst small in size the facility is a step in the right direction. At the same time targeted capital subsidies are being piloted in a planned Output Based Aid scheme in HCMC.

Finally, the Government is formulating a new Urban Water Decree to capture the new direction and provide guidance for the way ahead. A number of the recommendations in this report are understood to be reflected in the draft Decree.

Overall, therefore the pace of change is rapid and generally positive. The WSS strategy presented in this report will further support and enhance the development of the sector.

The key findings from the study are summarized below, in two parts. The first presents the current situation, by sector. The second draws on the sectoral assessments to identify a number of key themes and to present suggestions on how the Government of Vietnam might address them.

1. Current Situation - By Sector

A. Urban Water Supply

Water supply service in Vietnam is not sufficient to meet growing demand⁶. The effectiveness and quality of service is variable, with larger urban centers having higher coverage and better service than smaller ones. The key challenges are summarized as follows:

- **Access to sufficient capital:** The level of autonomy of the urban WSCs remains limited and tariff levels, set by the provincial

6. Vietnam Urban Water Supply Development Project: Pre-feasibility study, 2004

People Committees (PCs) do not ensure the long term financial sustainability of the utility. Over the last decade 85% of investment in the urban sector has come from ODA, yet investment needs over the next period are four times as high. There is much work to be done to build utilities that can be considered creditworthy to lenders, and in parallel, there is a need to develop a local capital market that provides long-term financing which is currently unavailable. Access to short-term debt from commercial banks is already occurring on a limited basis and the recent BOT initiative in HCMC shows that a range of sources of funds can be mobilized.

- **Efficient operations and use of capital:** Although the WSCs operational performance compare favorably to other developing countries, the utilization of treatment plant capacity, particularly in small towns is low, the level of NRW remains high at 35% and the number of staff per connection is about 60% higher than the level expected in well run systems in developing countries. Thus there are many opportunities to improve operational performance and release resources for more productive use. In addition, the pilot benchmarking assessment of capital costs in Vietnam showed wide variations in unit costs of providing system capacity. Taking into account that financing of capital costs usually accounts for 60-80% of the full cost recovery tariff, there are clearly benefits to be derived from improved capital efficiency. At the same time there remains some uncertainty over ownership of assets. Water companies, PC and even central government, can potentially claim ownership of different assets, depending on how they were financed in the first place. Whilst not a critical issue when the WSC are owned by the Provinces, this will become

more important as equitization takes place and an increasingly commercial logic takes hold.

- **Institutional barriers and the need for incentives:** Current regulations should be updated and consistently enforced - particularly those relating to tariffs. At the same time, the institutional models of WSCs need to evolve to provide better incentives for efficient and effective service delivery. This will include formalizing asset ownership, defining required performance levels and dividend policy as well as by increasing the autonomy and accountability of WSCs. With the present micro-management of the sector, the water utility performance is a reflection of the performance of both the WSC management and the PC oversight. Thus, it is also important that the PCs themselves are incentivized to deliver improved service.
- **Towns require particular attention:** Only about one third of approximately 600 District Towns have piped water supplies. These are important urban centers both in terms of economic development, and providing alternative destinations for rural urban migration. Often, however, they lack financial resources or human capacity. Providing sustainable piped water supplies to these towns is therefore a development priority.

B. Rural Water Supply

In many rural areas people lack even the minimum amount of water needed for domestic use. The key challenges facing the rural water supply sector are summarized below:

- **Overlapping and conflicting roles of institutions:** The responsible institution under MARD, CERWASS, has a dual role as regulator/developer/fund manager, and service provider. This results in conflicts of interest, which isolates the provider from the

genuine needs of the beneficiary (building systems that people do not want nor are willing to pay for), and develops a focus on asset creation rather than sustainable asset operation.

- **Fragmentation of the sector:** Rural service provision comes from many models and at many levels (commune, district, etc.). This fragmentation may be acceptable for simple systems, but for piped systems, it can lead to deterioration in service. In addition, from the government side there is also a fragmented approach. This has been highlighted in earlier studies and led to the creation of inter-ministerial Standing Committee on rural water and sanitation. However, this has not met.
- **Role of the private sector:** In response to a consumer demand not being met by public services, the private sector has stepped into the rural and small towns water supply provision by leveraging funds from fee-paying customers and own contributions. The private sector investment continues growing despite the limited GoV incentives for private sector participation.
- **Capacity in the rural sector:** The highly fragmented approach to service delivery, and the lack of clear institutional models, leaves the sector without any vehicles to assist either the technical operations/management of the systems, nor of their oversight by the communes and others. The professional association VWSA is predominantly focused on urban water companies, and given the fragmentation of the rural sector, reaching out to such a large number of owners/operators will require a new model of capacity building.
- **Sustainability of service provision:** In the past the focus was on asset creation with limited effort put into creating the institutional arrangements for sustainable

service provision. Paying for water services and maintaining O&M funds, has been insufficient. It is understood that a significant proportion of the wells drilled under previous assistance programs are not operational.

- **Asset ownership.** Unlike in the urban sector this is a more serious issue in rural water services where consumers typically provide 60% of the initial capital costs to build the systems. Despite this significant investment, the institutional arrangements leave the consumer outside the system. Yet, it is also unclear, how they can better participate.

C. Sanitation (Urban and Rural)

Sanitation in Vietnam is predominantly a private good with the majority of households investing in septic tanks or latrines, depending on location. There are currently few wastewater treatment plants in the cities. As a result, the watercourses, especially in the big cities, are severely polluted. GoV is paying commendable attention to addressing environment degradation. Hanoi, HCMC, Haiphong, Danang, Halong and several secondary cities will all have sewerage and sewage treatment facilities in place in the next few years.

Sanitation in rural areas is rudimentary. Despite the very low sanitation coverage of 11.5% in the rural areas, the access to latrines has had an impressive growth rate of 238% between 1998 and 2002 comparing to the water access growth rate of 36% for the same period. The financing source for this impressive growth has been predominantly community/user contributions.

- **Predominantly an urban challenge in the short term:** With urbanization and the increasing degradation of urban environment the focus of the government should be on urban sanitation. Here, given the relative inexperience of sanitation in the country and the region, there is a need to develop an improved understanding of the key issues including:

- i. Institutional arrangements, e.g. stand-alone wastewater companies, combined companies, separation of roles and responsibilities;
 - ii. Cost recovery via tariffs;
 - iii. Financing by utilizing ODA, mix of grant and loans;
 - iv. Appropriate technical approaches and standards of service;
 - v. Capacity building since there is a general lack of expertise in the sector.
- **Huge need and limited capacity:** The Urban Environmental Companies, who are responsible for drainage, sewerage, solid waste management and other urban activities, are institutionally and financially much weaker than WSCs.
 - **Urban tariffs:** The GoV Decree 67/2003 introduces a uniform environmental protection charge for wastewater services which must not exceed 10% of the clean water tariff and should be collected by the WSCs. There is some confusion about the purpose of this charge. The Provinces believe this is the wastewater fee, whereas, in fact, MONRE's purpose was to establish this as a separate environmental charge, in addition to any wastewater fees. In many developed countries the wastewater tariffs exceed water tariffs - so a 10% ceiling on wastewater tariffs is not sustainable and needs to be revised.
 - **Urban subsidies:** The use of local government subsidies for operating costs is not sustainable. Those cities that are introducing sanitation services are also starting to charge for the service. However, the charges levied are low and will not cover O&M costs in the short term. The intention is that charges will rise as consumers become accustomed to the benefits of the new services. This will need careful monitoring to avoid major future drains on limited local

government resources. As a minimum tariffs should cover both O&M costs and the depreciation of short lived assets.

- **Sanitation benefits leveraged with soft interventions:** Provision of latrines and sanitation infrastructure brings improved outcomes. However, these are significantly increased when beneficiaries are exposed to IEC on household sanitation practices. Such IEC also generates demand for household sanitation facilities, which can be provided by the private sector.

D. Cross Sectoral Issues

Whether urban or rural, water or sanitation, there is a need to improve the collection and quality of data about the sector. This will provide policy makers and other stakeholders with the information they need to make the best decisions for the sector.

In addition, as the sectors become larger and more sophisticated, there will be a need to further enhance the technical and managerial capacity of a full range of stakeholders including service providers, system owners, oversight agencies in government, and customers.

2. The Way Forward

Based on the above sectoral assessments, the following themes have been identified as needing specific attention by the Government in order to further improve sector performance. The recommendations presented under each theme are directed at further clarifying the GoV urban and rural WSS strategies:

- a) Bridging the financing gap
- b) Improving the sector efficiency and incentives
- c) Boosting sanitation
- d) Building capacity and addressing knowledge gaps

A. Bridging the Financing Gap

Allocation of public funds and ODA

A forward-looking detailed development plan for the sector is needed where public investment and recurrent expenditure are linked and scarce resources efficiently and effectively allocated. The GoV resources as well as ODA funds should be distributed based on assessment of externalities, cost of service provision, and the wealth of recipients - possibly using output-based aid (OBA) as a tool to allocate grant components. Currently, the relatively wealthy urban areas receive 84% of ODA funds whereas the rural areas, where 75% of the population resides, enjoy only 13%.

The effectiveness of ODA over the past 10 years needs to be assessed and supplemented by proposals for changing the role and use of ODA in the future. This will be particularly important given the likely graduation of Vietnam from IDA to IBRD over the coming 10 year period. Gradually, ODA should move away from water production to water distribution, from water supply to sanitation, and from funding investment to leveraging local capital. IDA funds should be used to support sanitation projects where public benefits are high and beneficiary awareness and willingness to pay are more limited. This will require alternative sources of financing, particularly for water investments. The GoV needs to be proactive in determining the use of ODA funds through improved policy implementation and coordination by the line ministries MoC and MARD.

As part of the need to expand alternative sources of finance, particularly for water investments, the government should revisit Circular #40 (May 2005). This determines on-lending terms for ODA in a manner that is likely to reduce, rather than expand, alternative financing sources.

Tariffs and cost recovery.

The key to the success of the sector is higher but realistic and affordable tariffs. Introducing and enforcing a uniform tariff mechanism for the whole country is a step in the right direction. Whilst joint circular 104 (November 2004) and its predecessor (Circular #3, June 1999) both have a sound basis for tariff calculations, the issue is one of enforcement. In the long term the government should consider the possibility of automatic indexation of tariffs as one way of retaining the value of user fees in real terms.

On the wastewater side the government should review Circular #67 (2003), which caps wastewater fees at 10% of water tariffs. Given that wastewater operations and investments typically cost more than the equivalent water services, such constraints will further diminish the sustainability of the wastewater sector. As a minimum the wastewater tariffs should fully recover operations and maintenance costs, as well as depreciation of short lived assets.

Currently, tariff affordability and willingness to connect do not seem to be an issue in water supply in Vietnam.

A new financing framework for urban utilities

As the creditworthiness of the sector improves, access to longer term local financing will become important. The existing lending and risk mitigation instruments of IFIs can support local capital market development. For water investments a staged progression could be envisaged over the next 10 years from current reliance on ODA, through mixed financing, to a sector built on local capital markets. Sanitation investments are likely to rely on grant or subsidized funds for the foreseeable future - with subsidies being targeted to those that most need them.

The state banks can play a more significant role in the financing of water infrastructure by participating as lenders rather than servicing

agents to WSCs, thus assuming the full credit risk for a fee. However, they need to strengthen their commercial orientation, operational practices, profitability, balance sheet quality and loan appraisal capabilities⁷ in order to start lending to utilities or channel funds directly to communities.

Besides providing counterpart funding for ODA water investments, the provincial governments could participate as guarantors on loans extended to WSCs by the SOBs. This added security on loans provided by state banks not only reduces the ultimate cost of funds to WSCs, and consumers, but would better structure incentives for cost recovery and more cost-effective service.

The issuing of bonds by WSCs would encourage fiscal prudence in an otherwise unregulated sector. The WSCs could be prepared for such opportunities through improved financial accounting rules, auditing, benchmarking, and the development of a rating system.

Given the continuing high level of central government involvement in local infrastructure projects and the immature financial sector, it is likely that a financial intermediary for local infrastructure projects will be needed in the future. The key issue is how it will be operated and how the sub-sovereign securities market will be built. The IDA funded Urban Water Supply Development Project includes a new unit within DAF dealing with lending to water utilities on a commercial basis, which will recover its operating expenditure through the interest rate spread. Given the small size of the facility it must be viewed as just a small step towards the long term goal.

The proposed financing framework developed by Baietti⁸ is based both on full cost recovery as a key to sustainability as well as on

effective corporate governance defining the roles, responsibilities and incentive structure for every WSS stakeholder. Its ultimate target is sustainable financing of new investment and introducing private sector participation.

Small towns and rural areas.

As evident from the discussion above, the new financing mechanism relies on mobilizing local currency borrowing by WSCs. By contrast, in small towns and rural areas, the consumers take on local currency debt from micro finance institutions to finance small scale infrastructure directly. Since customers pay for the service through their own debt obligations, this type of borrowing is much more interested in efficiencies and sustainability of services and should be actively supported by the GoV including with possible allocation of grants.

More precisely, a coherent workable finance mechanism needs to be implemented based on the review of the existing financing models. The MARD proposal⁹ for a national credit mechanism with subsidized loans for households through the BSP and subsidized loans to enterprises through DAF could tackle the issue of rural WSS finance.

B. Improved efficiency and incentives

Rationalizing sector institutions

Legal framework: The consistency and enforceability of the legal framework as well as the speed of implementation of the sector strategies need improvement.

For example, a new legal framework supporting the National RWSS Strategy is necessary, e.g. a legislation allowing community water user groups to take loans and open bank accounts. In small towns, an appropriate regulatory framework on

7. The WB and IMF. Vietnam Poverty Reduction Strategy Paper Progress Report & Joint Staff Assessment, 2004

8. Based on Aldo Baietti. Financing framework for urban water utilities in Vietnam, July 2002. Annex 9

9. See Annex 8.

investment in small-scale projects for both authorities and communities to follow is required in order to decentralize investment decision-making thus avoiding the confusion of responsibilities between investor and investment implementing agency and simplify the project preparation¹⁰.

Policy coordination: A coordination and integration of rural and urban water supply programs needs to be ensured together with the national programs on flood and environmental protection as well as poverty alleviation programs. The emphasis should be on use, sustainability and impact rather than investment alone. Roles and responsibilities of sector institutions need to be mapped and clarified - with complimentary approaches being adopted by donors. In addition the small towns/townlets segment requires a customized policy and specific institutional responsibilities. Any sector policy will have to be all-inclusive and consideration should be given to establishing a single body governing and monitoring water and sanitation services in urban and rural areas.

Continuing reform of rural institutions: A plan for improving inter-ministerial coordination, e.g. by making the National Standing Committee functional, should be designed and enforced. The plan needs to include the appropriate incentive structure for GoV staff, and capacity building program. Perhaps the most important task is to increase the separation of sector policy/regulatory role of CERWASS from its service provider role - as currently being piloted in the IDA funded Red River Delta Rural Water Supply and Sanitation Project.

Targeted poverty interventions: With rapid urbanization, the GoV should decide on the focus of poverty interventions. Clearly, there is a need for a careful analysis to establish the

urban and rural priorities, although the existing stronger community support in the rural areas would suggest that interventions in peri-urban areas may have a greater poverty impact. Output based aid should be considered as a mechanism for the use of grant financing for poverty interventions.

Improving WSCs accountability, autonomy and incentives

WSCs governance and performance: International experience suggests that the following attributes must be met in well run WSS service providers:

- The provider is autonomous and accountable, i.e. able to make decisions, having access to resources and being held accountable for non-performance
- The provider is customer oriented, i.e. proactively informing and educating its customers
- The provider is market oriented, i.e. benchmarking costs and services and outsourcing selected activities through a competitive process, thus introducing the benefits of competition in the otherwise monopolistic industry
- The sector has technical and managerial capacity both within the service provider and in the local government (as owners).

A broad strategy will be required which will build on the following three components:

- i. More widespread knowledge about the top performing water companies and benchmark capital and operating costs
- ii. Capacity building among sector professionals on ways to reduce capital costs and improve operating efficiencies without sacrificing quality
- iii. Policies must be put in place to provide

10. WSP. Global initiative for small town WSS, October 2001.



VIETNAM'S INFRASTRUCTURE CHALLENGE

As Vietnam becomes richer it faces challenges in adapting its infrastructure policies and institutions. While the old challenges of providing basic services to all remain, new challenges are emerging, such as accessing new sources of finance, refining planning processes, preparing for rapid urbanization, improving the efficiency of infrastructure service providers, developing stronger institutions to encourage private finance of infrastructure or direct private provision of infrastructure, and developing more targeted approaches to poverty alleviation.

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incentives to water companies to achieve higher levels of performance

The first two are discussed later. Provision of incentives to water companies requires a strict evaluation of performance and the need for meaningful rewards and sanctions which affect both the service provider and their owners.

As a first step performance contracts can be prepared between the PPC and the service provider. A central agency could review and advise on these contracts to help reduce the potential for conflicts of interest at the Provincial level. Establishing clear contractual relationships will provide both the PC and the WSC with incentives to be flexible and responsive to the changing business environment and increasing demand. An enforceable agreement will resolve the issues with WSC asset ownership so that the collateral element in securing finance is cleared. MoC should consider an appropriate framework that provides WSCs with the correct incentives, and penalties, so that the sector can grow in a sustainable fashion.

Further reform would include transforming the WSC into a Public Water PLC with the municipality as a single shareholder. This will improve their long term viability and provide opportunities in the future for a broader equitization process.

Regulation: Regulation in its different forms provides opportunities for increased autonomy and accountability of WSCs. The MoF issued Decree 104 in 2004 introducing a uniform tariff mechanism for Vietnam based on the full cost recovery principle. In late 2005 the MoC has been developing a new urban water decree that might include the introduction of performance contracts between the PCs and the WSCs. However, the enforceability, management and monitoring of the current and proposed decrees

poses genuine questions of conflict of interest at the Province level (as both tariff setter and owner of the WSC). Thus some form of oversight agency (nascent regulator) will be needed at the national level to review these contracts/proposed tariffs. As a minimum such an agency could provide advice/guidance to the PC on the design of the contract, and on relative performance assessments of the WSCs, even if it doesn't have a formal enforcement role.

Increasing competition: Public reporting of the performance of WSCs could be a promising start to improving transparency and accountability. At a marginal cost, the benchmarking initiative started in 2002 with the assistance of VWSA can be improved and formalized. The data can be used by the provincial governments, the regulator/central oversight agency (when established), the WSCs and the potential private investors, for cross-sectoral comparison. This initiative continues and further funding is included in the IDA Urban Water Supply Development Project.

Increasing customer orientation: Improved customer service standards enshrined in a customer charter could prove the basis for this orientation. The annual benchmarking data could be supplemented by publishing a range of standard performance indicators. This would ensure both greater customer orientation and improved quality of information.

Focusing on the core business: Within the next ten years WSCs should divest their construction and other services from the water business. This will provide the basis for the development of a competitive market for construction services, reduce the opportunity for hidden cross subsidies between the different businesses, and allow the management of the water company to focus on their core business¹¹.

11. Ian Walker, 2002.

Private sector development and models for service provision

Private sector in urban areas: The successful reform and improved performance of WSCs will indicate the readiness of the sector for market entry of both international players and local private providers. The short-term priority should be on network management, and focused services (e.g. pump station maintenance) where a combination of competition and collaboration between the local WSCs and the private sector through open bidding for service contracts could be considered. Whilst there has been some limited private investment in the sector it is expected to remain limited or modest until the regulatory and financial strength of the sector improves.

Management models small towns and rural: In small towns and rural areas it is expected that contracting out operations for extended periods will be the most sustainable approach in the short term. This is the approach planned for the recently approved World Bank Urban Water Supply Development Project and Red River Delta Rural Water Supply and Sanitation Project.

3. Boosting Sanitation

Urban sanitation

Establishing a profit & loss entity for the provision of sanitation services, with a defined customer and revenue base, is the immediate step in sanitation reform. This can be complemented by increasing cost efficiency by selective outsourcing to the private sector. Merging the wastewater activities into the business of the urban WSC will take advantage of operating and administrative synergies and should be considered in all but the largest cities where a separate wastewater

company may be appropriate.

Considering the limited resources, step-by-step improvements in urban sanitation are more appropriate than building up expensive wastewater treatment plants and extensive separate collection systems. Evaluating and prioritizing appropriate capital expenditures will be important - the use of combined versus separate systems, for example, needs to be carefully weighed in order to achieve maximum benefit from each VND invested. Expansion of piped networks to less dense areas needs to be carefully considered, alongside the extent of treatment and the capacity of wastewater plant. These technical decisions have a significant impact on the pace at which appropriate sanitation services can be provided.

More effective sanitation project management in rural areas

Market research is essential to understand what intervention strategies will work and be sustainable. The GoV should make use of the findings from many other countries that successful sanitation programs require less educational and more promotional approaches to find out what motivational forces work for local populations in bringing about behavioral change¹².

The provinces, districts and communes should be ranked and projects prioritized based on poverty, existing WS coverage, water-related diseases, population density, and existing capacity of local government agencies to support project activities. The utilization of a clustering approach would optimize management costs and achieve high coverage within selected districts rather than spreading project activities out over too many districts/provinces¹³.

12. WSP 2002 Study.

13. The World Bank, Project Appraisal Document, Red River Delta Rural Water Supply and Sanitation Project, August 15, 2005.

At the grass roots level, developing local capacity to supply skills and materials to meet sanitation needs will enhance sustainability. For example, the type of latrine offered has to be compatible with the physical, economic and social reality of the household. Offering a range of options with upgrade possibility and range of financing arrangements may help stimulate and sustain demand and usage.

Continuing Soft Interventions

Raising public awareness and education on the linkages between sanitation and health is needed to support any physical investments. Since water supply itself is insufficient to dramatically reduce diarrhea disease, sanitation and hygiene behavior change needs much greater emphasis in all areas. A very important initiative is the active promotion of hand washing.

The interventions need to build on the considerable knowledge and educational materials prepared so far. Process monitoring, self-assessments, and other methods would support learning and dissemination of best practices¹⁴. The measure of success should not only be the coverage (ownership) of sanitation facilities but also the access, use and upgrade of the facilities, changes in hygiene behavior and self-sustained demand for more facilities.

4. Building Capacity and Knowledge

Incentivizing the service providers and oversight agencies will only be successful provided there is adequate capacity among them. Building capacity on a sound foundation also calls for improved data about the sector.

Addressing knowledge gaps

Compilation and analysis of sector information:

Government needs to be more active in compiling and analyzing sector data. This information will allow for better and more informed decision making on sector policy, on allocation of scarce ODA resources, and in oversight of the sector as a whole. This will be particularly relevant if a central responsibility is allocated to review contracts and tariffs at the provincial level under currently drafted or existing decrees.

Sanitation: A sanitation study is required to review the sub-sector and to develop and keep updated comprehensive and reliable data. The mapping of access, providers and institutional responsibilities will allow better planning and resource allocation. The dissemination of best practices in rural and small towns' sanitation will ensure sustained growth in access and hygiene behavior.

Review of institutional options for urban and rural water sectors: As the water sector develops there will be a need to study sector developments including critically assessing the issues of asset ownership, increasing separation of roles within the sector (policy, sector regulation, ownership, corporate oversight and service provision), providing and aligning incentives, and the role of regulation. These reviews would include an assessment of the various service models in the country.

Building capacity

Government: The line ministries need to build their oversight and policy development skills through improved collection and analysis of data. This will facilitate the efficient allocation of resources and the expansion of the WSS services to better meet the needs of the country.

Institutions: Training is required to properly introduce commercial relationships and

14. The World Bank, WSP, Danida. VRWSIHIP, draft inception report, March 2004.

effective corporate governance and oversight between the owners and the service providers. The PCs, as owners, need to improve their understanding of the opportunities for sector development and how they can benefit. No such capacity building facility exists and national agencies will have to take a lead to fill this gap.

Providers: The VWSA (or appropriate technical institutions) should play a bigger role in building technical and managerial capacity in service providers. As a first step a coordinated action to reduce NRW, and improve energy efficiency, would have most beneficial results. Training programs on a national scale targeting small-scale providers need to be carried out as well in order to enhance their management and financial capability, and capacity for quality control, contract and contractor management. It also makes little sense to assign communities

responsibility for O&M if they do not have the knowledge, skills, motivation and finances to do it. Dramatic improvements in community capacity and capability are needed to ensure sustainability of project investments. The small-scale IEC projects of both local and international NGOs could address the on-site training of local masons. Other examples include the development of a technical backstopping facility for rural systems and the introduction of a certification system for operators.

Civil society: The civil society and consumer power groups require capacity building as a major stakeholder naturally able to exercise substantial pressure on the PCs and WSCs in improving the service provided to the consumers. A well informed civil society is important to building political and public awareness and commitment to providing improved services and giving voice to consumers.

The Way Forward: Summary Table

Short term (1-3 years)	Medium term (4-6 years)	Long term (7-10 years)
Bridging the Financing Gap		
Introduce tariff methodology per Circular 104, and revisit/revise Circulars 67 and 40.	Enforce new tariffs and revised circulars	Introduce penalties for PCs not applying circulars
Develop PC loan guarantee approach and financing model on basis of shared risk basis between ODA and local markets	WSC borrow mix of ODA and local capital through development of municipal or infrastructure funds	WSC to access local capital markets
Develop finance mechanism for non ODA financed rural facilities (e.g. MARD/BSP approach)	Implement the rural finance mechanism	On going
Assess ODA effectiveness and prepare proposals for next 10 years (targeting of IDA, transition to IBRD and use of OBA).	Implement findings of ODA assessment	On going
Improving Sector Efficiency and Incentives		
Refine urban sector benchmarking	Begin auditing for regulatory and ODA allocation processPublic reporting of benchmarking	Use benchmarking as part of regulatory process
Introduce performance based contracts between PC and service providers	Mandate performance contracts between owners and operators and initiate formal oversight	Introduce formal regulatory review of performance contracts
	Identify barriers to use of national and international private sector	Remove barriers to use of private sector
	Initiate customer charters on trial basis	Introduce customer charters in all providers
Boosting Sanitation		
Establish service providers with ring fenced accounts and recovery of O&M costs + depreciation of short lived assets	On going	On going
Continue to stimulate demand for rural sanitation and develop local capacity to provide services	On going	On going
	Targeted IEC to those areas with worst health outcomes	On going
Building Capacity and Addressing Knowledge Gaps		
Enhance capacity, data and planning within line ministries	On going	On going
Undertake review of sanitation sector in Vietnam	Institutional study to improve urban sector efficiency and effectiveness	Institutional review to identify models for provision of RWSS
Develop capacity building program to reduce NRW and improve energy efficiency	Develop capacity building program for provincial PCs, communities, other	On going

I. Water Supply and Sanitation Policy and Institutional Framework

A. Laws and Institutions

Vietnamese law comprises an extensive set of legislation, decrees, circulars, decisions and other regulations. The main laws and regulations governing the water supply and sanitation sector in Vietnam are included in Annex 1.

The separation of regulations and institutional responsibility between urban centers and small towns follows the classification of urban centers, presented in Table 1.1, and which is used throughout this report. The responsibilities and regulations of WSS in rural areas are separated from the urban one although, as the country develops, the rural/urban split in terms of customer expectations and technical solutions will start to disappear, thus calling for a more uniform approach.

Under the Water Resource Law, which came into force in January 2000, the state manages water resources and all customers and agencies (except for households) are required to obtain a

license from MARD or the relevant provincial PC to use water sources. Based on river basin management, the Law identifies the link between land water use, surface and underground management and water quality and quantity¹⁵.

Water sector responsibilities are divided between central and provincial governments, as shown in Table 1.2. The Strategy and Orientation for rural and urban water supply is a matter requiring the approval of the Prime Minister. The line ministries have authority over sector policy and submission of major projects to the Prime Minister for approval whereas provincial PCs are responsible for supply services in projects of investment costs below VND 200 billion in their respective jurisdictions. The provincial Water Supply Company is responsible for provision of water supply to urban areas and operates and controls both the treatment plants and distribution networks.

In addition, a number of other formal and

Table 1.1:
Classification of Urban Centers

Class	Type	Population	Number/Comment
Special Cities	Largest Cities	1.5 million and more	Hanoi and Ho Chi Minh City
1	National Cities	0.5 to 1.5 million	Three cities
2	Regional Cities	250,000 to 500,000	12 cities
3	Provincial Cities	100,000 to 250,000	16 cities
4	District Towns	50,000 to 100,000	58 Towns
5	Townlets	4,000 to 50,000	612 Townlets

15. Vietnam Urban Water Supply Development Project: Pre-feasibility study, 2004.

informal groups are active in improving the sector coordination and collaboration: Thematic Ad-hoc Group of MARD; Donor WSS Coordination Group; the Vietnam Water Partnership; River Basin Organizations, and INGO Working Group¹⁶.

B. Policies and Responsibilities - Urban

The major policies in urban water and sanitation are listed in Table 1.3.

Table 1.2:
Major WSS Institutions in Vietnam

The Prime Minister	➡	Approval of WSS sector strategy and orientations
Ministry of Planning and Investment	➡	Allocates state budget. All major investment projects must have the approval of MPI
Ministry of Finance	➡	Distributes state funds to sectors and projects, sets annual sector goals and regulates accounting
Ministry of Health	➡	Controls drinking water and sanitation quality
Ministry of Natural Resources and Environment	➡	Manages water resources, water use, pollution and hydrology
Ministry of Science and Technology	➡	Manages standardization and technology in water & sanitation
Ministry of Education and Training	➡	Manages integration of health, water and environmental issues into standard curricula and lessons plans
Ministry of Construction	➡	Line Ministry of urban water supply, sanitation & drainage
Ministry of Agriculture Rural Development	➡	Line Ministry of rural water supply and sanitation
Local City Government (People's Committees)	➡	3-tier system: city, urban/suburban districts and wards/communes. At each level, the people's council elected by votes elects people's committee. The people's committee has departments mirroring all key Ministries
Departments of People's Committee	➡	Department of Construction or Department of Transportation and Public Works supervises the operations of the WSCs
Water Supply Companies	➡	64 state-owned WSCs in 61 provinces and cities.

Adopted from the Study on Urban Drainage and Sewerage System for Ho Chi Minh City, JICA, December 1999 and Vietnam Water Supply Development Project. Report of Deacons and Vision & Associates, July 2002.

16. "Towards the Vietnam Development Goals for Water Supply and Sanitation", April 2004

Table 1.3:
Major WSS Policies in Vietnam Urban

Main WSS Policies	Urban	
GoV Strategies	Water Supply	Sanitation
	<i>Orientation for Urban Water Supply Development:</i> By 2020, 100% of urban population having access to safe water of 120-150 l/capita/day.	<i>Orientation for the Development of Urban Sewerage and Drainage until 2020:</i> By 2020, all urban areas with suitable water drainage systems and wastewater treatment facilities.
CGPRS	By 2005, 80% of urban population, especially those living far from the major transport roads, having access to clean water with an average daily supply of 50 l/day/capita.	
VDGs	By 2005, 80% of the urban population having access to clean and safe water.	By 2010, all wastewater in towns and cities treated.
GoV 2010 Environmental Strategy	By 2010, 95% urban access to clean drinking water	By 2010, 40% urban wastewater treatment and 60% disposal of "dangerous waste" from industry, hospitals, etc.

Note: There is no policy specifically targeting small towns.

Water Supply: The MoC is responsible for urban water policy, which is set down in the "Orientation for Urban Water Supply Development" of March 1998 - a sound document underpinned by the principle that water is an economic and social good. The implementation of the policy is decentralized to provincial level governments with the MoC providing oversight. The objectives of the program are as follows:

- i. 100% of urban population having access to safe water of 120-150 l/capita/day by 2020
- ii. Reform the sector including the financial policy
- iii. Modernize technology and equipment and enhance human resource development
- iv. Mobilize contributions from communities and all sectors of the economy

During the second half of 2005 the MoC was preparing a new decree governing the urban water sector. At the time of writing this report the Decree has not been published. Draft texts indicate that the government is building on the 1998 document and placing greater emphasis on a clearer separation of roles and responsibilities of the various parties, and the introduction of performance contracts between the service provider (the PWC) and the owner (the PPC). This will likely be complemented by greater attention to the collection and publication of performance benchmarking data.

WSCs are established under decisions of provincial PCs. In large cities, WSCs report to the City Transport and Urban Public Works Departments, which are equivalent to the Department of Construction at the Provincial level¹⁷.

Water and sanitation is clearly referenced in

17. Vietnam Urban Water Supply Development Project: Pre-feasibility study, 2004.



Hanoi Water Business Company's Nam Du Water Treatment Plant

the CGPRS. The WSS sector is seen as a contributor to ensuring growth and poverty reduction with concrete targets set for increased access to WSS services. Within the large infrastructure projects in water supply, drainage and sewerage, a priority is given to Hanoi and HCMC. Besides overall WSS targets, the CGPRS also gives directions for the provision of essential infrastructure facilities to poor people, poor communities and poor communes.

The GoV is committed to achieving the Millennium Development Goals and the Vietnam Development Goals (VDG). The detailed targets of the VDGs are listed below.

Sanitation: Parallel to policy developments in water supply, in March 1999 the MoC issued the "Orientation for the Development of Urban Sewerage and Drainage until 2020". The objective of the Orientation is to reduce subsidy requirements through the implementation of an urban drainage public services enterprise model, which needs to reach self-sustainability over the longer term by the means of:

Introducing drainage and sewerage charges and incorporating them into the water tariff. Tariffs should cover operating costs and

gradually move towards covering a portion of capital costs. Combining the management of water supply and sanitation/drainage except in the largest cities.

The policy aims to ensure that all urban areas should have suitable water drainage systems and wastewater treatment facilities that guarantee environmental hygiene and address flooding issues. Wastewater should be treated before entering the sewerage system, mostly through the use of septic tanks. The application of these policy elements is in its very early stage.

In December 2003, the GoV issued a new 2010 environmental strategy, which contains relevant targets for water and sanitation that are not completely aligned with those of the CPRGS/VDG (see Table 1.3). It is interesting that the targets of the CGPRS are not reflected in the decisions of other government institutions. This calls for a better coordination in increasing the cooperation among the institutions and the consistency of the government policies.

The institution responsible for urban sanitation is the Ministry of Construction. However, there is lack of clarity over the exact division of responsibilities between city and central government. The Department of Urban Infrastructure under the MoC collects data on urban sewerage. The data is reported annually by the provincial Departments of Construction.

C. Policies and Responsibilities - Small Towns

Small towns in Vietnam comprise a) small towns (population between 4-30,000), which represent category 5 urban areas in Table 1.1, and b) townlets (3,000 country-wide of minimum population of 2,000). The population residing in small towns and townlets amounts to 15 million¹⁸ (about 22% of total population).

18. Evolving management models for small towns water supply in a transition economy (Vietnam), 2002

Small towns fall under the mandate or jurisdiction of MoC, as do water supply services in all larger urban areas. Townlets fall under MARD, in which CERWASS is the lead agency. No single organization is responsible for setting the WSS policy and managing its implementation and coordination in both small towns and townlets as a distinct market segment. This segment does not completely fit either the urban or the rural context since small towns are considered either too small for institutional management or too big for effective community management. No target policy dealing with the distinct issues of small towns has been developed so far.

Water supply: The responsibility for providing water differs with major duties belonging to the District PCs. In some cases though, the management has been assigned by the PCs to the provincial WSC¹⁹. All investment projects of the small town PCs need to be approved by the provincial PC. On the other hand, the small town PC could be the water supply project owner or the supervisor of the construction and O&M of the water system.

Sanitation: The Orientation for Urban Sewerage and Drainage Development to 2020 includes small towns as part of the urban population whereas the National Strategy for RWSS to 2020 includes townlets as part of the rural population. As part of the latter, the GoV undertakes to clarify official ownership rights, legal requirements, and operation and supervision management rights, including the role of the consumer groups.

There is no clear responsibility for managing sewerage, drainage and sanitation in small towns and townlets. In principle, the small town PCs have the responsibility in managing water and sanitation under the support of the District Industry, Construction and Transportation

Division, but there is lack of sufficient attention and investment planning.

D. Policies and Responsibilities - Rural

The major policies in rural water and sanitation are listed in Table 1.4.

As noted in the urban section above, water and sanitation is clearly referenced in the CGPRS. In particular a priority is given in government spending to the development of rural infrastructure, of which WSS is a part.

Apart from the CPRGS, government policy is articulated through the National RWSS Strategy. The underlying principle of the NRWSS strategy is sustainability rather than speed of implementation. IEC activities have been recognized as a vital element of NRWSS and give particular emphasis to promoting construction of hygienic latrines and their proper use as well as on making people fully aware of the relationship between sanitation facilities, water supply and health. The objectives call for the improved health and living conditions of the rural population as well as reduced environmental pollution from



National Rural Water Supply and Sanitation Strategy bringing treated water to rural areas

19. Vietnam Urban Water Supply Development Project: Pre-feasibility study, 2004

Table 1.4:
Major rural WSS policies

Main WSS Policies	Rural	
	Water Supply	Sanitation
GoV Strategies	The National Rural Clean Water Supply and Sanitation Strategy: By 2020, 100% of rural population having access to national-standard clean water of minimum 60 l/day and use hygienic latrines. By 2010, 85% of the rural population having access to national-standard clean water of minimum 60 l/day and 70% of rural households using hygienic latrines. By 2005, 50% of the country's households using hygienic sanitation facilities and 80% having "domestic quality" water.	
CGPRS	By 2005, 60% of the rural population with access to clean water with an average daily supply of 50 l/day/capita and by 2010, 85% of the rural population obtains 60 l/day/capita. Special emphasis in the short-term on providing clean water in nursery schools, kindergartens, schools and health clinics in rural areas.	By 2005, 50% of rural households having toilets that meet basic sanitation standards. By 2010, 75% of rural households having toilets that meet basic sanitation standards. Special emphasis in the short-term on providing environmental sanitation in nursery schools, kindergartens, schools and health clinics in rural areas.
VDGs	By 2010, 60% of the rural population having access to clean and safe water and by 2005, 85%.	The VDGs do not yet include targets on rural sanitation
GoV 2010 Environmental Strategy	By 2010, 85% rural access to clean drinking water	-

human and livestock excreta through active promotion of community participation and a demand responsive approach. The National RWSS is underpinned by the principles of allocating decision-making and management at the lowest appropriate level, and emphasizing the participation of women in management.

At the national level, MARD is the lead ministry to coordinate all issues related to National RWSS. MARD has delegated this responsibility to the CERWASS, which is a center under MARD. The National Target Program (NTP) on RWSS is the umbrella for all programs and projects within the RWSS sector and is considered as a tool to implement the National RWSS Strategy²⁰. In many provinces,

Provincial Steering Committees have been established for the management and administration of all NTPs with the practical co-ordination and implementation delegated to the provincial CERWASS. An inter-ministerial Standing Committee of the NTP on RWSS was established in July 2002, but has only met once and its Statutes have not been approved yet.

The Department of Health is the main coordinating agency at provincial level in relation to control of water quality and latrines, and is a key institution in relation to IEC activities. The provincial Women's Union (WU), Youth Union (YU), Farmers' Association (FA) and other mass organizations play key roles in IEC activities²¹.

Rural households and communities are

20. Helle Stoltz. RWSS Sector in Vietnam: Background Note. DANIDA, 10 March 2004.

21. Helle Stoltz. RWSS Sector in Vietnam: Background Note. DANIDA, 10 March 2004.

expected to take the lead responsibility for rural infrastructure development to ensure sustainability. Government agencies play a facilitating role and ensure adherence to national regulations and standards. The overall approach to be taken is underlain by the principle of demand responsiveness, with

households and communities making decisions about what type of service they want and are willing to pay for through a process of informed choice. As a general principle, users are expected to pay for all construction and operating costs of water and sanitation systems.

II. Sector Structure and Ownership

A. Water Supply

There are 4 main types of provision of water supply services in Vietnam:

- 1) Utility provision by state-owned WSCs
- 2) Small towns/townlet provision
- 3) Self-provision - households and communes that obtain water for themselves
- 4) Local private sector in rural areas

Utility Provision

Over the past 10 years, the utility provision of water supply and drainage services has been decentralized from central to provincial level of the government and the utilities have been established as legally distinct state-owned economic entities. Despite decentralization, the level of autonomy of the water supply companies remains limited. Water supply tariffs are set by the provincial PCs at levels which cover O&M costs but are insufficient to fully recover the costs of capital needed by the utility. Key management and operating decisions such as overall production levels, capital investment and maintenance expenses, staff salary and benefits, and senior management appointments still require government approval²². WSCs do not have ownership rights over water resources or public land usage²³. Although the province exercises ownership on the assets of the WSC, there are no contractual relationships between the two

parties to govern this right. Most of the PWCs are Public Service Enterprises, operating under the Enterprise Law, except the water tariffs, as mentioned above, are set by the respective Provincial People's Committee.

In each province or city the relevant WSC is mainly responsible for the operation and control of both the water treatment and distribution networks together with billing and collection. However, many companies carry out additional activities, mainly in the field of construction and equipment trading, and these can be performed in other provinces (see Figure 2.1).

There is no competition in the utility provision of water services. However, in January 2004, the MoC was assigned the responsibility to develop a proposal on "Renovation of organizational models and management mechanism for WSCs" targeting WSC restructuring, water supply planning, and NRW management (reduction to 30%) as well as avoidance of monopoly abuse through issuing technical and economic norms for clean water supply. The MoC proposed to allow the WSCs to provide services outside existing service areas, make municipal authorities responsible for water supply, and equitize the WSCs. These proposals require further discussion to ensure they will meet the needs of the sector - particularly with regard to achieving economies of scale in service delivery, and having sufficient capacity on the owner side to manage such arrangements.

22. Ian Walker, 2002

23. Vietnam Water Supply Development Project. Report of Deacons and Vision & Associates. July 2002.

Figure 2.1: Business diversity in 2003²⁴



However, as noted earlier in this report, the sector is undergoing rapid change. The MoC is drafting a new urban water decree which will likely propose formal contracts between owners and operators, as well as clarifying issues of asset ownership. At the same time a number of PWCs have converted from Public Service Enterprises to equitized companies. These include HoChiMinh City, the largest water company in the country, as well as smaller companies in the provinces of Son La and Can Tho. These equitized companies operate under the Enterprise Law and, in theory at least, have more flexibility than their PSE counterpart.

Private Sector and Competition: Vietnam has now more than 130,000 local private enterprises with a combined capital of US\$10 billion. The GoV plans to equitize 50% of the remaining state-owned enterprises by 2005²⁵ - although it is clear that progress has not been as rapid as originally anticipated. In May 2004, the MPI announced the plans for two new laws to provide a uniform legal framework and level playing field for all businesses in the country, and among others, to ease the foreign

investors' participation in infrastructure projects²⁶.

The Law on Enterprise of 1999 does not prohibit the involvement of private companies in water supply services. However there are only a few private companies operating in the water service area in Vietnam²⁷. In order to attract FDI in large infrastructure projects, the GoV issued regulations governing BOT contracts by amending the foreign investment law in 1992. However, while foreign investments in Vietnam have been growing rapidly, investment in water/wastewater BOT have been slow with some contracts cancelled (see Annex 2). The main reason stated by the HCMC for the cancellation of two of the BOT contracts with foreign investors was the tariffs becoming too high as a result of imported know-how, equipment and materials.

Notwithstanding, HCMC subsequently proceeded to procure a new water treatment plant (Thu Duc) on a BOO basis, using a local consortium of companies as the investment vehicle, supported by international consultants and contractors. The city and consortium

24. VWSA Benchmarking Report December 2004.

25. Oxford Analytica. Vietnam: Equitization raises more questions than answers. 21 June 2004.

26. Dow Jones, May 2004

27. Vietnam Water Supply Development Project. Report of Deacons and Vision & Associates. July 2002.



Thu Duc BOO 300,000 m³/day Water Treatment Plant being constructed in Ho Chi Minh City

adopted a mix of bidding and negotiated selection procedures in a process which has been rapid by Vietnamese standards. Just 18 months elapsed between a decision by HCMC PC to proceed with the BOO scheme and the signing, in March 2005, of a US\$ 92million contract between Hyundai Corporation and the BOO consortium, for the construction of the water plant.

Evidently, the GoV has made an effort to introduce some form of competition in a limited way through BOT contracts for bulk water supply. Water provision to customers at the distribution and service level though will remain primarily with the WSCs but examples are under way or planned that will introduce more private sector operations through service contracts, particularly in Category 5 towns.

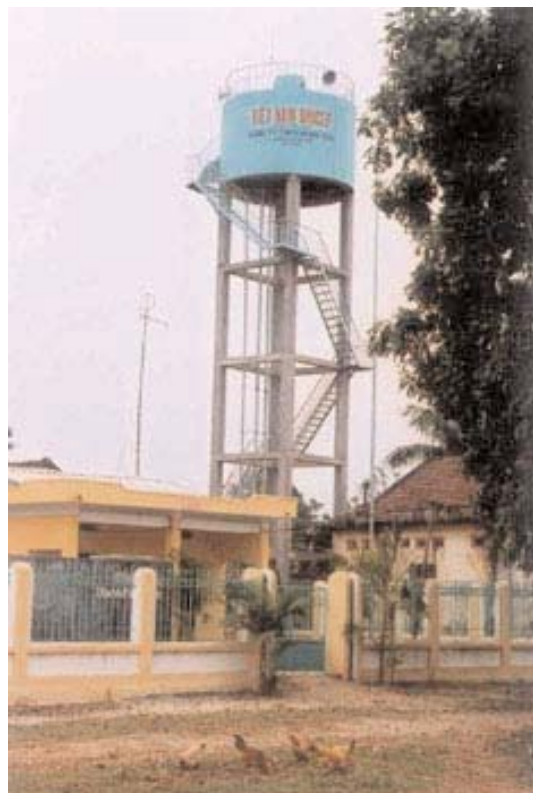
Small Towns/Townlets Provision

WSS services are provided by a wide variety of management models in small towns with the diversity being much higher in townlets²⁸:

- Direct management by Small Town People's Committee in small towns and Commune People's Committee in townlets

- Community management;
- Cooperatives;
- Provincial WSCs (pWSC) . They are responsible for providing water supply services to Class 4 towns, but recently have seen their mandate extended to also provide their services to small towns, Class 5
- Other state-owned enterprises mainly consisting of district water supply companies and/or environmental service companies; and
- Private water companies.

The provincial PC makes the decision on ownership for small towns water supply projects. The project owner is usually pWSC, pCERWASS, District PC or small towns PC. Local agriculture cooperatives or private organizations may become the owners mainly in townlets and rural areas. For larger projects,



Typical small town water supply scheme

28. WSP. Evolving management models for small towns water supply in a transition economy, May 2002

project owners must obtain a water license. Private investors have participated in construction of a number of townlet projects in areas with good economic prospects, high demand for clean water, and scarce water resources by investing sums of between VND 300 million to 1 billion.

In the past pCERWASS has been the most active government agency in the provision of rural water supplies. They have played the role not only of the owner/promoter of the rural schemes, but also the operator. However, this model has not been a great success as the emphasis has been on asset creation rather than on asset operation and maintenance. As a result many schemes have been built which are either not wanted by the community, or have fallen into disrepair due to disinterest or lack of capacity in pCERWASS. A new model has therefore been adopted in the Red River Delta Rural Water Supply and Sanitation Project approved by the Bank in September 2005. In this project the pCERWASS role has been refocused on policy and sector oversight, leaving newly formed rural water supply companies to take the lead in asset creation and operation. These new companies are likely to be joint stock companies, and are expected to contract out some or all of their operations to the local private sector. This new institutional arrangement is complemented by the use of demand responsive approaches in system selection and design as a means to ensure community buy in to the new facilities.

Self-Provision

Self-provision exists in Vietnam in rural and urban areas both as a sole source of drinking water and a less expensive addition to piped water consumption in order to decrease the total cost of supply to the household.



Typical community installed hand pump

Traditionally, the rural areas would collect water from ponds, canals and other uncovered open wells in community locations or installed in their homes. Others will collect rainwater. The self-provision could also come from community-installed hand pumps.

The quality of water suffers excessive pollution in some areas or is questionable. Considering the health impact and time/cost forgone in obtaining water, the real cost of self-provision to a household is often higher than the connections to piped schemes.

Local Private Sector in Rural Areas

The local private sector, either with or without external assistance, has stepped into the rural water supply provision by investing its own funds, and leveraging funds from a fee-paying consumer base. The growth in private sector investment in RWS in Vietnam has occurred in response to a consumer demand that was not being met by public services. GoV recognizes and supports these private sector initiatives²⁹ (see Box 2.1 and Annex 3).

Non WSC Provider Survey. Whilst there is a growing set of data about the WSC in Vietnam, there is little systematic data collection about

29. Dan Salter. Private sector in Rural Water Supply in Vietnam and Cambodia, February 2003

BOX 2.1: Successful Rural Alternative Provision

Although data about the market share of these alternative providers is not available, there are some promising examples. In Central Vietnam, even though water access is relatively cheap, a private sector supply market has developed in response to the demand, and by virtue of its structure provides cheaper and more localized services than comparative state-owned suppliers in the same areas. In the southern province of Tien Giang, 65% of the 1.6 million population is already being served by non-state water companies established predominantly by user groups. The rate of development of new schemes is now so rapid that the remaining 35% of the population will likely be served within the next 3-4 years.

other forms of providers in the country. The General Statistics Office Business Enterprise Survey, 2003, identified 142 formal providers of water and sanitation services comprising the WSC and other major providers.

As part of a pilot sectoral study to assess the aggregate performance of all WSS service providers in a country, the Bank sampled a cross section of non PWC providers in Vietnam

during FY05. The initial results, whilst based on a limited sample size, provide some interesting insights into the state of the sector, outside the WSC (See Box 2.2).

Overall the situation appears positive with most non WSC providers expecting to expand services in the next three years and to be financially viable in the short term. The most significant perceived barriers to growth are access to finance, insufficient revenues and lack of customer demand.

B. Sanitation

Up until now, no comprehensive study has been undertaken of Vietnam's sanitation sub-sector. Data is scattered and only project-related. It is not possible to make an informed conclusion about the overall number, market share and performance of the sanitation providers in Vietnam.

Urban Provision

The sewerage networks in Vietnam are virtually all combined systems, where the same pipes and channels serve to convey stormwater as well as sewage. Most of the attention is being

BOX 2.2: Non WSC Provider Survey

The non WSC providers sampled as part of the study were a mix of private, government and community organizations, and a mix of urban and rural. The private providers appear more confident than the others that they could pay their costs as they fell due, and considered their maintenance expenditures were sufficient to maintain operations. The majority of providers are financially sustainable in the short run. Collection rates are high with a mean of 97% for non PWC providers.

There is a limited reliance (11%) on debt financing by those providers not listed with GSO compared to nearly 50% of those listed with GSO.

Only around 40% of all the non WSC providers perceived that the ability to raise investment funds

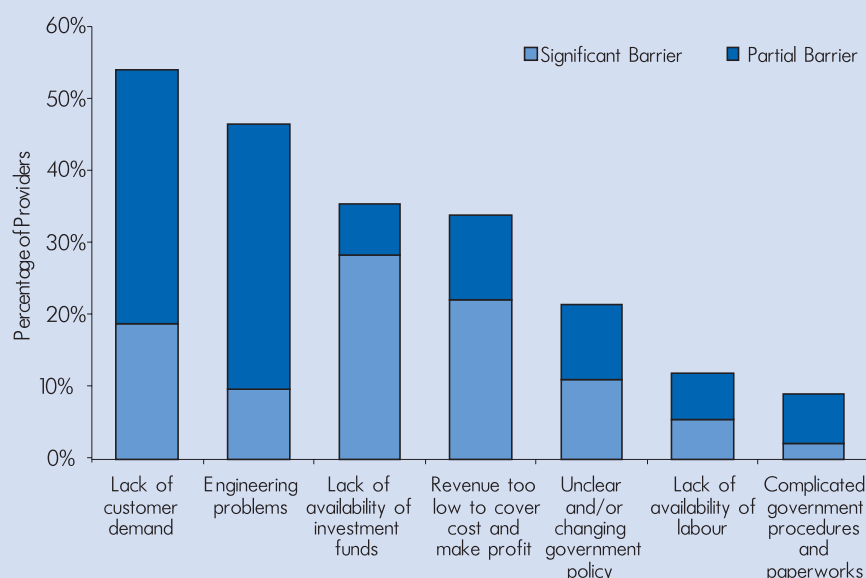
would be a significant or partial barrier, with rural and small providers seeing this as more of a barrier than urban and larger providers. Government owned providers perceive raising funds as less of a barrier than private or community providers.

Major barriers to provision of service by non WSC providers are presented in Figure 2.2 where financial issues are perceived as the most significant barriers. Lack of customer demand is, interestingly, the factor which has greatest weight in terms of substantial or partial barrier, whilst government procedures were seen as the least significant barrier.

Overall, 85% or more of the non WSC providers plan to invest and expand or improve service over the coming three years

BOX 2.2: Non WSC Provider Survey (Continue)

Figure 2.2 Perceived Barriers to Non WSC Providers in the WSS sector



given to sewerage and drainage investments. Consequently, the coverage of wastewater treatment is virtually zero. Only a few hospital, industrial and ODA supported wastewater treatment plants are operating, or being planned, in the Class 1 towns.

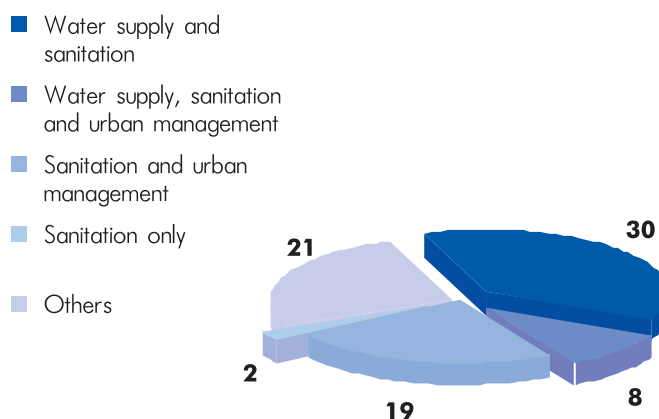
The responsibility for sewerage and drainage lies with the urban environmental companies whose business diversity is similar to the one of the WSCs. Water supply together with sanitation/drainage services, without any other urban responsibilities, are provided by 30 out of 80 state-owned companies³⁰. A full set of water supply, sanitation & urban management services such as solid waste management, street pavements maintenance, parks and public gardens, street lighting, road construction, funeral services and even civil and industrial construction is provided by 8

companies. Exclusively wastewater services are supplied by 2 providers (see Figure 2.3).

The urban environmental companies are often a city cost center since they do not charge any fees for the sewerage and drainage services (see Annex 4 for sanitation providers in HCMC).

As the sector matures there will be a need to revisit current models of urban sanitation

Figure 2.3: Urban sanitation business diversity



Source: Adapted from the VWSA "Vietnam Water Supply and Sewerage Summary", May 2003.

provision to assess their effectiveness. As services expand, and wastewater collection and treatment becomes more important, the separation of these wastewater services from other urban services will become routine. Whilst stand alone wastewater companies may be a solution for larger cities, combined water and wastewater companies are likely to be a more efficient and effective solution for smaller cities with populations of less than 6-700,000 people.

Rural Provision

Communities: Communities, where local capacity has developed to supply materials and skills for sanitation, see faster and more sustained growth of latrine users. Local masons find ways to promote their business and thus add to the number of facilities.

For instance, a local enterprise to produce concrete from local raw materials enabled an isolated mountainous community in Vietnam to build more and cheaper toilets without depending on external supplies. Hands-on

construction training was provided to community members during the building of the very first latrines. Depending on the quality of this training, the skill developed helped construction by other households. Where training was not made available or done badly, it inhibited further consumer demand³¹.

Small-scale providers: The international NGO IDE together with DANIDA are successfully supporting small scale providers in 6 rural districts of 30 communities - most of them living below the poverty line - in order to improve access and achieve sustainability of rural sanitation³². After 4 months of project implementation, a 15% increase of access was achieved equivalent to the number of latrines built in the same communes during the past 2 years.

The local entrepreneurs entered the value chain either as construction project managers (local masons) offering often also design and marketing services, or as suppliers of pre-made cement cylinders.

30. VWSA "Vietnam Water Supply and Sewerage Summary" May 2003.

31. WSP. Achieving sustained sanitation for the poor. Prepared by Nilanjana Mukherjee

32. WSP Field Note, February 2005: Private Sector Sanitation Delivery in Vietnam: Harnessing Market Power for Rural Sanitation

III. Water Supply and Sanitation Investment Needs and Financing

A. Investment Needs in Water and Sanitation

Government's targets for service provision by 2010, which reflect the MDGs in WSS, will require investment in the magnitude of US\$8.8 billion (see Table 3.1 for investment

requirements). There is some inconsistency among the World Bank estimates, the GoV estimates and the VDG Report estimates.

Current investment in urban WSS: During the last decade, as a result of the high level of priority assigned by the GoV on WSS more than US\$ 1 billion has been invested in urban water

Table 3.1:
Investment Requirements

US\$ funding required until 2020 for 100% water supply coverage in urban areas				
World Bank Estimates (urban water only)	2000	2010	2020	
Total Urban Population	19,000,000	32,000,000	46,000,000	
Urban population with piped water in 2000 (48% ³³)	9,120,000	9,120,000	9,120,000	
Population requiring piped water	9,880,000	22,880,000	36,880,000	
Estimated cost/capita in 2000 prices	165	165	165	
Funds Required for 100% coverage by 2020	1,630,200,000	3,775,200,000	6,085,200,000	
US\$ funding required until 2010 for water supply and sanitation in both urban and rural areas				
Government Estimates	Coverage 2010	2000- 2010	2004-2010 ³⁴	
Urban water supply (2000 coverage 45%)	85%	3,800,000,000	1,120,000,000 ³⁵	
Urban sanitation (2000 coverage 35%)	85%	3,800,000,000	1,326,000,000 ³⁶	
Rural water supply (2000 coverage 28%)	75%	800,000,000	660,000,000 ³⁷	
Rural sanitation (2000 coverage 24%)	75%	400,000,000	464,000,000	
Total		8,800,000,000	3,620,000,000	

Note: The funds for sewerage and wastewater treatment have not been accounted for in the investment needs of rural sanitation.

33. Based on the Benchmarking Report, 2002

34. "Towards the Vietnam Development Goals for Water Supply and Sanitation", May 2004.

35. Study team calculations based on VWSA/World Bank (2003): Utility Benchmarking in Vietnam, June 2003.

36. Presentation paper by Mr Nguyen Ton at 2002 VWSA Conference. The figure covers only 2005 target of 50-60% catchment and is thus underestimated.

37. Study team calculations based on CERWASS (2003): "Credit Mechanisms of the NRWSS, Draft, August 2003".



Treated Water Pumping Station in Hai Phong

and sanitation projects (excluding user contributions). They have typically been carried out by the provincial WSCs with significant ODA contributions, in average over 80%. Some 40% of the investments (US\$100 million annually) were carried out in the four largest cities³⁸ (see Annex 5).

Current investment in rural WSS: According to the 2004 Workplan of the NTP on RWSS, the total investment for rural WSS in 2003 amounted to VND 1,600 billion with a predominant community participation (see Figure 3.1 and Annex 5). The total GoV investments were VND 236 billion whereas

donors and investors counted for another VND 387 billion, bringing the total spending at USD 40 million. This is somewhat lower than the average of USD 50 million during the 1999-2002 period. No major changes are foreseen the near future.

B. Sources of Funds

One of the key questions is, therefore, how will Vietnam finance its WSS infrastructure in the next several years, and increasingly diversify its financing sources? Table 3.2 lists the sources and uses of funds.

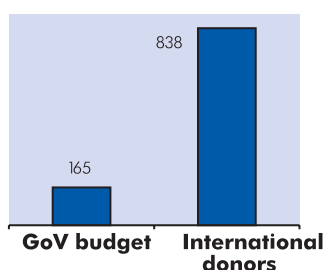
The demand for infrastructure will be fueled by the country GDP growth, which was more than 7% per year in the last 5 years with the state economy contributing 53.6% in 2004; Non-state sector 30.9; and FDI 15.5%³⁹.

State and Provincial Budget Sources of Funds

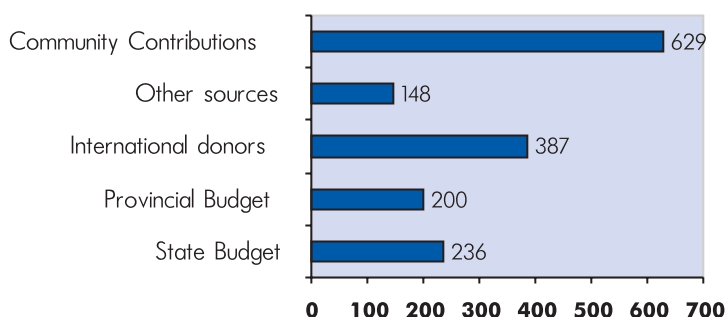
Under the present Budget Law, the financing of urban water supply, sanitation and drainage is under the responsibility of each provincial PC. In reality though, the provincial budget is insufficient to meet the essential

Figure 3.1 Investment in WSS by Source

Investment in Urban WSS in the past 10 years, million US\$



Investment in RWSS by source in 2003, billion VND



Source: WB (2003), Participatory assessment of urban water supply & sanitation projects in Vietnam, and NTP Plan, 2004

38. "Towards the Vietnam Development Goals for Water Supply and Sanitation", May 2004.

39. Source: Statistical Yearbook, 2004, statistical Publishing House, 2005

upgrading requirements and accordingly, the GoV provides direct support for capital investment in the sector, which is very dependent on external assistance. O&M costs are excluded from the direct government subsidies⁴⁰. Still, if the budget contribution to urban water and sanitation remains at the level of the last 10 years, this source will be able to finance, on its own, only about 4% of the urban needs in 2004-2010 (see Figure 3.1 and Table 3.1). With the current mix of ODA and government funds some 25% of urban needs can be funded.

According to the NRWSS, users are responsible for all the investment and O&M costs of the rural WSS facilities with the GoV grants supporting the poor. With the current level of investment though, the budget can only meet 17% of the officially recognized VND 50,000 billion needed to achieve the target of 100% of rural population having access to clean water and environmental sanitation by 2020 (see Annex 6). With the current mix of ODA and government funds some 25% of rural needs can be funded.

ODA Source of Funds

For the ten year period to 2001, a total of

US\$838,224,000 was invested by multilateral and bilateral financial institutions in urban WSS. In December 2004 the World Bank approved a credit of \$112million for urban water supplies and in October 2005 a further credit of \$46 million was approved for rural WSS projects. The urban ODA providers are the World Bank, ADB, DANIDA, JICA, AusAID, FINNIDA, and AFD (France). There is a very high donor commitment to also support the development of the RWSS sector and the National RWSS Strategy by AusAID, ADB, DANIDA, JICA, the World Bank, UNICEF and a number of international NGOs⁴¹.

The coordination of ODA follows a typical top-bottom approach with the MPI being the focal point, MoF being the official contractual "borrower", the branch Ministries acting as state supervisor of operational implementation is assigned to the Line Agencies (e.g. CERWASS). According the recent GoV decree⁴², the ODA funds are to be wholly allocated from the State Budget with the reciprocal funds allocated from the local budgets for domestic urban or rural sanitation and sanitation in hospitals.

Table 3.2:
Financing Water and Sanitation in Vietnam

Expected increase in uses of funds	Orthodox sources of funds	Non-orthodox sources of funds
Increased population growth	Central government budget	Banking sector
Increased per capita demand for water	Provincial government budget	Provincial government credit access
Increased coverage from current levels	Water supply companies	Water supply companies
	■ Tariff	■ Improved CAPEX management
	■ Income from provision of construction/other services	■ Increased OPEX efficiencies
Urbanization/affordability	ODA	Small-scale private providers
Levels of non-revenue water	Foreign direct investment	Households

40. Ian Walker, 2002.

41. Helle Stoltz. RWSS Sector in Vietnam: Background Note. DANIDA, 10 March 2004.

42. Circular No.108/2003/TT-BTC of 7 November 2003.

ODA on Lending Terms

In May 2005⁴³ the government sought to simplify and standardize the on lending terms for ODA funds for water supply projects. The intention was to avoid competition for sources of ODA funds that might be provided on more preferential terms. The circular established on lending rates of 0% p.a. for Category 5 towns and 5% p.a. for Category 4 towns or larger. The idea is sensible (i.e. to avoid competition between ODA funding sources) but an unintended consequence may be that opportunities for local private finance will be reduced - with borrowers preferring to wait for 0% interest ODA than seeking out commercial sources of financing. This is to the detriment of the sector leading to diminished, rather than expanded, financing sources.

Sub-Sovereign Credit Access

Decentralization of financing: Vietnam has been relatively slow in decentralization of financing⁴⁴. Budgeting, spending levels and investment decisions are centrally controlled with the local budgets part of a unified budget approved annually. Revenue sharing is formulae-driven and the shares are determined inversely by the relative wealth of provinces with the poorer getting more.

Sub-sovereign borrowing: Borrowing powers of provincial governments are very limited and little tested and the central government effectively allocates both grants and loans for capital purposes. Borrowing for all purposes is usually done either through government banks or from on-lending programs on subsidized terms and with sovereign guarantee thus making market-based lending unattractive.

Commercial banks are not permitted to lend directly to provincial governments but they can invest in sub-sovereign bonds and have made modest loans to WSCs.

Sub-sovereign guarantees: There is only administrative, not legal, separation between central and provincial governments in Vietnam. The latter cannot sign legally binding contracts and their legal obligation is also that of the central government. Still, provincial governments have, in some circumstances, provided guarantees on water projects, e.g. the BOT project with Binh An Water Corporation had an inherent guarantee from the HCMC PC (see Annex 2). It was widely assumed though that the national government would step in if the PC cannot meet this obligation⁴⁵.

Sub-sovereign bonds: Provincial governments have the option to borrow up to 30% of their annual budget for development investments - HCMC and Hanoi are allowed to borrow up to 100%. The debt can be raised through revenue or general obligation bonds. To date, only three provinces - HCMC, Hanoi, and Dong Nai - have made use of such instruments, and all debt raised thus far has been in the form of general obligation bonds. In 2005 both HCMC and Hanoi issued bonds worth around VND 2 trillion (equivalent to US\$127 million) while Dong Nai was successful in mobilizing over VND 239 billion (equivalent to US\$15 million).

With the exception of pricing (coupon rate on bonds), all parameters of a bond issue (tenor, amount, etc.) are proposed by the issuing province and approved by the central government. Pricing is determined exclusively by the MoF with seemingly little or no input from the issuing province. In determining the pricing of a debt issue, the MoF allows only a

43. Circular No. 40/2005/TT-BTC - financial mechanism applicable to clean water supply projects funded by ODA

44. The World Bank. Sub-sovereign credit access and infrastructure financing in four East Asian Countries, June 2003

45. Aldo Baietti, 2002.

small spread over central government debt obligations of comparable size and tenor, which has led to limited demand for provincial bonds aside from SOCBs. The market appears to expect a larger spread between sub-sovereign and sovereign bonds.

Local Development Infrastructure Funds: In response to the increasing demands for municipal infrastructure, the GoV has been encouraging the provincial governments to take greater responsibility for financing municipal infrastructure. In this context, Local Development Investment Funds (LDIFs) have been established in 13 provinces and have become an important municipal finance tool because they offer an operational and legal structure for the provincial governments to focus on infrastructure, including the ability to mobilize capital and enter into contracts with the private sector. The LDIF model is being developed to focus on municipal infrastructure investments that offer cost recovery. HIFU, the HCMC-based LDIF has managed to use its equity investments to leverage private capital in the 4.8x range, indicating the emergence of a trend/tool for the provincial governments to leverage private investment for WSS projects.

Securities exchange: There is a newly formed securities exchange in HCMC with only 27 stocks listed in 2005 and 10% of the exchange volume in bonds. The Securities Commission is investigating the possibility of municipal bond trading on the secondary market. However, domestic financing in long-term maturities is generally not available in Vietnam.

Banking Sector

Banking reform: The progress of the banking reform has been mixed with bank assets still concentrated in 4 large state-owned banks.

Non-performing loans represented the still manageable 15% of all lending in 2000⁴⁶ whereas gross domestic savings were 28.8% of GDP in 2002. The reform aims at improving the regulation and supervision of banks, and enhancing their transparency and accountability. The GoV has initiated the separation of preferential and policy-based credit activities from the SOCBs through the creation of the GoV guaranteed VBSP and DAF. This will shift the inherent risks associated with policy lending from the financial sector to these extra-budgetary institutions.

Lending to utilities: Although SOCBs remain by far the largest providers of credit to SOEs, the lending to WSCs has been limited which represents a challenge by itself. The best estimated figure for SOCB lending to water is currently about \$50-70 million. Both BIDV and Incombank could potentially be considered for the role of lenders though, given their extensive network of branches and existing position in the infrastructure finance market.

Micro-credits: There is a strong demand for micro-finance in Vietnam which grew 47% in lending in 1998-2001⁴⁷. Some estimates state



Bank for Investment and Development of Vietnam (BIDV)

46. The World Bank. Taking stock 2003. Consultative Group Meeting, December 2003

47. Vietnam Development Report 2004.

that three quarters of households get credit in one form or another. Many organizations are involved in supporting the micro-credit sector (see Box 3.1):

- The main providers VBARD and VBSP (credit to 8.3 million rural households in 2001)
- Saving-and-loan schemes run by several communes and district governments
- Mass organizations such as Women's Union, Farmer's Union, Youth Union
- 57 international NGOs support micro-finance accounting for 5% of all micro-credits
- Informal sector - moneylenders, rotational savings and credit associations, and lending between friends - contributing about 50% of the total micro-credit market.

BOX 3.1: Micro-credit in WB projects

The WB Three Cities Sanitation Project includes a micro-finance component being implemented by the City Women's Unions which enables poor families to take small loans to improve their household sanitation. Out of 15,000 loans made in the first two years of implementation, the loan repayment is close to 100%. Also, under the current Vietnam Urban Water Supply Development Project, a revolving fund for small towns will be established under the administration of the Women's Union providing funds for sanitation to poor households.

Utility Sources of Funds: Increased Efficiency and Tariff Reform

The 2003 benchmarking study⁴⁸ of capital efficiency evaluates 30 provincial WSCs and gives preliminary estimate of capital per particular type of asset (Table 3.3).

To achieve the GoV goal of 100% urban coverage by the year 2020, the water utilities will need to provide water to an additional 25 million people. Based on the benchmarking survey, the average capital investment required to achieve this goal is US\$2,239 million. By delivering assets based on the performance of the top quartile of Vietnamese water utilities, 43% can be saved due to capital efficiency. Whilst these are very preliminary estimates, and such significant savings are unlikely to be fully replicable, there is no doubt that increased capital efficiency is possible and will reduce the total amount of investment needed for the country, and hence the financing needs.

In addition, an analysis of water company operating costs and performances in 2003, show significant savings can also come from improved operating practices (see Annex 7). The simplified analysis demonstrates that the capital costs of network expansion, NRW reduction and energy efficiency programs can be financed by the sale of water. Furthermore, the analysis has shown that there is significant unused capacity in Vietnam's treatment plants. By utilizing available production capacity at

Table 3.3:
Savings due to Capital Efficiencies

	Distribution Costs	Production Capacity Cost	Total Costs
Top Quartile	\$ 843,931,567	\$ 587,615,470	\$ 1,265,456,064
Average Costs	\$ 1,285,106,218	\$ 953,882,292	\$ 2,238,988,510
Amount saved by capital efficiency			\$ 973,532,446

48. Rossana Dudziak and William Kingdom. Utility Benchmarking in Vietnam, June 2003



Detecting leaks to reduce non-revenue water

that time, water utilities could increase revenues, expand distribution networks, and benefit up to 6 million new domestic customers.

Utilities can therefore reduce unit costs to deliver assets, and can be more efficient in their operations. Finally, they can increase their revenues through tariff increases and, to a lesser extent, through attention to collection rates and illegal connections. The latter two are areas where the country is already an excellent performer so there is less opportunity for improvement. Focus must therefore move to establishing tariffs that can fund the borrowing necessary to meet the investment needs.

Small Towns Capital Investment Resources

The state partially finances most water supply projects in small towns, especially projects owned by the provincial WSCs through domestic investment program, international loans or grants or mixed credit (including state budget credit and individual credit). Funding is normally from (i) consumer fees 10-55%; (ii) state budget 10-60%; (iii) external support agencies 0-30%; (iv) in some of the southern provinces, private investment up to 38%.

Similar to rural investment regulations, consumer contributions are required especially in

townlets. In some small townlet projects, consumers can contribute labor or cash for construction amounting to 20-30% of the total costs. Although there are wide variations, the average per capita cost is lower than \$40 and may vary between \$18-28 in the case of cooperatives, community-managed and private sector schemes. Per capita costs are influenced by the geographical location, per capita income, price of supplies, raw water source and scarcity⁴⁹.

Rural WSS Investment by Households and Small Scale Providers

The private sector, made up of thousands of micro and small enterprises selling water and installing water technologies, have developed businesses by providing services at a free market rate.

In the IDE hand pump program in Central Vietnam, the resources spent on social change, demand creation and private sector capacity building was in the order of \$1.2 million, and the total invested by end-users was \$3.2 million⁵⁰. In Tien Giang province, public funds provided the technical design, and some subsidy to poorer communities, but 62% had come from non-public sources. Investment capital was usually raised from the consumers themselves, by charging a large upfront connection fee of \$60-\$100. The members of informal user-groups and cooperative-managed systems usually invested about \$60 in a fund used to build a water system.

It is not possible to estimate the total investment by these enterprises each year. However, users have already provided almost 50% of the total funds in the rural WSS in 2003 (see Annexes 2 and 4). It is very likely that the total private sector / user investment in the sector far exceeds the institutional investment.

49. WSP. Evolving management models for small towns water supply in a transition economy , May 2002

50. Dan Salter, 2003

IV. Sector Performance

A. Water Supply

Access

Coverage and access estimates differ sometimes substantially in Vietnam⁵¹. Divergent definitions and monitoring methods applied may partly explain those differences, together with the existing practice of sharing connections.

Based on the Joint Monitoring Program statistics for 2002 Vietnam has the best access statistics for both rural and urban water supplies of all the lower income countries in the region. All the lower middle income countries in the region boast better access figures, although only marginally so in the cases of China and Indonesia.

The annual growth rates from 1993-2002 in access to improved water sources reached the impressive 7.1% overall (see Table 4.1). If the past growth rates can be maintained until 2010, it is not unlikely that the GoV's targets can be

Table 4.1:

Official Water Supply Coverage Data, incl. Projections (VLSS)⁵²

	Access to improved water, % of the population			
	Year 1993	Year 2002	Growth rate p.a.	Year 2010*
Urban coverage	58.5	76.3	3.0	96.6
Rural coverage ⁵³	18.1	39.6	9.1	79.4
Average national coverage	26.2	48.5	7.1	83.8

Source: Vietnam Development Report 2004, World Bank, constructed on GSO data.

*Projection Year 2010 under the assumption that future growth rates equals past growth rates.

met. It will however, depend on the GoV's maintained dedication to the sector and on the provision of sufficient funding from domestic (public, private, and households) as well as international sources.

Urban coverage: The piped water coverage differs substantially with respect to the urban population category with the small towns having as low as 10.6% in 2000, the biggest cities 67.3% and the medium size towns 31%⁵⁴. A more recent benchmarking study⁵⁵ undertaken

51. It is striking that rural water coverage estimates for 2002/3 are in the range of 40% to 55%, and for urban water supply 56% to 76%.

52. Source: Vietnam MDG Report, April 2004

53. Improved water includes "bought water" but excludes hand-dug wells. The coverage rates are consequently under-estimates of the coverage of improved water. Figures from the Joint Monitoring Program (JMP) - WHO/UNICEF - indicate figures of rural water & sanitation at 68% and 26% respectively, and urban water & sanitation at 93% and 84% respectively.

54. Benchmarking Report 2002

55. Benchmarking Report 2003 (issued December 2004)



This is the way many of the urban poor obtain their water

by the Vietnam Water Supply Association indicates that, according to the WSC, overall urban coverage is 61% but that there are still 7 WSC out of 66 with coverage below 25%, and 27 out of 66 with coverage less than 50%.

Small towns' coverage: The percentage of connections in small towns is very low with about one third of district towns having some form of piped supply. Even where there is piped water, it typically supplies only a small proportion of the population mainly in the town center. The poor have to buy water at very high

tariffs or use other water sources, which do not meet quality standards. Where connections are available, people still use alternative water sources (see Figure 4.1); consumption therefore is very low affecting the efficiency of the systems.

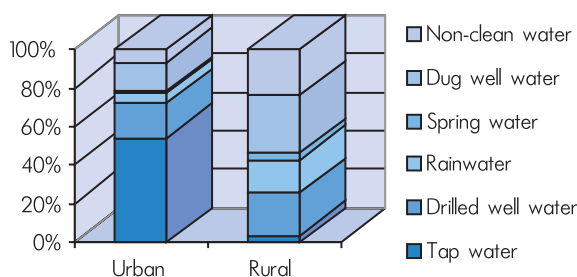
The Bank's Urban Water Supply Development Project, approved in December 2004, has a component that specifically focuses on small town service provision. The project aims to provide service in up to 135 district towns in some 25 Provinces.

Rural coverage: Rural coverage figures for water and sanitation also vary considerably. According to the NTP of MARD, the 2003 rural access to water is highest in the proximity of the largest cities; with coverage of 70-80%. More remote provinces such as Dong Thap and Tay Ninh have coverage figures of less than 30%. Those disparities reveal the acute need to focus activities and investments in the poorest and most remote provinces (see Annex 6).

Consumption: The national residential consumption rate in 2000 was 81.8 lpcd. The HCMC inner city consumption varies between 5 and 10 m³/hh/month, whereas in the suburbs it falls to 0.06 - 1.8 m³ levels⁵⁶. The most recent benchmarking report⁴⁸ indicates a higher figure of 97 lpcd. The larger cities consume nearly 50% more water than smaller cities. Small towns rely on self-provision from traditional water sources in order to decrease the price of piped water; thus, consumption is low: 80-120 lpcd for small towns and 25-50 lpcd for townlets.

A recent World Bank project⁵⁷ estimated the current domestic water

Figure 4.1: Proportion of the Population using Different Water Sources



Source: Vietnam National Health Survey 2001-2002

56. Vo Quang Chau, HCMC WSC. Technical Papers, International seminar, 5-6 December 2002

57. Vietnam Urban Water Supply Development Project: Pre-feasibility study, 2004.

consumption in small towns to be 50 liters/person/day and is expected to increase to 80 liters/person/day by 2020.

Overall Performance of the Sector

Urban water supply⁵⁸: Many water treatment plants, even those built recently, suffer from design and construction faults due to lack of appropriate equipment, high quality materials, management skills, and financial resources. Some urban centers have no treatment facilities and raw water is pumped directly to the distribution network, with suspended solids, iron, or high levels of contamination. Maintenance is not always adequate to maintain an appropriate level of service. As a result, existing schemes are often difficult to operate, and not sufficiently reliable or efficient.

One of the objectives of the GoV under the CGPRS is to ensure water and air quality meet the national standards by 2005. However, except for HCMC and Hanoi, the urban water fails to meet the WHO standards or the GoV guidelines. Conventional facilities for clarification, filtration and disinfection do exist in the majority of the provincial towns. About 50% of the 66 WSCs participating in the 2004 Benchmarking study claimed they did not have proper laboratory equipment to perform water quality tests.

The water quality can be largely affected by the continuity of service. In Vietnam, the average level of provision in urban areas (excluding townlets) is 22 hours/day. In addition, although 97% of the customers are metered in urban centers, the meter quality and accuracy can be poor.

The sector has been expanding at a rapid rate since 1997: 54% of the distribution system has been built within the last five years. However, the capacity of the treatment plants exceeds the

capacity of the distribution system. On average the utilities are operating at 81% of production capacity, although in the smaller towns the level is closer to 50%. The financial performance is moderately good with an average working ratio (operating costs/operating revenues) of close to 0.63. While this level is impressive compared to many developing countries, the low tariff means that the cash generated from the WSCs in absolute terms is also low. This limits the WSC ability to finance expansion out of existing revenues which can only be rectified by further reducing the working ratio (say to <0.5) and raising tariffs. The days accounts receivable of less than 30 reported by 100% of WSCs is much better than the performance level reached by top 25% utilities of developing countries (90 days). The average percentage of NRW remains high at 35% compared to 23% achieved by the top quartile of utilities in developing countries but has been relatively static over the past few years. NRW shows significant variations in different provinces, ranging from 14% to 55%. The number of staff per '000 connections has decreased in recent times and the 2003 weighted national average of 8.0 remains nearly 1.6 times higher than the level considered as good



Nam Du Water Treatment Plant in Hanoi

58. Figures reported in this section are based on the VWSA Benchmarking Report, December 2004, for the year 2003.

practice in developing countries⁵⁹ (5 staff per '000 connections).

Small towns water supply: The performance within categories of management models varies widely. Systems managed by communities, cooperatives and private operators evidently perform better than systems managed under other models. However, the more important aspect of management is not so much the organizational model, but what "rules of the game" are being applied. The autonomy in managing the water supply business and proper tariff levels may be better predictors of success than the management models per se. The observed success of more customer-oriented approaches is supported by evidence elsewhere in the world that demand-responsiveness has a positive impact on sustainability.

The average continuity of service in small towns (excluding townlets) is estimated at 16 hours/day. Water clarity or odor is a problem. The Global Small Towns Study of 22 small towns in Vietnam shows customer satisfaction with water pressure and quality varies considerably between 58% and 98%.

Rural water supply: Private enterprises a) in the examples of Tien Giang province in southern Vietnam and b) in areas in central Vietnam targeted by the supply chain intervention of the IDE are, by nature, responsive to customer needs and adaptable. Service quality is high since repeat service is the only way to generate the next sales. The connection time is shorter and responsiveness to leakage faster. This is boosted by the fact that investors and operators are often users themselves⁶⁰.

Cost efficiency is dramatically improving when the private sector is involved: hand pumps and drilled wells have been installed by the government enterprise for \$100 in Central Vietnam and by the private sector for less than 1/3 of this cost. The ability of the private sector to raise financing is also very high: in addition to the schemes financed entirely by the users, some providers use a combination of private funds, bank loans and advance payments discounted from the water bill.

There is no monitoring and evaluation of water quality and quantity in rural areas⁶¹ despite the emerging challenge of arsenic pollution in some areas and large-scale industrial and cumulative small-scale craft village pollution.

Water Tariffs

Urban water Tariff: Tariffs are set by the PCs after the WSC submits their tariff proposal and often after the PCs obtain the consent of the People's Council. Tariffs are reviewed annually. The implementation of Circular 03/1999, stating local government must gradually increase water tariffs to fully recover costs, has been slow. In November 2004, the MoF and the MoC issued a joint circular stipulating the common tariff framework for the whole country⁶² including rural areas, based on the principle of full cost recovery and a reasonable profit. The MoF assumed the prime responsibility for enforcing the joint circular. Since then, the water tariffs have been increased or adjusted significantly in most WSCs in the country, helping to improve the financial status of the water sector.

Urban water tariffs are typically in the range VND 1600 to 2700/m³ although there are

59. Viewpoint 242: A Water Scorecard, Nicola Tynan and Bill Kingdom

60. Dan Salter, 2003

61. Dr. Le Van Can, Presentation at the National Workshop on Rural WSS, Hanoi, 4-5 March 2004

62. Joint Circular No.104/2004 of 8 November 2004 of MoF and MoC



Water meter testing laboratory in Haiphong

examples outside this band. In 2003 the average residential tariff was VND 2,181/m³, an increase of 4% over the previous year. There is a positive trend towards increasing tariffs, HCMC for example increased tariffs by 60% in 2004 (Box 4.1). Overall, however, tariffs are at levels which are not able to fully support the borrowing required for all sectoral investments.

The average urban connection fee in 2003 was VND 791,800 (about 50\$) representing approximately 20% of GDP per capita. Nearly 80% of the companies determine the price of the connection fee based on the length and diameter of connection pipes. Over 50% of companies offer reduced connection fees for low-income families and nearly 60% accept installment payments⁶³.

Slums Water Tariffs: In urban areas, the migrants are unable to secure water connection since they don't have KT3 living registration and are forced to buy much

more expensive water from the richer households. Private vendors in HCMC charge VND up to 6,000/m³. In Tan Binh District, the migrants without registration would pay 7-8 times the residential water tariff⁶⁴.

Small Towns Water Tariffs: Current district water tariffs in Vietnam range between VND 1,000 and VND 4,000 per m³ and domestic tariffs are typically VND 2,000 to 2,500/m³. This covers only the direct operating costs and does not usually include the full costs of depreciation. The connection fee ranges from VND 300,000 to VND 1 million or more. Cooperatives and community-based water supply systems, funded with contributions from local residences or by private sector investment, agree water prices amongst themselves. Still, the tariffs need to be endorsed by the PC. The tariffs vary between the different management models

BOX 4.1: Urban water tariffs - HCMC tariff structure

In 1999, all consumers were metered, billed monthly with no sewerage surcharge (10% surcharge was introduced only recently). The water tariff aimed at full cost recovery including profit and contingencies. In July 2004, a new water tariff was implemented by HCMC Water Supply Company.

Category	1999 water tariff per cubic meter, VND/m ³		2004 tariff	
	Base	CAPEX surcharge	Total	Total
Domestic				
- below 4 m ³ /capita/month	1,000	300	1,300	2,700
- above 4 m ³ /capita/month	1,500	600	2,100	5,400
- above 6 m ³ /capita/month				8,000
Industry (production)	2,500	600	3,100	4,500
Business and service				8,000
- below 8 m ³ /month	4,700	500	5,200	
- above 8 m ³ /month	4,700	4,000	8,700	

63. Benchmarking report - December 2004

64. Vietnam Development Report 2004. Poverty.

(SOEs charge the most) with an average⁶⁵ being \$0.13/m³ - unfortunately no more recent data is available. Block tariffs (low tariff applied to essential consumption of 15m³/month) or cross-subsidization of different user categories are utilized in order to help the poor gain access, yet as more poor do not have access to piped water, the benefits accrue to the well-off customers.

The tariff calculations for 15 district towns in the Urban Water Supply Project (population of 144,300 people⁶⁶) show cost recovery tariffs in the range of VND 3,900-5,200 m³, when funds are on-lent to the WSC at a subsidized rate of 3% per year. More than 82% of the participating households were willing to connect to these planned systems even though the tariff would be at least 50% higher than the existing tariff charged in other towns and in some cases two and a half times the existing tariff (see Table 4.3).

Rural Water Tariffs: The rural problems with water supply evolve more around availability rather than cost. In Tien Giang province, the revenues of the private water suppliers would come from the upfront connection fee (usually at the market rate of US\$ 60-100) and the tariff. One of the small piped water providers in the same province charged a tariff of VND

3,750/m³ for treated water and yet faced an increasing demand for service.

Affordability

The average percentage of the cost of water and wastewater services in the total household income is usually used to measure the consumer ability to pay. For planning purposes, a rule of thumb of around 3% for water and 5% for water and sanitation is used. With respect to the urban poor, a lifeline of 40-60 l/capita/day should be satisfied with 4-6% of the income, whereas the average consumers would demand 80-120 l/capita/day by spending 3-6% of their income.

Current tariffs in Vietnam are typically below 2% of the average household income (see Annex 6). Households that already have piped water are reluctant to pay more than the current tariff and conversely, communities that have no access to piped water are willing to pay much more than the current tariff. Currently, more than 50% of the households are paying for water whereas almost all rural households get it for "free". Although the richest (usually urban dwellers) spend more in terms of actual amount, the poorest spend twice as much as percentage of their income. The time and money spent on obtaining drinking water are not taken into account.

Table 4.3:
Affordability in 3 Provinces⁶⁷

Province	Existing water tariff, VND/m ³	Households willing to connect, %	Agreed average tariff for participating towns, VND/m ³	Affordable tariff increase, %
Nam Ha	2100	94	5190	1.47
Thai Binh	2800	82-99 (by town)	4170-6080	48.93 -117.14
Binh Dinh	1700	86	4100	141

65. WSP. Global Initiative for small town WSS, October 2001.

66. Vietnam Urban Water Supply Development Project: Pre-feasibility study, 2004.

67. The World Bank. Vietnam Water Supply Development Project, Project Appraisal Document, 2004

Urban Water Supply Affordability: The comparison between the % of household income paid for water in the richest cities like HCMC (0.6% in 2002) with the GDP per person in Tien Giang Province of about \$335 (2001), out of which a household was willing to invest \$60-\$100 in water connections reveals the current affordability gap in Vietnam (see Annex 6 for comparison data).

Small Towns Water Supply Affordability: Connection costs are a major obstacle to achieving greater coverage of water supply services in small towns and townlets. Although tariffs are well below 3% of the average household income, connection fees could reach as high as 10-35%. Cross subsidies may be useful in some cases but more research is needed to understand how the poor can benefit from targeted external subsidies and/or cross subsidies. Furthermore, the removal of connection fees can also be considered as a way to reduce the connection barrier. This approach was adopted in the pilot Design, Build and Lease project in Bac Ninh and Haiphong Provinces.

Rural Water Supply Affordability: Surveys of time and money spent on obtaining drinking water in Vietnam indicate that rural communities, including the poor, are willing to contribute to the capital and maintenance costs of water and sanitation, provided that they have made an informed choice for the service level provided⁶⁸. To some extent, rural communities have also demonstrated a willingness to support poorer members through cross-subsidies.

Overall, affordability is not considered a major issue at the current time. As tariffs rise in the future consideration will have to be given to provision of targeted subsidies to low income households.

Public Subsidies in Water Supply

Urban Subsidies: According to the VWSA Benchmarking study (December 2004) all water companies but two covered their operations costs from user fees in 2003.

Rural Subsidies: There are two types of funding of NTP. The first is routine funds for construction of water systems and sanitation coverage/IEC. The second type of funding is investment subsidies for water supply, especially for schools and kindergartens, hospitals, Commune Health Stations, and rural markets.

The levels of grants stated in National RWSS Strategy are 80% of construction costs for water supply of very poor households and 60% of construction costs for poor households. In addition, users can obtain loans up to 75% of total construction costs from the GoV rural water and sanitation fund. For gravity water systems in high mountain areas⁶⁹, the subsidy cannot exceed 90%. For water piped schemes in a standard single village, the subsidy levels could reach 40% of the total construction cost, whereas for more difficult sites in mountainous, island and border areas, the national government subsidy can be as much as 60% to be supplemented by provincial government funds.

Thus, whilst there are few subsidies for operations costs in the water sector, a capital subsidy is present for many systems, particularly for rural and small town schemes. This may be necessary in the short term but it needs to be properly targeted, and on a reducing scale - so that alternative sources of funds are encouraged to flow into the sector.

New Approaches to Targeted Subsidies. Internationally there has been increased interest in how best to target subsidies in the water and

68. The World Bank. Vietnam Red River Delta Rural Water Supply and Sanitation Project, PAD, August 15, 2005

69. According to Decision 135/1998/QĐ-TTg.

sanitation sector. One promising approach is called "Output Based Aid" (OBA) where subsidy payments are made on delivery of a particular output. This approach is being assessed in HCMC where a possible OBA scheme is being prepared⁷⁰. The concept in HCMC is to make OBA payments to the water company on delivery of a working house connection to a low income household along with a reduction in physical water losses from the distribution network. If successful this approach could have great replicability around the country as this targeted subsidy approach addresses two of the main challenges in the sector a) reducing water losses and b) connecting low income households.

by 2002. Despite an annual growth rate of more than 20%, only 11.5% of rural households have access to hygienic latrines, where as the respective percentage for urban households is 68.3%. If the reported figures are reliable⁷¹ and the current growth rates can be maintained, it is not unlikely that the GoV targets can be met.

It will be, however, unrealistic to assume that the targets for wastewater treatment and solid waste can be met by 2010 . Stakeholders recommend that targets be graduated and adjusted downwards, depending on the size of towns and cities. They are also concerned that insufficient attention is given to environmental issues in present investment plans.

B. Sanitation

Access

As for water supplies there are wide variations of estimates on sanitation coverage. Based on the Joint Monitoring Program statistics for 2002 Vietnam has the best access statistics for urban sanitation of all the lower income countries in the region, and is second behind Mongolia for rural sanitation access. All the lower middle income countries in the region boast better access figures, although only marginally so in the case of China.

The coverage of hygienic sanitation has increased by more than 10% annually, yet the overall coverage was only 25%

Table 4.4:
VLSS Sanitation Coverage Data, incl. Projections⁷²

Access to hygienic latrines	Year 1993	Year 2002	Growth rate p.a.	Year 2010*
Urban coverage	44.9	68.3	4.8	99.2
Rural coverage	1.8	11.5	22.9	59.8
Average national coverage	10.4	25.3	10.4	55.8



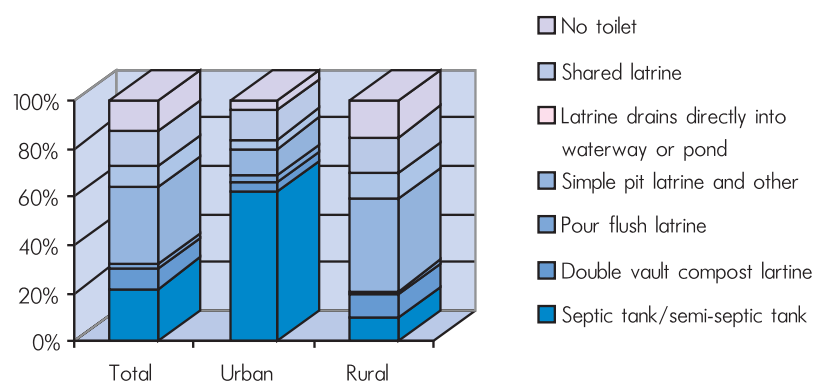
Polluted flood waters are a regular occurrence in Vietnam's Cities

70. GPOBA has provided grant financing in FY2005 to investigate the application of OBA in HCMC

71. And there is doubt. Figures from the Joint Monitoring Program (JMP) - WHO/UNICEF - indicate figures of rural sanitation at 26% and urban sanitation at 84%.

72. Based on CSO data. "Towards the Vietnam Development Goals for Water Supply and Sanitation", 2004

Figure 4.2: Type of Toilet Used, % of Population



Source: Vietnam National Health Survey 2001-2002

Urban Access: Environmentally acceptable sanitation facilities in urban areas are generally unavailable. Under the existing regulation, human waste should be treated in the septic tank before being discharged to the sewer. While around 40% of households in provincial towns have septic tanks, only a small portion of these septic tanks is connected to sewers or drains (see Figure 4.2). In many urban areas, septic tank effluent or seepage contaminates the groundwater table in areas where water from wells is widely used for drinking.

Currently, less than 65% of the HCMC



Informal public toilet in Ho Chi Minh City

population has septic tanks where 87% of only the wastewater from the toilets is treated; "gray" domestic water is not treated. In fact, only 50% of the existing septic tanks in HCMC are reportedly designed and constructed properly and due to lack of strict regulations, most of them have not been regularly subjected to solids removal.

Septic tanks are cleaned on request by the Urban Environmental Company with a frequency of 3 months up to 10 years⁷³. Due to lack of enforcement of regulation, many new housing constructions in HCMC have direct connections to the city drainage system without the obligatory septic tank.

Small Towns Access: In general, households in district towns have fewer septic tanks than those in provincial towns, and some even lack basic toilet facilities. Those without access to any sanitation facilities have no organized system of wastewater collection, treatment, and disposal, and use open ground, local drains, and watercourses for disposal of excreta and wastewater.

The provincial disparities observed for water supply are also valid for sanitation. The VLSS shows that access to hygienic latrines is more than 85% in the most urbanised provinces, but less than 10% for the poorest and most remote provinces.

Rural Access: According to the 2004 Workplan of the NTP on RWSS, the number of the people having access to improved sanitation by the end of 2003

73. The World Bank: HCMC Environmental Sanitation Project. PAD, February 2001.

reached 41%, i.e. twice as much as in 1999 (see Box 4.2).

The National RWSS Strategy does not considered appropriate piped sewerage (network of gravity sewers which may be combined with surface water drainage) as an appropriate solution for rural areas at the present. The Unhygienic systems - pit latrines, over-water latrines and single vault latrines - are also actively to be discouraged., whereas the simple systems such as improved pit latrines will not attract grants or loans.

BOX 4.2: Rural Access

The 2002 WSP Study identified higher access rate to latrines in households in plains and hill communities as opposed to the poorer coastal regions (where sand dunes provide traditionally preferred defecation zones). Overall in the 12 communities analyzed, 87% of the relatively rich households owned a toilet compared to 71% of middle income ones and only 45% of poor households; 42% of the poor households still practiced open air defecation. The sharing of facilities was found to be widespread among poor households. Ownership of, and access to, "improved systems" such as pour flush and DVC latrines was evidently related to the socioeconomic status. The access of the poor to improved systems was high in only two communities, which were the only communities where a credit scheme managed by the development committee of the hamlet has been made available.

Urban Performance

The level of connections by households to sewers and drains varies. In some cities households with septic tanks are banned from connecting to drains/sewers and few connections exist. In others, whilst there is a formal ban on connections, many properties connect to the drains either directly or from the outlet of their septic tanks. Where connections take place they commonly discharge into combined systems which discharge to nearby

watercourses, usually without treatment. Large sections of these combined networks, constructed decades ago, need rehabilitation due to lack of maintenance. Flooding is common in urban centers in the wake of heavy rainfalls. Many drains were constructed without adequate grades for self-cleansing and there are often no design provisions for odor control or dry weather flow. The untreated sewage and industrial wastewater is discharged directly into water bodies and streams in the surrounding areas and pose high risks to aquatic ecosystems (see Annex 4 for the details of sanitation provision in HCMC). The urban drainage and environmental companies are institutionally and financially much weaker than WSCs.

However, GoV is paying commendable attention to addressing the environmental degradation. The biggest cities Hanoi, HCMC, Haiphong, Danang, and Halong will all have sewerage and sewage treatment facilities in place in the next few years and investments are also being planned for several secondary cities. It will therefore be important to establish best practice institutional models that can be replicated, and three models are appearing. In the largest cities separate drainage/sewerage collection and treatment companies are being formed (for example in HCMC, Hanoi and Haiphong). In medium cities drainage/sewerage services are either being undertaken by a) the URENCOs, alongside solid waste and other municipal activities or b) as part of a combined water and drainage/sewerage company. There is no consensus on the most appropriate model in Vietnam but the combined water and wastewater model provides opportunities for economies of scale and scope, as well as a greater commercial orientation.

Urban Tariffs: The GoV Decree 67/2003 introduces a uniform environmental protection charges for wastewater both for industrial and



Waste water Interceptor Tunnel under Nhieu Loc Thi Nghe Canal in Ho Chi Minh City

domestic customers which must not exceed 10% of the clean water tariff and should be collected by the WSCs. There is some confusion about the purpose of this charge. The Provinces believe this is the wastewater fee, whereas, in fact, MONRE's purpose was to establish this as a separate environmental charge, in addition to any wastewater fees. In many developed countries the wastewater tariffs exceed water tariffs so a 10% ceiling on wastewater tariffs is not sustainable and needs to be revised.

Hanoi has been levying a drainage surcharge of 15% of the water bill. A flat wastewater rate across all customer categories of VND 300 per cubic meter of water billed has been introduced in Haiphong, whilst in Da Nang the rate is between VND 300 per cubic meter (domestic) and 500 VND per cubic meter (commercial/tourism) reflecting better the distribution of benefits (e.g. tourism will bear higher charge than domestic users). Ha Long and Cam Pha have likewise decided to levy a tariff based on customer category ranging from VND250 to VND500 per cubic meter. HCMC, as

from August 2004, has wastewater tariffs of between VND250 and VND400 per cubic meter depending on consumption level and customer category. In the latter case the fees are collected by the WSC, but the revenue stream will accrue to and be used by UDC⁷⁴.

All these cities plan to increase wastewater charges gradually to achieve recovery of O&M costs, and depreciation of short lived assets, by 2006 - 2009.

Small Towns Performance

As of the end of 2005, there was not yet any complete drainage and sanitation system in small towns. The simple and incomplete systems are used concurrently for rainwater, wastewater and livestock wastewater disposal. During the rainy season, local pollution is worse because these sewerage systems either get blocked or overflow. Residents discharge solid waste directly into waterways and onto open land causing environmental pollution and serious health problems. Hygienic toilet use is still problematic and public bucket toilets or open defecation is used in a number of small towns and townlets. Many existing toilets are improperly maintained such as the double vault compost latrine. Some households have flush toilets but they do not connect to sewerage and drainage systems or wastewater treatment.

Rural Performance

Small-scale providers: The local entrepreneurs - who act as providers of construction project management, design and marketing services as well as suppliers of pre-made cement cylinders - are obviously performing well based on the significant increase in hygienic latrine usage. The successful intervention of IDE and DANIDA⁷⁵

74. The World Bank. HCMC Environmental Sanitation Project. PAD, February 2001

75. IDE. Support to Small-Scale Private Sector Development and Marketing for Sanitation in Rural Areas in Vietnam. First annual progress report for 2003, February 2004

demonstrated the potential profitability of the septic tanks business line proven by the fact that the majority of purchases were paid in full without any need of micro-credits. The technological choice of latrines reflected the preference to convenience and social status rather than price.

Stimulating demand: The 2002 Study of WSP showed that, contrary to the traditional approaches, health concerns are not the initial motivator for households to stimulate demand for sanitation but availability of water and land. The demand for household latrines was increased predominantly by the following factors⁷⁶:

- The role of the local government authorities
- Increase in community awareness of sanitation as improved way of life
- Project assistance both in kind and in cash
- The use of human waste as a supply of night soil
- Economic prosperity
- Increased demand for land
- Reputation with neighbors
- Availability of building materials and skills.

Sustainability: Local government authorities in Vietnam have been very effective in mobilizing rural communities to commit to targets for improved sanitation practices⁷⁷. This is done through agreeing targets with households for building toilets, water wells, animal pens, by ensuring people's contribution to common funds for developing common services like waste disposal, treatment sites and by organizing commune cleaning events where everyone should contribute their time and effort. The agreed targets (i.e. facilities constructed) are periodically monitored by the local government and village development boards and the results are made public. Those who do not use their toilets or leave them dirty

may suffer the embarrassment of having their names announced publicly over the commune radio systems.

Public Subsidies in Sanitation

Urban subsidies: In the past in HCMC, similarly to other urban centers, the urban drainage and sewerage company been entirely funded by the city budget since there were no sewerage or drainage surcharges.

The use of local government subsidies for operating costs is not sustainable. Those cities that are introducing sanitation services are also starting to charge for the service. However, the charges levied are low and will not cover O&M costs in the short term. The intention is that charges will rise as consumers become accustomed to the benefits of the new services. This will need careful monitoring to avoid major future drains on limited local government resources. As a minimum tariffs should cover both O&M costs and the depreciation of short lived assets.

The government generally provides capital subsidies for sanitation services. At present all ODA investments in sewers and wastewater treatment are provided as grants to the local municipalities, although counterpart funding ensures some demonstration of commitment/demand from the beneficiaries. Given the public benefits of many sanitation investments, and the low appreciation by consumers of the health impacts of poor sanitation, such funding arrangements may be needed until societal awareness has increased. However, opportunities for less generous capital subsidies should be sought where possible, as in the case of HCMC where the city has recently borrowed from the Bank for sanitation investments. (See Box 4.3)

Rural subsidies: The levels of grants stated in National RWSS Strategy are 70% for latrines of

76. Selling Sanitation in Vietnam: What Works? WSP, January 2002

77. WSP. Achieving sustained sanitation for the poor, April 2001. Prepared by Nilanjana Mukherjee

BOX 4.3: Sub-Sovereign Borrowing

The WB HCMC Environmental Sanitation Project includes the divestiture of city-owned drainage enterprises and a management contract to operate the new wastewater facilities of the project. It marks the first time that a city in Vietnam has borrowed (as opposed to being allocated a grant from central Government) for investments in wastewater infrastructure.

very poor households and 50% for latrines of poor households. In addition, users can obtain loans up to 75% of total construction costs from the GoV rural water and sanitation fund. For wastewater treatment in industrial villages, there is a maximum subsidy of 40% of the total construction cost. Subsidies are also provided for developing Master Plans and investment feasibility studies. No subsidies are provided for individual family latrines; only for public facilities.

V. Main Issues in Water Supply and Sanitation

The Financing Gap

Financing challenge and costs: Investment needs to meet the Vietnam MDGs in both rural and urban water and sanitation by 2020 are tentatively estimated at \$600 million annually which is roughly four times the annual investment in the last 10 years⁷⁸. Improving the efficient allocation of public funds and consistent and rational use of ODA funds, while important areas by themselves, will not be adequate.

Therefore, there is clearly an issue with the appropriate method to mobilize local financing to fill in the financing gap. Moreover, given that Vietnam is likely to graduate from IDA in the medium term, financing, other than from budgetary sources, will be at commercial or close to commercial terms. These commercial non-concessional funds are associated with alternative assessments of risk, i.e. less credibility with regard to the institutional and regulatory framework for infrastructure translates directly into a higher cost of capital.

As part of the need to expand alternative sources of finance, particularly for water investments, the government should revisit Circular #40 (May 2005). This determines on-lending terms for ODA in a manner that is likely to reduce, rather than expand, alternative financing sources.

Tariffs and cost recovery: Cost recovery for

water supply and sanitation is currently inadequate but beginning to move in the right direction. GoV's policy is that users shall pay the full cost - however, it has been a challenge to enforce this policy. The real water tariffs generally meet O&M costs but are not sufficient to contribute to future investment needs whereas wastewater charges have only been recently introduced at a nominal level.

Tariffs are set at the Provincial Level. The industrial and commercial tariffs are 2-3 times higher than the domestic one leading to the industry seeking product substitutes by utilizing private wells. Tariff increases are subject to the approval of elected PCs who are generally reluctant to approve the levels of increase required. In November 2004, the MoF and the MoC issued a joint circular stipulating the common tariff framework for the whole country⁷⁹, including rural areas, based on the principle of full cost recovery and a reasonable profit. The MoF assumed the prime responsibility for enforcing the joint circular. Since then, the water tariffs have been increased or adjusted significantly in most WSCs in the country, helping to improve the financial status of the water sector and thus enable the borrowing required to satisfy sectoral investments.

On the wastewater side the government should review Circular #67 (2003), which caps wastewater fees at 10% of water tariffs. Given that wastewater operations and investment

78. "Towards the Vietnam Development Goals for Water Supply and Sanitation", April 2004

79. Joint Circular No.104/2004 of 8 November 2004 of MoF and MoC.

typically cost more than the equivalent water services, such constraints will further diminish the sustainability of the wastewater sector. As a minimum the wastewater tariffs should fully recover operations and maintenance costs, as well as depreciation of short lived assets.

Banking and micro-finance: There are some promising actions by the GoV to shift policy-based (or directed) lending to specialized government financial institutions and liberalize interest rates. However, the issues facing the banking sector such as lack of credit policies, procedures and check/balances; lack of risk management; excessive growth of lending; lack of understanding of costs/pricing; deep corporate governance issues on management and supervision, and lack of reliable data both from the banks and from borrowers will make commercial banks more hesitant to start lending to the water sector on commercial terms. The perceived lack of creditworthiness of the WSCs deepens the problem. Moreover, long-term lending (15 years or more) is currently unavailable.

Despite the impressive growth and positive new developments, the micro-credit sector in Vietnam suffers from high fragmentation, lack of regulation, lack of credit risk management and inadequate HR and management & reporting control. Considering the level of subsidies in micro-finance, this creates sustainability concerns. In addition, lack of borrower's collateral, high transaction costs and the small size of the loans forces the borrower to go to the much more expensive informal sector.

Deficiencies in rural fund transfer: The World Bank Report on Fiscal Decentralization and Delivery of Rural Services highlighted the fact that deficiencies in public administration, transparency, and participation at all levels have led to a situation where only a small share

of development expenditure for rural areas of Vietnam is received by the beneficiaries at whom it was aimed, and the physical infrastructure developed often does not match the beneficiaries' own priorities.

Additionally, different RWSS programs use different finance mechanisms, i.e. have different levels and arrangements for loans and grants to households and water user groups. The MARD proposal (Annex 8) for a national credit mechanism with subsidized loans for households through the BSP and subsidized loans to enterprises through the DAF could tackle the issue of the uniform approach to rural finance.

Maturity of Sector Institutions

Government institutions: One of the challenges facing the GoV is to review the current institutional framework and the overlapping and conflicting institutional roles and responsibilities. The urban and rural areas are overseen by separate line ministries (MoC and MARD), yet many townlets and rural areas are served by piped systems similar to urban. Moreover, the specificity and the size of the small towns/townlets segment calls for a customized approach to designing the appropriate policies and allocating the institutional responsibilities. Although the responsibilities for water vis a vis sanitation are allocated in one ministry, the GoV urban water policy is separated from the urban sanitation policy. Water resources, on the other hand, are moving under the control of the Ministry of Natural Resources.

In rural water supplies, CERWASS has a dual role as developer/fund manager, and service provider. This results in conflicts of interest which isolate the provider from the genuine needs of the beneficiary (building systems that people do not want nor are willing to pay for), and develops a focus on asset creation rather than asset operation. In the IDA

80. Approved by the World Bank Board in September 2005

funded Red River Delta Rural Water Supply and Sanitation Project⁸⁰, this conflict of interest is being addressed by refocusing the role of CERWASS in participating Provinces on policy and regulation, and creating new rural service provider organizations. If successful this model could be expanded across the country.

On the other hand, the current efforts for cooperation and coordination among the institutions is insufficient, e.g. the inter-ministerial National Standing Committee for the National Target Program for RWSS established in July 2002 has only met once.

Government policies: The rural WSS is a rapidly evolving sub-sector, thus the National RWSS strategy needs to be updated, as recommended in the document itself. In addition, not all national partners, particularly at provincial and lower levels, have accepted its key principles: the focus on demand-responsive and participatory approach and community-management of shared water supply facilities⁸¹.

There is not always clear consistency between the targets set in all policy documents. In addition, there is a lack of clear and uniform sector definitions and standards. The monitoring systems of different agencies are overlapping, inconsistent and with varying degrees of scientific methods being used to collect and analyze the data⁸².

The bottom line is the GoV has effective Water and Sanitation Strategies but currently lacks the adequate institutional capacity to effectively implement it, particularly at rural, i.e. district and commune, level. The donors active in Vietnam WSS have also different priorities and procedures to follow, some of which are not fully in line with the national

strategies. There is no one overall WSS plan/program showing what activities and areas the GoV and different donors support.

Urbanization and poverty: It is anticipated that the level of urbanization in Vietnam will reach 33% by 2010 from the current 25%. The migrants would tend to move to the existing low-income areas thus increasing the cramming on limited lands and pressure on the already inadequate infrastructure⁸³.

The latest data⁸⁴ shows that between 2001 and 2005, the proportion of the poor households has been reduced from 17.5% to 7%, however 38% of the rural households do not have access



Drainage improvement in low income area

81. The World Bank, WSP, Danida. VRWSIHIPP, draft inception report, March 2004; the NRWSS of 1999, and Helle Stoltz, DANIDA. RWSS Sector in Vietnam: Background Note, 10 March 2004.

82. same

83. The World Bank. Vietnam Urban Upgrading Project PID. April 2004

84. Vietnam Growth and Reduction of Poverty, Annual Progress Report of 2004-2005, November 2005

to safe water. Although the percentage of urban poor has declined from 25% in 1993 to 6.6% in 2002 (VLSS), slums and temporary houses are the housing means of 24% of the urban population in 2002⁸⁵. To illustrate, the percentage of slums population targeted by the WB Urban Upgrading Project in Can Tho City is 16%, the corresponding percentage in Haiphong is 31%, and in Nam Dinh - 10%. The majority of urban poor live in areas where the infrastructure services are of limited availability: limited water supply, frequent floods, lack of sewerage connections, and direct discharge into drains and lakes, the waters of which is then used for bathing. The problem will inflate in the near future.

Sustainability of rural service provision: In the past, the focus in rural water supply has been on asset creation with limited effort into creating the institutional arrangements that will lead to sustainable service provision. Paying for water services and maintaining funds for O&M, has been insufficient. It is reported that up to 90% of the wells drilled under previous assistance programs are not operational.

The highly fragmented approach to service delivery, and the lack of clear institutional models, leave the rural sub-sector without any vehicle to assist the technical operations/management of the systems, and their oversight by the communes and others. Reaching out to such a large number of owners/operators will require a new model of capacity building or, alternatively, the creation of new service providers who can operate across a number of villages and thus obtain economies of scale and scope. This latter approach is being utilized in the IDA Red River Delta Rural Water and Sanitation Project.

Sector Performance

WSCs governance and performance: International experience suggests that the following attributes must be met in well run WSS service providers:

- The provider is autonomous and accountable, i.e. able to make decisions, having access to resources and being held accountable for non-performance
- The provider is customer oriented, i.e. proactively informing and educating its customers
- The provider is market oriented, i.e. benchmarking costs and services and outsourcing selected activities through a competitive process, thus introducing the benefits of competition in the otherwise monopolistic industry
- The sector has technical and managerial capacity both within the service provider and in the local government (as owners).

The "Orientation for Urban Water Supply Development" calls for water utilities to become financially viable on the basis of costs recovered from consumers and allows the private sector and communities to participate in the provision and financing of infrastructure. In practice, the WSCs rely heavily on accessing ODA for capital works, and have limited financial and business autonomy. The management capacity is weak but improving. The WSCs in the largest cities/provinces are close to following reasonable corporate business practices - but many remain, effectively, sections of Provincial Public Works Departments. There are no contractual relationships between the WSC and the province dealing with asset ownership (i.e. lease or license agreement), performance and dividend policy. The implementation of such contractual relationships, however, is being

85. Vietnam: Growth and Reduction of Poverty - Annual Report of 2002-2003.

considered in the new Urban Decree being drafted at the current time (December 2005).

The benchmarking studies revealed that Vietnam's WSCs generally compare favorably with those from other developing countries except for the levels of NRW. It is clear however that increasing existing capacity utilization and reducing costs will contribute substantially to accelerating water systems expansion. The brief assessment of capital costs⁸⁶ showed wide variations in unit costs of providing system capacity with a range of up to three between the highest and lowest cost solutions. Thus, there is a good potential for improving capital efficiency and making each million VND invested deliver more service to customers.

An issue affecting the efficiency of the core operations of WSCs is the construction activity as part of their portfolio of services. It diverts the management attention away from the water supply services (since construction is potentially more profitable business line), reduces the available capacity to assume sewerage responsibility, creates a preference towards expansion strategies as opposed to

improving O&M efficiency and reducing NRW, limits the possibility for private sector competition in procurement and exposes the WSCs to higher cash flow volatility⁸⁷. In the longer term these activities could be separated out and sold. In the meantime the companies should clearly separate the costs and revenues associated with these different businesses.

Private Sector Participation

Few incentives for private sector participation: GoV policy permits private sector participation in water and sanitation but there are only a few examples of domestic entrepreneurs since the regulatory and legal environment is not yet conducive to entrepreneurs. There are very few incentives - tariffs are fixed at levels, which barely cover costs, there is no independent regulatory framework, tax and financial reporting system inhibits growth and the legal position is unclear.

Private investors in urban WSS are rare. Although the private sector has stepped in the rural areas, the restrictive government regulations tend to reduce system performance. Also, while the strategy of engaging the private sector and user financing in high density and lowlands rural areas has been successful, it is very difficult to engage in low density, remote upland areas. In highlands, costs of water supply and sanitation systems can be as much as \$600 per household compared to as little as \$4 in some lowland areas⁸⁸.

Only one foreign BOT water treatment facility has been built so far (see Annex 2). Generally, the



Haiphong Water Supply Company's telemetry system which helps improve their efficiency

86. Rossana Dudziak and William Kingdom. Utility Benchmarking in Vietnam, June 2003

87. Ian Walker, 2002

88. "Sharing INGO experiences in Vietnam", Workshop on RWSS, March 2004.

foreign investors in Vietnam are concerned about licensing delays, unstable GoV policy, inadequate infrastructure, lack of transparency and accountability, irregular tax structure and corruption⁸⁹.

Whilst private sector investment in the sector is low there are a number of initiatives under way that will involve the private sector in the operations of systems. These include pilot design build and lease projects in Bac Ninh and Haiphong Province, the planned contracting out of the operation of District Town systems built under the IDA funded Urban Water Supply Development Project, and the proposed performance based NRW contract to reduce leakages in one part of HCMC, under the same IDA funded project.

Ownership of new facilities: Following the legislative lack of clarity and the mix of investment source for rural water supply systems, asset ownership issues among private investors, government and community can become very complicated. This is an acute issue since rural consumers typically provide 60% of the initial capital costs to build the systems. Despite this significant investment, the institutional arrangements leave the consumer outside the system. Still, the international experience has shown that only when users become real owners and managers of the facilities can sustainability be achieved.

Generally, the issue of ownership is still not resolved in Vietnam. The private companies cannot use land as a collateral when borrowing from a bank and can only informally rent land for their manufacturing and storage purposes. The new Land Law that came into effect in August 2004 does not change the basic premise of all citizens collectively owning the land but does introduce formal regulations for the real estate market.

Sanitation

Providers: The sanitation falls behind the water provision. In most cases, the Urban Environmental Companies (URENCO) are not a separately identified profit & loss entity. Indeed the URENCOs themselves may not be the most appropriate service provider and wastewater services might best be provided by a combined water and wastewater company, or a stand alone wastewater company (in the largest cities). At the same time the GoV policies on cost and price are not consistent. For example, the call for 100% wastewater treatment in the biggest cities comes together with caps on service charges which would make financing of such investment impossible. Moreover, the willingness to pay is uncertain. The customer base needs segmentation (at least between connected and not connected customers), and education to promote demand is needed.

Prioritizing investment: The public investment to replace decaying infrastructure and to keep pace with rapid urban growth is insufficient and the problem is aggravated by the inconsistencies between planning and policies/strategies of the government agencies. Although the sewerage networks have had little investment over the past two decades, there has been significant, and continuously growing, improvements in facilities at the household level, reflecting the high rates of economic growth. For instance, the high growth rates of rural on-site sanitation already require considerable investment in sewerage. The overly ambitious VDG target of treatment for all urban areas by 2010 raises the questions about investment priorities, treatment standards and customized solutions.

Health and hygiene behavior: Public awareness about environmental sanitation is

89. Dow Jones, May 2004.



Campaign to promote hygiene behaviour change

limited. Despite the dramatic decline in infant mortality over the past 20 years, water-related infectious diseases remain major health problems in Vietnam. Diarrhoea of infectious origin is the leading cause of morbidity nationwide, with 1202 cases over 100,000 inhabitants in 2003⁹⁰.

The positive outcomes of sanitation provision are significantly increased when beneficiaries are exposed to IEC related to hygiene behavior change. Such IEC also generates demand for household facilities which can be provided by the private sector. However, there is currently much emphasis on physical targets for construction of RWSS facilities and insufficient focus on their quality and

sustainability, improving the existing RWSS facilities and IEC activities. Funds for IEC come mainly from international donors and NGOs.

Finally, improving school sanitation and hygiene is a one of the most effective ways of spending public money. It yields multiple benefits: improved health of pupils by practicing hygiene within schools, improved academic performance by reducing absenteeism and encouraging female attendance. Finally children deserve the right to an enjoyable educational experience where they learn and practice behaviors that are likely to be

taken into adulthood. The Coastal Cities Sanitation Project, due to be delivered to the Bank Board in summer of 2006, specifically includes investments both for provision of sanitation facilities in schools, on a demand responsive basis, and capacity building for hygiene behavior change.

The recommendations developed in this section fall under the following categories:

- a. Bridging the financing gap
- b. Improving the sector efficiency and incentives
- c. Boosting sanitation
- d. Building capacity and addressing knowledge gaps

90. Annual Statistics from Ministry of Health.

VII. The Way Forward in Water Supply and Sanitation

A. Bridging the Financing Gap

Allocation of Public Funds and ODA

A forward-looking detailed development plan for the sector is needed where public investment and recurrent expenditure are linked and scarce resources efficiently and effectively allocated. The GoV resources as well as ODA funds should be distributed based on assessment of externalities, cost of service provision, and the wealth of recipients - possibly using output-based aid (OBA) as a tool. Currently, the relatively wealthy urban areas receive 84% of ODA funds whereas the rural areas, where 75% of the population resides, enjoy only 13%.

The effectiveness of ODA over the past 10 years needs to be assessed historically and supplemented by proposals for changing the role and approach of ODA over the next 5-10 years. Gradually, ODA should move away from water production to water distribution, from water supply to sanitation, and from funding investment to leveraging local capital. The GoV needs to take a proactive role in determining the use of ODA funds through improved policy implementation and coordination by the line ministries MoC and MARD.

As mentioned earlier there is also a need to revisit Circular #40 which appears to work to reduce, rather than expand, alternative sources of financing for the sector.

Tariffs and Cost Recovery

The key to the success of the sector is higher but realistic and affordable tariffs. Introducing and enforcing a uniform tariff mechanism for the

whole country is step in the right direction. Whilst joint Circular # 104 (November 2004) and its predecessor (Circular #3, June 1999) both have a sound basis for tariff calculations, the issue is one of enforcement. In the long term the government should consider the possibility of automatic indexation of tariffs as one way of retaining the value of user fees in real terms, and to revisit the tariff structure proposed in Circular #104 which introduces added complexity with little benefit.

On the wastewater side the government should review Circular #67 (2003), which caps wastewater fees at 10% of water tariffs. Given that wastewater operations and investment typically cost more than the equivalent water services, such constraints will further diminish the sustainability of the wastewater sector. As a minimum the wastewater tariffs should fully recover operations and maintenance costs, as well as depreciation of short lived assets.

Currently, tariff affordability and willingness to connect do not seem to be an issue in water supply in Vietnam.

A New Financing Framework for Urban Utilities

As the creditworthiness of the sector improves, access to longer term local financing will become important. The existing lending and risk mitigation instruments of IFIs can support local capital market development. A staged progression could be envisaged over the next 10 years from current reliance on ODA, through mixed financing, to a sector built on local capital markets.

The state banks can play a more significant

role in the financing of water infrastructure by participating as lenders rather than servicing agents to WSCs, thus assuming the full credit risk for a fee. However, they need to strengthen much more their commercial orientation, operational practices, profitability, balance sheet quality and loan appraisal capabilities⁹¹ in order to start lending to utilities or channel funds directly to communities.

Besides raising counterpart funding for ODA water investments, the provincial governments could participate as guarantors on loans extended to WSCs by the SOBs. This added security on loans provided by state banks not only reduces the ultimate cost of funds to WSCs, and consumers, but would better structure incentives for cost recovery and more cost-effective service.

The issuing of bonds by WSCs would encourage fiscal prudence in an otherwise unregulated sector. The WSCs could be prepared for such opportunities through improved financial accounting rules, auditing, benchmarking, and the development of a rating system.

Given the continuing high level of central government involvement in local infrastructure projects and the immature financial sector, it is likely that a financial intermediary for local infrastructure projects will be needed in the future. The key issue is how it will be operated and how the sub-sovereign securities market will be built. The IDA funded Urban Water Supply Development Project includes a new unit within DAF dealing with lending to water utilities on a commercial basis, which will recover its operating expenditure through the interest rate spread.

A proposed financing framework developed

by Baietti⁹² (Annex 8) is based both on full cost recovery as a key to sustainability as well as on effective corporate governance defining the roles, responsibilities and incentive structure for every WSS stakeholder. Its ultimate target is sustainable financing of new investment and introducing private sector participation.

Small Towns and Rural Areas

As evident from the discussion above, the new financing mechanism relies on mobilizing local currency borrowing by WSCs. By contrast, in small towns and rural areas, the consumers take on local currency debt from micro finance institutions to finance small scale infrastructure directly. Since customers pay for the service through their own debt obligations, this type of borrowing is much more interested in efficiencies and sustainability of services and should be actively supported by the GoV including with possible allocation of grants.

More precisely, a coherent workable finance mechanism needs to be implemented based on the review of the existing financing models. The MARD proposal⁹³ for a national credit mechanism with subsidized loans for households through the BSP and subsidized loans to enterprises through the DAF could tackle the issue of rural WSS finance.

B. Improved Efficiency and Incentives

Rationalizing Sector Institutions

Legal framework: The consistency and enforceability of the legal framework as well as the speed of implementation of the sector strategies need improvement.

91. The WB and IMF. Vietnam Poverty Reduction Strategy Paper Progress Report & Joint Staff Assessment, 2004

92. Based on Aldo Baietti. Financing framework for urban water utilities in Vietnam, July 2002

93. See Annex 7.

For example, a new legal framework supporting the National RWSS Strategy is necessary, e.g. a legislation allowing community water user groups to take loans and open bank accounts. In small towns, an appropriate regulatory framework on investment in small-scale projects for both authorities and communities to follow is required in order to decentralize investment decision-making thus avoiding the confusion of responsibilities between investor and investment implementing agency and simplify the project preparation⁹⁴.

Policy coordination: A coordination and integration of rural and urban water supply programs needs to be ensured together with the national programs on flood and environmental protection as well as poverty alleviation programs. The emphasis should be on use, sustainability and impact rather than investment alone. Roles and responsibilities of sector institutions need to be mapped and clarified - with complimentary approaches being adopted by donors. In addition the small towns/townlets segment requires a customized policy and specific institutional responsibilities.

Any sector policy will have to be all-inclusive and a consideration may be given to establishing a single body governing and monitoring water and sanitation services in urban and rural areas.

Targeted poverty interventions: With the rapid urbanization, the GoV should decide on the focus of poverty interventions. Clearly, there is a need for a careful analysis to establish the urban and rural priorities, although the existing stronger community support in the rural areas would suggest that interventions in peri-urban areas would have a greater poverty impact. Output based aid should be considered as a

mechanism for the use of grant financing for poverty interventions.

Improving WSCs Accountability, Autonomy and Incentives

A broad strategy will be required which will build on the following three components:

- More widespread knowledge about the top performing water companies and benchmark capital and operating costs
- Capacity building among sector professionals on ways to reduce capital costs and improve operating efficiencies without sacrificing quality
- Policies must be put in place to provide incentives to water companies to achieve higher levels of performance

The first two bullet points are discussed later. Provision of incentives to water companies requires a strict evaluation of performance and the need for meaningful rewards and sanctions which affect both the service provider and their owners.

As a first step performance contracts can be prepared between the PPC and the service provider. A central agency could review and advise on these contracts to help reduce the potential for conflicts of interest at the Provincial level. Establishing clear contractual relationships will provide both the PC and the WSC with incentives to be flexible and responsive to the changing business environment and increasing demand. An enforceable agreement will resolve the issues with WSC asset ownership so that the collateral element in securing finance is cleared. MoC should consider an appropriate framework that provides WSCs with the correct incentives, and penalties, so that the sector can grow in a sustainable fashion. (See Box 6.1)

94. WSP. Global initiative for small town WSS, October 2001.

BOX 6.1: Incentivizing WSCs by introducing competition for rewards for good performance

- Competition against a set target where the organization is rewarded upon the achievement of the target
- Competition among peers where better performing companies are rewarded.
- Competition to improve performance, where (incremental) improvement is rewarded
- Competition for the market. In case of poor operational performance by the existing WSCs, the Provincial PC may opt to competitively bid unserved district towns for new water supply service.
- Competition for ODA finance - donors should be encouraged to introduce more performance based lending

Further reform would include transforming the WSC into a Public Water PLC with the municipality a single shareholder. This will improve the long term viability of the company and facilitate any future, broader, equitization process.

Regulation: Regulation in its different forms ensures the increased autonomy and accountability of WSCs. The MoF has issued in 2004 the new decree introducing a uniform tariff mechanism for Vietnam based on the full cost recovery principle. In late 2005 the MoC has been developing a new urban water decree that might include the introduction of performance contracts between the PCs and the WSCs. However, the enforceability, management and monitoring of the current and proposed decrees poses genuine questions of conflict of interest at the Province level (as both tariff setter and owner of the WSC). Thus some form of oversight agency (nascent regulator) may be needed at the national level to review these contracts/proposed tariffs. As a minimum such

an agency could provide advice/guidance to the PC on the design of the contract, and on relative performance assessments of the WSCs, even if it doesn't have a formal enforcement role.

Increasing competition: Public reporting of the performance of WSCs could be a promising start to improving transparency and accountability. At a marginal cost, the benchmarking initiative started in 2002 with the assistance of VWSA can be improved and formalized so that data is used by the provincial governments, the regulator (when established), the WSCs and the potential private investors for cross-sectoral comparison. The existing benchmarking initiative continues and now has funding from the IDA Urban Water Supply Development Project.

Increasing customer orientation: Improved customer service standards enshrined in a customer charter could provide the basis for this orientation. The annual benchmarking data could be supplemented by publishing a range of standard performance indicators. This would ensure both greater customer orientation and improved quality of information.

Focusing on the core business. Within the next ten years WSCs should divest their construction and other services from the water business. This will provide the basis for the development of a competitive market for construction services, reduce the opportunity for hidden cross subsidies between the different businesses, and allow the management of the water company to focus on their core business⁹⁵.

Private Sector Development and Models for Service Provision

Private sector in urban areas: The successful reform and improved performance of WSCs

95. Ian Walker, 2002

will indicate the readiness of the sector for market entry of both international players and local private providers. The short-term priority should be on network management, and focused services (e.g. pump station maintenance) where a combination of competition and collaboration between the local WSCs and the private sector through open bidding for service contracts (e.g. NRW performance based management in HCMC) could be considered.

Management models small towns and rural:

In small towns and rural areas it is expected that contracting out operations for extended periods will be the most sustainable approach in the short term. This is the approach planned for the recently approved World Bank Urban Water Supply Development Project and Red River Delta Rural Water Supply and Sanitation Project.

C. Boosting Sanitation

Urban sanitation

Establishing a profit & loss entity for the provision of sanitation services, with a defined customer and revenue base, is the immediate step in sanitation reform. This can be complemented by increasing cost efficiency by selective outsourcing to the private sector. Merging the wastewater activities into the business of the urban WSC will take advantage of operating and administrative synergies and should be considered in all but the largest cities where a separate wastewater company may be appropriate.

Considering the limited resources, step-by-step improvements in urban sanitation are more appropriate than building up expensive wastewater treatment plants and extensive separate collection systems. Evaluating and



Waste Water Treatment Plant for Danang

prioritizing capital expenditures in the sector will be important as a major factor inhibiting sanitation progress has been the scale of wastewater projects and their high sunk costs. For example the use of combined versus separate systems needs to be carefully weighed in order to achieve maximum benefit from each VND invested. Expansion of piped networks to less dense areas needs to be carefully considered, alongside the extent of treatment and the capacity of wastewater plant. These technical decisions have a significant impact on the pace at which appropriate sanitation services can be provided.

Successful and sustainable urban sanitation improvement programs have generally relied on extensive user involvement in planning, choice of service levels, scale of investments, charges and cost recovery structures. The urban facilities should be installed after consultation with users and should ensure the optimum benefits together with the resources for on going O&M.

More Effective Sanitation Project Management in Rural Areas

Market research is essential to understand what intervention strategies will work and be

sustainable. The GoV should make use of the findings from many countries which found that successful sanitation programs require less educational and more promotional approaches to find out what motivational forces work for local populations in bringing about behavioral change⁹⁷. Demand for sanitation needs stimulation as any new product introduction to the market. Until the perceived benefits equal or exceed perceived costs, change in hygiene behavior is unlikely.

The provinces, districts and communes could be ranked and projects prioritized based on poverty, existing WS coverage, water-related diseases, population density, and existing capacity of local government agencies to support project activities. The utilization of a clustering approach would optimize management costs and achieve high coverage within selected districts rather than spreading project activities out over too many districts/provinces⁹⁸.

The GoV needs to focus on financial viability as important criteria for scheme selection, such as ensuring scheme-specific and cost-based tariffs, willingness-to-charge and ability to collect adequate revenues, in addition to willingness and ability to pay. Developing local capacity to supply skills and materials needed for existing and future needs will ensure sustainability. The type of latrine offered has to be compatible with the physical, economic and social reality of the household. Offering a range of options with upgrade possibility and range of financing arrangements may help stimulate and sustain demand and usage.

Raising public awareness and education on the linkages between sanitation and health would support the success of interventions. Since water supply itself is insufficient to dramatically reduce diarrhea disease, sanitation and hygiene

behavior change needs much greater emphasis in all areas. A very important initiative is the active promotion of hand washing.

The interventions need to build on the considerable knowledge and educational materials prepared so far. The effective process monitoring, self-assessments, and other methods would support learning and dissemination of best practices. The measure of success should not only be the coverage (ownership) of sanitation facilities but also the access, use and upgrade of the facilities, changes in hygiene behavior and self-sustained demand for more facilities.

D. Building Capacity and Knowledge

Incentivizing the service providers and oversight agencies will only be successful provided there is adequate capacity among them. Building capacity on a sound foundation also calls for improved data about the sector.

Addressing Knowledge Gaps

Compilation and analysis of sector information: Government needs to be more active in compiling and analyzing sector data. This information will allow for better and more informed decision making on sector policy, on allocation of scarce ODA resources, and in oversight of the sector as a whole. This will be particularly relevant if some central responsibility is allocated to review contracts and tariffs at the provincial level under currently drafted or existing decrees.

Sanitation: A sanitation study is required to review the sub-sector and to develop and keep updated comprehensive and reliable data. The mapping of access, providers and institutional

97. The World Bank, PAD Red River Delta RWSP, August 15, 2005

98. The World Bank, WSP, Danida. VRWSIHIP, draft inception report, March 2004

responsibilities will allow better planning and resource allocation. The dissemination of best practices in rural and small towns sanitation will ensure sustained growth in access and hygiene behavior.

Review of institutional options for urban and rural water sectors: As the water sector develops there will be a need to study sector developments including critically assessing the issues of asset ownership, increasing separation of roles within the sector (policy, sector regulation, ownership, corporate oversight and service provision), providing and aligning incentives, and the role of regulation. These reviews would include an assessment of the various service models in the country.

Building Capacity

The GoV should increase the use of the national rather than international expertise and build local capacity to ensure sustainability. The focus should be on identifying and resolving the capacity bottlenecks amongst the various stakeholders. Improved sector monitoring will also help learning and knowledge management and ensure the adaptability of approaches.

Government: The line ministries need to build their oversight and policy development skills through improved collection and analysis of data. This will facilitate the efficient allocation of resources and the expansion of the WSS services to better meet the needs of the country.

Institutions: Training in introducing and maintaining commercial relationships, and effective corporate governance and oversight will largely benefit the city, provincial and district PCs in their interactions with WSCs. The

PCs, as owners, need to improve their understanding of the opportunities for sector development and how they can benefit. No such capacity building facility exists and national agencies will have to take a lead to fill this gap.

Providers: The VWSA (or appropriate technical institutions) should play a bigger role in building technical and managerial capacity in service providers. As a first step a coordinated action to reduce NRW, and improve energy efficiency, would have most beneficial results. Training programs on a national scale targeting small-scale providers need to be carried out as well in order to enhance their management and financial capability, and capacity for quality control, contract and contractor management. It also makes little sense to assign communities responsibility for O&M if they do not have the knowledge, skills, motivation and finances to do it. Dramatic improvements in community capacity and capability are needed to ensure sustainability of project investments. The small-scale IEC projects of both local and international NGOs could address the on-site training of local masons. Examples might include the development of a technical backstopping facility for rural systems and the introduction of a certification system for operators.

Civil society: The civil society and consumer power groups require capacity building as a major stakeholder naturally able to exercise substantial pressure on the PCs and WSCs in improving the service provided to the consumers. The organized civil society is key to building political and public awareness and commitment and giving voice to consumers.

Annex 1: Laws and Regulations in Vietnam Water and Sanitation Sector

No.	Date and number	Issuing institution	Short description
1	Decree No.179/1999/ND-CP of 30 December 1999 - Water Resource Law	Prime Minister	Implementation of Water Resource Law with the primary purpose of establishing the policies in water resources management, rights and obligations of the institutions and users, including system for water licensing and wastewater discharge permits
2	Decision No.63/1998/QD-TTg of 18 March 1998	Prime Minister	Orientation for Urban Water Supply Development to 2020
3	Circular No.40/1998/CT-TTg of 14 December 1998	Prime Minister	On Strengthening Urban Water Supply Development and Management
4	Decision 35/1999/QD-TTg of 5 March 1999	Prime Minister	Orientation in Developing Urban Drainage in Vietnam to 2020
5	Directive No.04/2004/CT-TTg of 20 January 2004	Prime Minister	Improvement of Management over Clean Water Supply and Consumption
6	Law on Environmental Protection of 1993	Prime Minister	DOSTE and NEA are the responsible institution for environmental protection. Requires EIA report for new activities/project be submitted to NEA.
7	Decision 256/2003/QD-TTg of December 2003	Prime Minister and the Ministry of Natural Resources and Environment	2010 Environmental Strategy
8	Decree No.67/2003/ND-CP of 13 June 2003	Prime Minister	Environmental protection charges for waste water
9	Decision No. 104/2000/QD-TTg of 25 August 2000	Prime Minister	National Strategy on RWSS up to 2020
10	Decision No. 604 of 5 March 2003	Minister of Agriculture and Rural Development	Assigns CERWASS to be the Standing Office for the National Target Program on RWSS
11	Decision No.122/2003/QD-BNN of 10 November 2003	Minister of Agriculture and Rural Development	CERWASS roles, functions, authority and organizational structure
12	Decision No.99/2002/QD-TTg of 23 July 2002	Prime Minister	Establishment of National Standing Committee on RWSS
13	Decree No. 237 of 5 December 1998	Prime Minister	Approves the National Target Program for Rural Clean Water Supply and Environmental Hygiene until 2005 thus making rural access to safe water supply and improved sanitation a national priority
14	No.6119/CPCP-KG of 9 December 2003	Office of the Government	Review of the implementation of the National Target Program on RWSS
15	Draft Statue		Statue of Standing Committee of National Target Program on RWSS

No.	Date and number	Issuing institution	Short description
16	The inter-ministerial circular No 66/2003 / TTLT/ BTC-NN&PTNT of the dated 3/7/2003 (replaced circular 103/1999/ TTLT/ BTC-NN&PTNT)	Ministry of Finance and Ministry of Agriculture and Rural Development	Instruction on management, funding, and disbursement for the National Target Program (NTP) on RWSS
17	Decree No.29/1998/ND-CP	Prime Minister	Regulations on the exercise of democracy in communities
18	Circular No.03/1999 of 6 June 1999	Ministry of Construction	Guidelines on pricing and authorization to set clean water consumption tariffs in urban and residential areas and industrial zones. Local governments must increase tariffs to fully recover costs
19	Joint Circular No.104/2004/TTLT-BTC-BXD of 8 November 2004	Ministry of Finance and Ministry of Construction	Principles, methods and responsibilities for setting & control of clean water consumption tariffs in urban areas, industrial zones and rural population clusters
20	Surface water quality standard TCVN 5942-1995	Ministry of Science, Technology and Environment	Specifies parameters and their maximum allowable concentrations in surface water
21	Coastal water quality standard TCVN 5943-1995	Ministry of Science, Technology and Environment	Specifies parameters and their maximum allowable concentrations in coastal water
22	Industrial wastewater standard TCVN 5945-1995	Ministry of Science, Technology and Environment	Specifies parameters and their maximum allowable concentrations in industrial wastewater before being discharged into a water body
23	Urban effluents standard TCXD 188-1996	Ministry of Construction	Specifies parameters and their maximum allowable concentrations in the urban effluent
24	Ground water quality standard TCVN 5944-1995	Ministry of Science, Technology and Environment	Specifies parameters and their maximum allowable concentrations in ground water
25	Standard No.1329/2002/BYT/QD	Ministry of Health	Drinking water quality standards
26	Standard TCVN 6772-2000	Ministry of Science, Technology and Environment	Domestic wastewater standards
27	Decree No.17/2001/NĐ-CP of 4 May 2001	Prime Minister	Issuance of Regulation on the Management and Utilization of Official Development Assistance with WSS stipulated as a priority sector for ODA loans. The decree outlines the principles to handle ODA projects from initial stages such as bidding and negotiations to the implementation and completion stages.

No.	Date and number	Issuing institution	Short description
28	Circular No.06/2001/TT-BKH of 20 September 2001	MPI	Provides guidance on the implementation of Decree No.17 above
29	Circular No.108/2003/TT-BTC of 7 November 2003	Minister of Finance	The financial mechanism applicable to environmental sanitation projects funded with Official Development Assistance (ODA) capital sources
30	Circular of 28 February 1994		Guiding Implementation of the Regulations on Investment in the Form of Build-Own-Operate-Transfer Contracts
31	Decree No.56/CP of 2 October 1996		Refers to public service state-owned enterprises and states that water service provision is the responsibility of provincial or municipal WSCs
32	Decision No.72/2001 ND-CP of 5 October 2001	Prime Minister	Classification of urban areas
33	Circular No. 40/2005/TT-BTC 25 May, 2005	Minister of Finance	Financial mechanism applicable to clean water supply projects funded by ODA

Annex 2: BOT Projects and FDI

In order to attract FDI in large infrastructure projects, the GoV issued regulations governing BOT contracts by amending the foreign investment law in 1992. Under these regulations, a project may be undertaken with 100% foreign-owned capital or as a JV with foreign-owned and Vietnamese capital after a competitive tender or direct negotiations. So far, the preference has been towards directly negotiated BOT contracts in a JV with a state-owned enterprise. Tax and other strong incentives exist to enter into a JV with SOEs, whose equity contribution is typically in the form of land. The BOT regulations have procedures for dealing with disputes including international arbitration.

In 1994, the first water supply BOT was awarded by the HCMC PC to the Malaysian firm Binh An Water Corporation. Under the agreement, the Binh An water treatment plant was supplying water to the HCMC WSC at the

rate of 100,000 m³/day for a flat take-or-pay charge of US\$0.3/m³ under (data of 2001). The second phase was licensed in 1999 but never started. In August 2004, the HCMC WSC took over the second phase after the City has agreed to compensate the Malaysian investor with \$4 million.

Another BOT project for the construction of the Thu Duc No.2 water treatment plant with a capacity of 300,000 m³/day was licensed to Lyonnaise Vietnam Water Company in 1997 and projected to go operational in 2003. However, LVWC withdrew in February 2003. After the transfer of the assets, the Central Government allowed the city to carry out the project under the build-operate-own contract and invite tenders to build the facility. In August 2004, a local Vietnamese consortium led by HCMC Infrastructure Investment Joint Stock Company won the tender.

Annex 3: WSS Providers: Successful Alternative Provision

In the southern province of Tien Giang, 65% of the 1.6 million population is already being served by non-state water companies, mostly through schemes developed since the mid to late 90s. The non-state providers in Tien Giang include initially unregulated individually invested utilities generally financed using borrowed capital; cooperative invested and managed systems; and informal user-group systems backed by commune level government, where the capital is raised up-front by 'investing' users (see Figure A3.1 and Figure A3.2).

There is an obvious issue about the regulation of such providers. In 1998, the Tien Giang Provincial Government issued a decree to govern the RWS sector. This stipulates investment / operating mechanisms, and which provincial level authorities regulate pricing, drilling, and water quality. It also specifies that private investors can no longer raise investment capital from their target consumer base. However, some private investors continue to raise capital from users, but provide a reduced

Figure A3.1: Number of piped water schemes by provider in Tien Giang Province (Total of 415 schemes in operation)

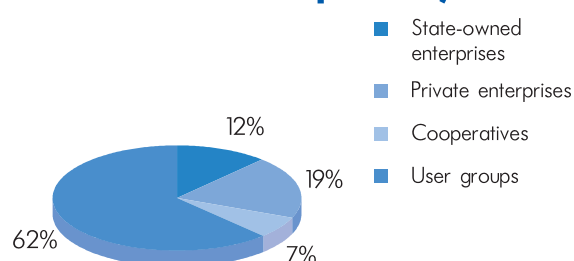
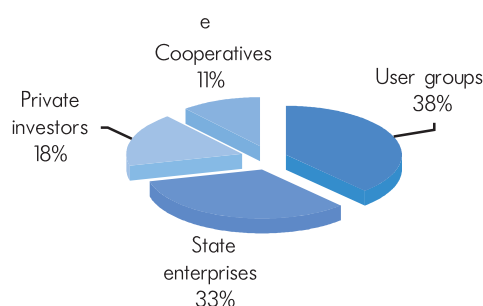


Figure A3.2: Investment in Piped Schemes in Tien Giang Province



Source: Dan Salter, *Private Sector financing of Rural Water Supply in Vietnam and Cambodia*, 2003

water tariff until such time as the user 'investment' is repaid - a good strategy considering the large up-front investments, and relatively low OPEX.

Annex 4: Sanitation in HCMC

The original drainage and sewerage system in HCMC, which was planned as a combined system, has been constructed by the French government in 1870s and improved by the US in 1960s. The facilities, however, has been designed for a population of 1.5m and currently HCMC is 5.5m. The domestic and industrial wastewater is discharged without any treatment in the rivers and lakes.

As a result, the BOD of Saigon River in HCMC of 16 mg/l in 1997 was 4 times higher than the maximum allowed by the Vietnamese Standards. There is a high heavy metal concentration in the HCMC canals. Not only the quality of the rivers and canals is affected by the untreated wastewater but also there is an increasing trend of waterborne diseases such as diarrhea and dysentery. Most of the private septic tank treatment companies are dumping their collected untreated sludge into the water bodies. The national sludge-dumping site in Bihn Chanh has not been constructed in the due way to prevent infiltration into the soil beneath causing an adverse environmental impact.

The existing sewerage system in HCMC is maintained by the Urban Drainage Company (UDC) and the state-owned district PCs' enterprises maintain shallow sewers of the smallest grade. The basic level sludge treatment is carried out by a private company that does not collect any fee but recovers its OPEX by selling the compost. The UDC maintains the drainage canals and sewer system and until recently was in practice a city cost center without any tariff collection or long-term asset ownership (data as of 1999). The Water Supply and Electricity Company was the owner of all assets excluding land and collected the service fees. The sewerage surcharge was introduced to water bills only recently and represents an exception rather than a rule.

In October 2003, Hanoi Department of Transportation and Public Works commenced the construction of the first 2 wastewater treatment plants servicing a total of 25,000 people financed by JBIC of Yen 1.067 billion and VND 10.440 billion (VWSA and IWA, 2004).

Annex 5: Investment in WSS

Table A5.1:
Investments in Urban Water Supply and Sanitation, Past 10 Years

Regions	No. of projects	Total investment, USD		
		Total funding	Government reciprocal capital	International donor
Red River Delta	16	258,536,500	45,975,000	212,561,0
Eastern North	14	163,549,000	31,421,000	132,128,0
Western North	3	12,737,000	2,122,000	10,615,0
North Central	9	38,650,000	7,177,000	31,473,0
South Central	10	105,209,000	12,872,000	92,377,0
Central Highlands	3	33,175,000	5,899,000	27,276,0
Eastern South	13	233,128,000	30,599,000	202,529,0
Mekong River Delta	10	66,336,000	6,031,000	60,305,0
Other projects in provincial capitals		92,000,000	69,000,000	23,000,0
Total	78	1,003,320,500	165,096,500	838,224,0

Source: World Bank (2003). Participatory assessment of urban water supply and sanitation projects in Vietnam

Table A5.2:
Investments in Rural Water Supply and Sanitation, 1999-2002

	Population (1,000)	Total investment	Government budgets	Other budgets	Foreign donors	Users
			VND billion			
Total	59,799	3,160	600	700	400	1,460
Ministries		55	55			
Provinces	59,799	3,105	545	700	400	1,460
Regional Distribution:						
Eastern & Western North	9,555	552	189	157	110	95
Red River Delta	14,427	607	74	156	18	359
North Central	9,143	332	63	38	55	176
South Central	6,001	301	74	36	31	160
Central Highlands	2,532	446	32	48	30	36
South Eastern	5,202	432	30	105	7	290
Mekong River Delta	12,939	735	83	160	148	344
Relative distribution		100%	19%	22%	13%	46%

Source: National Target Program, MARD, 2002.

Annex 6. Access and Affordability of Water Supply Services

Table A6.1:
Access to Clean Water in Rural Areas

No.	Location	Rural population by 2003	By 2003		Rate of increase in 2003		By the end 2003	
			Capita	%	Capita	%	Capita	%
	Total	63.958.400	31.838.000	50	2.816.000	4	34.654.000	54
1	Northern mountainous areas	9.874.400	4.367.000	44	570.000	4	4.937.000	49
2	Red River delta	14.743.500	7.819.000	53	570.000	4	8.489.000	57
3	Central north	9.420.000	4.539.000	48	366.000	4	4.905.000	52
4	Central area	6.852.100	3.162.000	46	264.000	3	3.426.000	50
5	Toy Nguyn	3.048.000	1.192.000	39	172.000	4	1.364.000	45
6	South East area	4.806.600	2.769.000	58	144.000	5	2.913.000	61
7	Cuu Long river delta	15.213.800	7.990.000	53	730.000	5	8.720.000	58

Source: MARD National Target Program on RWSS. Workplan 2004. Socialist Republic of Vietnam

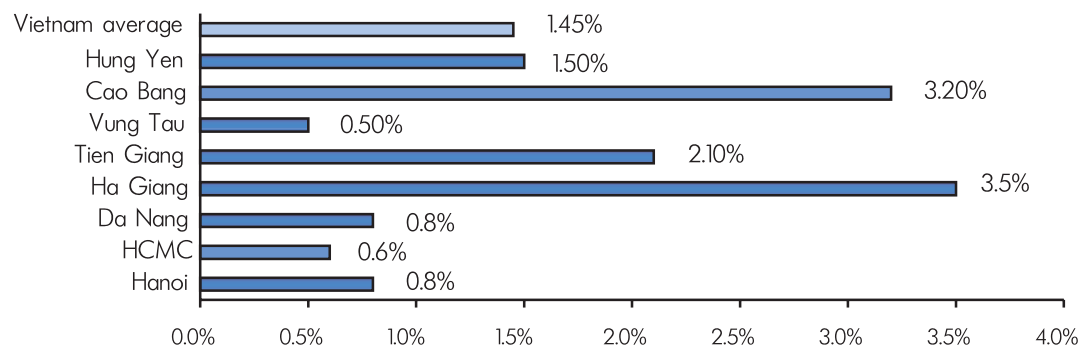
Table A6.2:
Access and Out-of-pocket Costs of Drinking Water in 2002¹

Access, %	Clean water	Hygienic latrines	Households paying for water		Average expenditure on water, per paying household		
			%		Thousand VND		Expenditure
Rural	39.6	11.5					
Urban	76.3	68.3	Rural	Urban	Rural	Urban	%
Poorest	22.7	2.0	2.0	17.9	115	170	2.8
Near poorest	35.4	5.0	3.6	14.3	159	245	2.7
Middle	42.7	10.7	5.7	27.9	171	282	2.2
Near richest	54.0	28.4	10.2	51.7	233	301	1.8
Richest	78.8	69.9	19.1	68.9	300	446	1.3
Vietnam	48.5	25.3	6.8	56.3	225	402	1.4

Source: Vietnam Development Report, 2004 (1US\$ = 15,500 VND in Nov 2003)

1. Vietnam Development Report, 2004. Poverty

Figure A6.1: Domestic Water Expenses as a percentage of average income per capita in 2002



Source: VWSA International Seminar Technical Papers (VWSA and WB Study) 2002

Annex 7: Urban Water Utilities Operating Cost Savings

The operating cost benchmarking report of 2003¹ evaluates the efficiency savings based on the 2002 study of 67 water supply companies in 3 different scenarios and estimates the following results:

Scenarios 2&3 have longer payback periods and would need additional financing

in the form of grants or tariff increase. The financial gains from NRW reduction increases from \$3.5 million in Scenario 1 to over \$18 million in Scenario 2 when the water is sold proving that in infant industries, NRW is worth significantly more in sales than in energy/chemicals savings.

SCENARIO 1: Costs and Benefits - Reduced Operating Costs Only			
Total Cost Savings	\$	7,653,752	
Total cost of Efficiency savings	\$	40,751,215	
Break Even Period		7.22 years	
Debt Servicing - Max Loan Principal	\$	46,186,170	
SCENARIO 2: Costs and Benefits - Including Sale of Former NRW			
Total Cost Savings and Revenue Gains	\$	22,296,686	
Total costs (Efficiency+Network Expansion for NRW)	\$	199,988,354	
Break Even Period		16.42 years	
Debt Servicing - Max Loan Principal	\$	134,548,196	
SCENARIO 3: Costs and Benefits - Including Maximizing Prod Capacity			
Cost Savings and Revenue Gains	\$	27,095,128	
Total costs (Effici+Network Expan NRW & Spare Cap)	\$	461,468,360	
Break Even Period		>25 years	
Debt Servicing - Max Loan principal	\$	164,182,209	

1. Rossana Dudziak and William Kingdom. Utility Benchmarking in Vietnam, June 2003

Annex 8: New Developments in RWSS Micro-credit

The Prime Minister's Decision number 62/2004/QĐ-TTĐ dated April 16, 2004 on "Credit Mechanism for RWSS" to provide soft loans for rural households and economic organizations to invest in RWSS facilities. According to the Decision every rural household can borrow soft loans up to VND 4.0 millions, without collateral from the Social Policy Bank to improve their household water supply and sanitation facilities. It is estimated that the credit need for RWSS for 2004-2010 is approximately VND 6,373 billion, out of which VND 500 billion is for 2004-05.

The State Budget (including the allocated ODA) takes 50% of the total investment capital

for construction of facilities and the mobilized resources from DAF and VBSP ensures the remaining 50%.

The suggested terms of the loan are: maturity 5 years, interest rate 3%, 2 years grace period and amount capped at 80% of construction costs.

The planning and coordination is performed by MARD whereas the implementation is allocated to the Steering Committee on NTP of RWSS together with DAF and SPB. The implementation will start with 10 pilot provinces until 2005, followed by a nation-wide coverage by 2010.

Annex 9: Realistic Framework for Water Investments

Table A9.1:
Elements of a Realistic Framework for Water Investments in Vietnam

System Design & Planning	Supply driven with substantial national oversight	Demand driven, with community consultations on affordability and willingness to pay.	Delegation to local level with community consultations.
CAPEX Risk	Government/SOE assume responsibility with the construction of systems	Construction should be competitively contracted to private firms	Private firms and SOEs could compete for bids.
Operation & Commercial Risk	Little accountability for operating performance as too many parties made decision that affects the viability of the utility. As such, responsibility is diffused.	Ultimately operations can be transferred to private firms where they take on the full commercial risk of the operation under a defined regulated environment.	WSC need to have full autonomy in operational and commercial activities. This requires a clear incentive/penalty framework which will apply equally to all service providers whether public or private.
Equity Financing	Most equity for utilities is sourced from the national governments and from donor grants without the expectation of generating a return on these contributions	With an entirely private system, equity would be sourced from private sponsors with the expectation of a return	Local governments should be main sources of equity financing. The National government and donors should continue support. A return should be expected and retained to leverage new investments financing.
Subsidies	Most households subsidized by commercial and industrial consumers. Provided generally through budget transfers to WSCs.	User should pay for their fair share of the full cost of services.	Specific and targeted subsidies to poor communities and some level of cross subsidies among consumer classes.
Sources of Debt Financing	Mostly through public sources and donor on-lending	Private finance markets	Through public sources and donor on-lending
FX Risks	Ministry of Finance will typically absorb the FX risk but without a proper pricing methodology	Ideally some type of hedge facility would be best option for taking cross currency risk.	MOF is in the best position to take up FX risks, but with proper pricing and management
On-Lending Vehicle	Direct sub-loans to WSCs from MOF	Private Banks should be taking up the credit risks	State Banks can begin to take up credit risks

On-Lending Vehicle	Direct sub-loans to WSCs from MOF	Private Banks should be taking up the credit risks	State Banks can begin to take up credit risks
Debt-Service Responsibility	Currently, the WSC is responsible for debt service. However, it is unclear what happens in case of default.	The private utility	WSC with the guarantee from the local municipality
Debt Pricing	Subsidized	Market-Based	Mark-up or cost based Pricing
Tenor of Debt	If sourced through private channels it is usually short term, typically less than 5 years.	Development of capital markets such that access to long term debt financing can be secured	Leverage ODA long-term financing for as much as 20 years. Make most use of equity from private sponsors.