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Vietnam Water Sector Reform/Regulation

Review of Urban Water and Wastewater Utility Reform and Regulation

10 June 2014

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FINAL REPORT

SOCIALIST REPUBLIC OF VIETNAM

REVIEW OF URBAN WATER & WASTEWATER UTILITY REFORM & REGULATION

June 2014

Abbreviations and Acronyms

(VND 21,200 : US$ 1)

ADB	Asian Development Bank
BR-VT	Ba Ria-Vung Tau Province
ERAV	Electricity Regulatory Authority of Vietnam
GC	General Corporation
GSO	General Statistics Office
Daily-life water	Water for domestic use or for households
HCMC	Ho Chi Minh City
JSWSC	Joint Stock (Shareholding) Water Supply Company
LGU	Local Government Unit
MoC	Ministry of Construction
MoF	Ministry of Finance
MoNRE	Ministry of Natural Resources and Environment
MoH	Ministry of Health
MPI	Ministry of Planning and Investment
NSCERD	National Steering Committee for Enterprise Reform and Development
NRW	Non-revenue water
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
PC	People's Committee
PPC	Provincial People's Committee
PPP	Public-Private Partnership
SAWACO	Saigon Water Supply Corporation
SCIC	State Capital Investment Corporation
SMLLWSC	Single Member Limited Liability Water Supply Company
SOE	State-owned Enterprise
VND	Vietnam Dong
WB	World Bank
WSC	Water Supply Company

Acknowledgements

The Water and Sanitation Program (WSP) would like to express its great appreciation of the effort and support extended to the study team by the relevant ministries/ agencies of the Government of Vietnam at different central and local levels and the water supply and sewerage utilities during this study.

The study was implemented during April – June 2014 and included (i) desk review, (ii) site visits, (iii) draft report, (iv) consultation workshop, and (v) finalization of the report. At the consultation workshop on June 9, 2014 jointly held by the Ministry of Construction and the World Bank/WSP with representatives from ministries, donors, water supply and sewerage utility companies, and provincial peoples committees, the key findings and recommendations of the study were presented and positively received by the parties. Many comments were received at the consultation workshop and these will form the basis of ongoing dialogue with the government on the reform agenda.

The views and conclusions presented in this report are those of the study team and do not necessarily represent those of the WSP or of the World Bank. We hope that this report will serve as a useful resource for further dialogue and discussions on reform/regulation and policy making in the urban water and sanitation utility sector, and as such contribute towards the successful achievement of the Government's SOE reform goals and targets for the benefit of the peoples of Vietnam.

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Review of Urban Water & Wastewater Utility Reform & Regulation in Vietnam

Executive Summary

This Review, undertaken by the World Bank Water & Sanitation Program (WSP), is provided at the request of the Ministry of Construction (MOC) of the Socialist Republic of Vietnam with the objectives of (a) Providing guidance/recommendations concerning the reform proposals of state-owned enterprises operating in the field of water supply and urban sanitation and (b) Providing guidance/recommendations concerning economic management options for service providers. It will be important to ensure that these reforms are undertaken in an explicitly poor-inclusive manner.

The Review achieves these objectives through a review of the current situation, are view of progress on the reform agenda and presentation of potential options for improvement of the urban water and waste sector in Vietnam, particularly in regard to:

1. The current Urban Water Supply Enterprise Equitization Program
2. Economic Regulation of Urban Water Supply & Sanitation Utilities

Accordingly, the Review is presented in two parts.

For water sector performance information much use was made of the MOC Water Database (developed in 2012 with the support of WSP World Bank) that has established data on key financial and operational indicators for the 79[1] Water Utilities in Vietnam (of which 29 also provide waste water services). This information was supplemented by a desk study and through a number of discussions with representative stakeholders in Ministries and Government Departments, and officials in select provinces.

Section 1: Review of Reform: The current Urban Water Supply Enterprise Equitization Program

The key focus of sector reform is the implementation of national policy of restructuring State Owned Enterprises (SOEs) through Equitization. This policy was established in 1992 and was extended to the Urban Water Utility Sector in 2002. The stated aim of SOE restructuring is to: "promote equitization and diversification of ownership of SOEs in which the State is not required to hold 100% of shares."

In the water sector the process of equitization started in 2002 and it is ongoing. However of the 79 water & waste water utilities only 23 have been equitized (only three since 2011). Essentially it involves ring fencing current water and waste water utilities (originally run as part of provincial government PPC activities) and preparing them for sale as autonomous utilities, but with a major shareholding retained by the PPCs.

[1] 79 Utilities are included in the Database covering all 63 Provinces.Some provinces have more than one utility. There are some bulk water supply only utilities (like Binh An BOT Joint-stock company in HCMC) with only one client (SAWACO), that are included in the MOC Database.

The rate of equitization is of some concern. The review identified a number of potential 'road blocks' that could inhibit investors from taking up further offers for equitized utilities. Many of these issues also impede broader sector reform. These 'road blocks' include:

- Tariffs and revenues are inadequate, resulting in lack of financial and operational sustainability
- Continuing effective state control (through majority shareholding) raises concerns over governance and autonomy.
- There is no clear contractual relationship between PPCs and utilities
- The method of utility valuation for share sale may be undervaluing liabilities related to fixed assets, many of which are underground.
- Some utilities may be less attractive to investors due to their small size and/or location in poorer provinces.
- Some utilities have developed subsidiary businesses outside their core utility service business that may be to the detriment of the public service objectives of the utility.
- Some utilities have started a process of fragmentation of their core business, forming separate companies for wastewater services, bulk water supply and treatment, and water distribution (even forming new companies for each distribution zone) under separate management and ownership structures
- Capacity of utility management for implementing reforms: this capacity varies enormously between utilities, but even in the most effective ones there is a concern that they need support for change management in the process of transforming from a public utility to an equitized company.

Data from the MOC Water Database show that water utilities in Vietnam have been making progress in some areas, e.g.on coverage and bill collection, although other key operational indicators such as NRW (m3/km/day) suggest problems with asset maintenance, operation and investment. Drinking water quality indicators are poorly reported and there are issues with compliance, particularly within the distribution networks.

Sector performance was also reviewed in an international context using the World Bank WSP supported International Benchmarking Network for Water and Sanitation Utilities (IBNET). By comparison with other countries, Vietnam has low expenditure on operating costs and low tariffs. Although operating costs are recovered on average across the sector, the low level of operating costs are consistent with the poor performance found across the country in terms of drinking water quality, continuity of supply, leakage and pressure.

There is no evidence that the process of equitization, although creating 'autonomous' water utilities with reduced state shareholding, has resulted in financial and service level improvements. Those utilities that were already well managed continued to improve performance after equitization.

Some principles for establishing well-structured and well managed utilities have been highlighted, including good management and governance practices: level of service definition; asset management plans; investment planning; O&M planning; business planning, and; establishing standardized and consistent tariff methodologies. Adoption of such good utility practices is recommended, in conjunction with the introduction of formalized contractual arrangements between PPCs and utilities. This will establish a better defined commercial relationship between the PPC and utility, with clear description of obligations and responsibilities for each party.

In this regard there is already national legislation in place (**Decree 117 (Water Decree) Article 31 Agreements on provision of water supply services)** that provides for such a contract between PPCs and Utilities and contains provisions similar to our recommendations, but so far this has not been implemented. This review makes a strong recommendation that this should be implemented as part of any sector reform program.

The review concludes by highlighting priority activities for progressing the reform agenda and improving sector performance. These include:

- Develop a Policy Circular on water utility SOE equitization and reform
- Support to PPCs and utilities in professionalizing the sector: commercial, operational, planning and financial management and associated institutional development
- Establishing the contractual relationship between all PPCs and their water utilities
- Support for operational and management improvements for better utility performance.
- Funding for capital investment schemes that offered the highest improvements in operating or financial effectiveness and that result in improved levels of service to the customers

Section 2: Review of Regulation of the Urban Water & Waste Water Utilities

In this Section we review the key aspects of sector regulation for Health, Water Resources and Environmental aspects, and Economic Regulation

However, the main focus of our work is the **Review of Economic Regulation,** reviewing the operation of the sector and assessing how the economic and financial basis of the sector may continue to be improved. It is noted that the other two regulatory issues are important, and all three aspects need to be managed holistically to improve the sustainability of the sector

It has been noted that the current legal framework for the provision of water and wastewater services in Vietnam is not fully effective and does not correspond with the reality on the ground. Furthermore enforcement is deficient and often national regulations are ignored by local authorities, who prioritize short-term economic growth of their communities over sustainability.

It is against this background that this review has been conducted in order to assess the current situation and to propose options for improving the governance and economic regulation of the water and wastewater utilities. The goal to is provide better quality services at an efficient and affordable cost to customers. It will also be important to ensure that low income households have equitable service access, and that they can afford to pay for receiving these basic services.

Regulation is established under line ministries for the public health issues (Ministry of Health, MOH) and water resources and environmental issues (Ministry of Natural Resources and Environment, MONRE). Neither ministry is responsible exclusively for regulating the water and wastewater utility sector. Both ministries are responsible for setting standards and monitoring compliance. Day to day monitoring is undertaken by the PPCs and utilities themselves, with the ministries checking to confirm key results. Both ministries said that if greater emphasis was to be placed on enforcement then additional resources would be required.

The Review of economic regulation begins with a review of the inter-related factors that are crucial to the performance of the sector. Even with effective utilities, the levels of service provided to customers cannot be maintained or improved without a number of these key issues being addressed holistically:

- Sustainable tariffs and funding structures
- Formal business planning
- Asset management and development
- Financial planning
- Capital investment

In a well- functioning economic regulatory system all these elements are regulated and monitored in order to ensure that the utility is complying with its obligations for provision of services to customers in an economic manner, and that agreed policies and plans are being delivered. Performance standards, service and investment obligations and financial commitments have to be clearly defined and met by all parties. Such understandings should be formally agreed and be binding on the utility and PPC. Decree 117 (Water Decree) requires the establishment of a contractual relationship between local state governments and the water supply companies, and Article 31 of this Decree includes specific content covering these particular issues. Decree 117 has not yet been implemented.

Without such a contractual arrangement it is difficult to introduce effective economic regulation of the sector, and the recommendation of this Review is that Decree 117 should be fully implemented and apply to all the utilities, whether state owned or equitized/private.

Water utilities are natural monopolies. Effective economic regulation minimizes the scope for monopoly abuse by protecting the public interest: tariffs that are above the reasonable cost of service, quality of service that is below desired levels, or failure to serve less attractive low income households. Indicators of effective economic regulation of water and sanitation services include the following:

- Providers of water and sanitation services are financially sustainable and operate at an efficient level
- Returns provided by water and sanitation utilities are not above what could be considered fair and reasonable, and are sufficient to attract required capital
- Water is supplied on an optimal-cost basis
- All customers, including the poor, receive the expected quality of service and good quality of water
- Sector objectives for water and sanitation are achieved (such as universal coverage, continuity of supply, sufficient pressure, health standards met)
- The benefits of the regulatory framework exceed its costs

It was noted in the Review that there are several areas of deficiency in the sector that are linked to failure on these issues including: lack of an economic regulator or associated regulatory framework; utilities are generally not operating at a sustainable level; customers are not receiving the best level of service that is economically feasible; there is no official customer grievance procedure, and; finally

there is no effective dispute resolution system. Some discussion of each of these issues is included in the Review.

This Review also looked to international best practice on economic regulation. This identified four main regulatory approaches or models:

- Separate Regulatory Agency with a licensing regime
- Regulation by contract
- Regulation by contract with a separate Regulatory Agency (hybrid)
- Self-regulation

These models are reviewed and their applicability to the specific circumstances of the sector in Vietnam considered. The Review concluded that the **regulation by contract with a separate national regulator** is most appropriate for Vietnam.

Key lessons learned from international regulatory experience should inform the design and application economic regulation for Vietnam's urban water and wastewater utilities:

- Economic regulation is effective for both public and private utilities
- Regulation should be integrated for both water supply and wastewater services
- Regulation by contract is appropriate
- A written contract between the utility &government/owner should be established:
    - Giving performance obligations and targets
    - Establishing tariffs
- Clear mandate and effective enforcement powers are needed
- Regulatory mechanisms need to have flexibility built into them
- Effective economic regulation will take time to become established & capacity built.
- Significant staff and resources are needed at both the central and local level.

Lessons were also learned from the functioning of the national regulatory authority for the electricity sector in Vietnam (ERAV).

A central independent Regulatory Authority for the water supply and sanitation utility sector is recommended (WRAV), located in Hanoi but with regional and local offices. The Authority should be established by statute with a clear mandate, authority, powers and resources. Policy for the water sector would remain with MOC.

Key functions of the Authority should include: setting standards; monitoring cost and performance; price/tariff setting (based on a review of service standards and targets, business and investment plans, tariffs and financial sustainability).

An organigram is proposed, showing the relationships between the Regulator, PPCs and Utilities, with regulatory offices at national and regional level. The decentralized nature of the sector is

recognized, and it is proposed that a small regulatory office be established in each province. This will not only help in managing day to day compliance issues, but could also offer a facilitation role for Regulator in establishing the initial regulatory methodologies and procedures with the PPC and utility.

The Regulator would be responsible for safeguarding customer interests. This could involve the establishment of independent consumer representative groups and developing policies to protect the interests of low income households (service access, affordable tariffs, social funds etc). An appeals procedure would be established for regulatory issues, including PPC, Utility and customer concerns.

A "Road Map" is proposed for developing and establishing the regulatory arrangements and the Water Regulatory Authority (WRAV).

The review concludes by highlighting priority activities for implementing the new regulatory mechanisms and institutional arrangements. These include to:

- Design and implement a standard contract form (Decree 117)
- Establish the regulatory system
- Enact enabling legislation to establish and mandate the Regulator
- Establish the regulator: WRAV and Local Regulatory Offices
- Develop a Policy Circular on tariff setting
- Provide TA/capacity building program to: (a) design and develop the regulatory system and the Regulator, and; (b) establish the regulatory system and institutions linking the Regulator, PPCs and Utilities
- Identify and prioritise investment needs and appropriate sources of funding to support key developments in the sector.

June 2014

SOCIALIST REPUBLIC OF VIETNAM

REVIEW OF URBAN WATER & WASTEWATER UTILITY REFORM & REGULATION

REVIEW OF URBAN WATER & WASTE WATER REFORM & REGULATION

INTRODUCTION

This Review, undertaken by the World Bank Water & Sanitation Program (WSP), is provided at the request of the Ministry of Construction of the Socialist Republic of Vietnam with the objectives of (a) Providing guidance/recommendations concerning the reform proposals of state-owned enterprises operating in the field of water supply and urban sanitation and (b) Providing guidance/recommendations concerning economic management options for service providers. It will be important to ensure that these reforms are undertaken in an explicitly poor-inclusive manner.

The Review achieves these objectives through a review of the current situation, are view of the progress towards achieving current reform agenda and the potential options for improvement of the urban water and waste sector in Vietnam, particularly in regard to:

3. The current Urban Water Supply Enterprise Equitization Program
4. Economic Regulation of Urban Water Supply & Sanitation

Expected Outcome of this Review

The expected outcome of this Review is to establish the key issues facing the Urban Water & Sanitation Sector, particularly related to the Reform and Regulation of Urban Utilities and options open to Government. The intention is to use this Review as an opportunity to open up a dialogue between the Government of Vietnam (GoV), sector stakeholders, and the World Bank (WB)with a view to cooperation towards further actions and initiatives for improvement of sector performance.

Basis of this Review:

This Review is based on a combination of desk study of existing material and documents, together with interviews and meetings with key Government Ministries and Institutions. A selected number of Water Utilities were interviewed, and their views and comments on the reform process were taken. Note has also been taken of international best practice, in order to have comparison on performance and potential lessons for improvement

The MOC Database (developed 2012 with support of WSP World Bank) has established data on key financial and operational indicators for the of the 79[2] Water Utilities in Vietnam(ANNEX A lists the utilities included in the database).This MOC Database, together with data gathered in the course of this Review, forms the foundation of the information used in this review of the current situation in the Vietnam Water Utility Sector.

[2]79 Utilities are included in the Database covering all 63 Provinces.Some provinces have more than one utility. There are some bulk water supply only utilities (like Binh An BOT Joint-stock company in HCMC) with only one client (SAWACO), that are included in the MOC Database.

Urban Water & Waste Water Utilities

The current ownership status of the 79 Water Utilities is as follows:[3]:

- State Companies: 100% local government ownership
- Equitized Companies: Private Investment but with Local Government majority shareholding
- Private Companies: Some extended form of Private shareholding

TOTAL WATER SECTOR UTILITIES	**79**
State Companies	51
Equitized	23
Private	5

The MOC Database at this time does not include the separate Wastewater Utilities. From our research there are 29 utilities that provide both water and waste water services, as follows:

UTILITIES	**Water& Waste Water**	**Water Only**	**Total**
State-owned	19	32	51
Equitized	10	13	23
Private	0	5	5
Total	**29**	**50**	**79**

Among the 23 equitized utilities 10 provide waste water/sewerage services. However, some of them are leasing the waste water system from the provincial government, as the asset value of waste water facilities and networks was not included in the corporate valuation at the time of equitization.

Two other earlier reports provide background on the development of sector reforms and equitization[4][5], and reference has been made to these reports to assist in the review of progress against expectations. Other information sources are referenced throughout this review.

The approach and general methodology for this review were determined in consultation with Ministry of Construction, who has an oversight responsibility for the water utility sector. Consultation on general principles and sector management issues was made through meetings with Ministry of Construction (MOC), Ministry of Health (MOH), Ministry of Natural Resources and Environment (MONRE), and Office of Government OOG, Ministry of Planning and Investment (MPI).

[3]The data base shows State Companies; Equitized Companies (where state keeps majority Shareholding at present and Private Companies 100% owned by investors

[4] Vietnam Urban Water Supply Development Projects, Final Report, Consulting Services for Review of Water Supply Companies Equitization, June 2013, MOC World Bank

[5] Review of Equitization Approaches in the Urban Water Supply Sector March 2009 World Bank – Netherlands Partnership

General advice was sought on the Vietnamese experience of utility regulatory approaches and institutions from ERAV, the electricity sector regulator, and various other institutions[6].

During April 2014 a number of exploratory meetings were held by the team with senior managers and state representatives for a limited number of utilities[7]:

- Sai Gon Water Supply Corporation/SAWACO (Ho Chi Minh City)
- Ba Ria – Vung Tau Water Supply Joint-stock Company (Bwaco)
- Can Tho Water Supply and Sewerage Company (Can Tho Wassco)

The purpose of these meetings was to obtain the professional view of these officials on the current situation in the reform process, discussion on regulatory issues, and views on successes and the constraints and factors likely to affect the future development of the sector. The comments and information obtained have been used to confirm or inform the findings of this review.

Equitization of SOEs

The key focus of the current sector reform is the implementation of national policy of restructuring State Owned Enterprises (SOEs) through Equitization. This policy was established in 1992and was extended to the Urban Water Utility Sector in 2002.

The stated aim of SOE restructuring (decision no 339/QD-TTg) is to: "promote equitization and diversification of ownership of SOEs in which the State is not required to hold 100% of shares."

The provincial governments have the duty to provide water and waste water services to the community. Each PPC had established Water Supply Companies (WSCs) to provide these services. Before equitization the utilities were typically Sole – Member Limited Companies in which the State holds 100% of shares. The effect of equitization is to reduce the level of this State shareholding generally through the establishment of private shareholder investments.

Equitization of SOEs in Vietnam started with a pilot program in 1992. The Government committed itself more firmly to equitization in 1996 with introduction of Decree 28-CP which, along with its supplementary regulations, has established the legal framework for equitization in Vietnam.

In the water sector the process of Equitization started in 2002 and it is ongoing. According to Prime Minister's Decision 14/2011 the process should be completed for all utilities as rapidly as possible. To date, out of the 79 water utilities, only 23 have been fully equitized.

In the following sections we review:

SECTION 1: Effectiveness of Sector Reform

- Equitization
- Sector Performance

SECTION 2: Sector Regulation

[6]See ANNEX B – List of list of institutions,stakeholders and individual people contacted during April to June 2014

[7] ANNEX C –Supplementary data on selected urban water and waste water utilities

REVIEW OF URBAN WATER & WASTE WATER REFORM & REGULATION

SECTION 1 : URBAN WATER & WASTE WATER UTILITY REFORM

Section A .Effectiveness of Sector Reform

1 Equitization:

The process of equitization in the water sector follows the national SOE reform policies and procedures. The provision of water services is seen as a 'Public Good' and therefore there are particular pressures that closely link the concerns of the communities involved to the operation and management of the utilities providing these services. Traditionally there has been strong control of utility management and finances by the State, particularly at local level

The reduction of state shareholdings has led to concerns about the need to establish effective mechanisms of governance and control of water utility affairs. At the same time the issues related to establishing financial and management autonomy of the equitized water utilities are also major factors in the reform process - both for the state shareholders and the private investors.

Extent of Equitization

Since 2002, out of the 79 Utilities recorded in the MOC database only 23have been fully equitized. 20 out of 23 were equitized between 2007 and 2011. Whilst there are general plans for the equitization of all the utilities, the recent slowing in the process seems to be due to a number of factors:

a. **Difficulties in establishing mechanisms** for effective transfer of authority from the state to the enterprise inherent in the equitization process.
b. **The equitization of WSCs is a lengthy process**. The MOC World Bank equitization report of 2013 reveals that the longest period for equitization is 1,350 days, the shortest is 68 days, and the average is 590 days. The Central Institute for Economic Management reports that generally the average time to equitize SOEs nationwide in the period 2005 - 2009 was 400 days. Accordingly, the average time for the equitization of WSCs is 1.5 times higher than that for SOEs in all sectors in Vietnam.
c. **Difficulties in finding investors/capital for the non-state shares**.

   Some key issues affecting the willingness of investors to be involved in the utility equitization program include;

   a. Tariffs and revenues in the sector are generally inadequate for full cost recovery, resulting in a lack of financial sustainability for utilities.
   b. Since the state typically retains effective control through it majority shareholding, the operation and management of the utility is unlikely to change significantly from

the previously existing public services SOE mechanisms. The equitized utility cannot act as a fully autonomous business unit, and this adversely affects the confidence of potential investors

c. The contractual relationship between the PPCs and the utility is not sufficiently well defined in key areas.

These three key issues need to be addressed to improve the effectiveness of the equitization and associated reform process.

d. Valuation of shares:

Two methods are used for the valuation of utility companies:

(1) **Asset Valuation**: This is relatively easy to measure, but leads to potential over valuation of the company. These assets are generally underground, in poor condition, are in fact actually a liability in terms of high future maintenance and renewal costs. In the United Kingdom water privatizations this method was used for utility valuations in the first round of the UK water sector share sales. Investors would not accept the related high costs and liabilities. The UK Government had to re-launch the offer on a "business related measure", and had to give allowances for high costs of renewal in some of the utilities.

(2) **Business Related Valuation :** Based on turnover, cash flow or some business related measure, this method is found to give a more realistic valuation, and more likely to attract investors

In Vietnam before 2011, valuation was based on value of assets rather than business valuation. From 2011, with the promulgation of MOF Circular 202, there are now 2 acceptable methods of valuation:

(i) **Asset method** and

(ii) **Cash flow method**: which is based on projections of cash flows and profitability of the business.

To date only the asset valuation approach has been used. Although this has caused problems in obtaining investors in some cases, asset valuation has been used because it is simpler. Currently, in the absence of a robust regulatory environment, there are no reliable/accurate projections of business performance and cash flows available for utilities. It is unlikely that the equitization process will speed up, provide value for money or prove sustainable without the introduction of effective regulation, utility autonomy, and commercial management into the sector.

d. Levels of State Shareholding

These vary, with state holdings generally held above 51%, i.e. maintaining a state controlling share. The level of effective control by the state varies. The MOC WB Equitization Study (2013) shows that the proportion of state shares in the charter capital of 10 among the 14

surveyed WSCs accounts for 70% or more (more than 95% in the case of Vinh Phuc, Hau Giang and Son Tay). However, according to the equitization policy, the state has no requirement/intention of holding the absolute majority over 75%.

As noted previously, in some equitized utilities management by state continues for all intents and purposes -almost as if the utility were still operating as it did directly as a part of the public service.

In some cases the utility has achieved a certain level of autonomy, developing mechanisms for control satisfactory to its state shareholder, whilst still allowing the utility to operate as an autonomous company, as in the example of Ba Ria- Vung Tau. However the equitization process alone was not responsible for the introduction of these satisfactory control mechanisms.

e. **The varying nature of individual regional economies; the size and form of the Utilities**

Each utility its unique customer base, asset condition and size, and has to operate within its own regional economic and political environment. Those utilities that are smaller or potentially less 'profitable' may have more difficulty attracting investors if the business model of the utility remains ill defined. The development of a national standard utility business model could be a cost effective aid to the equitization process for these smaller utilities.

f. **Utility Diversification**

The focus of the utilities should be on the core businesses of the provision of water and waste water services to the community. Experience shows that where utilities develop businesses away from their core business of provision water and waste water services (e.g setting up construction businesses, catering, real estate) this is generally to the detriment of public service objectives of the utility.

g. **Fragmentation**

Generally for the most effective use of scarce resources and capital effective businesses seek to take advantage of 'economies of scale'. The World Bank and other donors such as ADB have advised that it is much more effective to manage water and wastewater services combined under the management of a single utility. The practice of breaking apart existing water and wastewater utilities into smaller separate entities (eg water production, water distribution, sewers, wastewater treatment) for equitization purposes will not only be less effective economically and in terms of utility management and operation, but it may also bring problems in attracting investors to the smaller and less attractive, less profitable, sub-units.

h. **Capacity of Utility Management for effective change**: The issues of raising capital, developing autonomous utility management structures and governance mechanisms, and general 'commercialization' of utility operation are complex and demand skills and experience that may not be readily available in all utilities. This not only impacts the process

of raising capital during the equitization process, but extends after equitization to the skills and resources needed to operate the utility in an effective commercial and business manner. Even in the best managed utilities the management expressed the concern that they lacked the necessary skills to carry out the changes effectively.

From this review we can conclude that the process of equitization itself, although creating 'autonomous' water utilities with reduced state shareholding, does not of itself lead to financial and service level improvements.

It is not possible to say that the successful utilities became successful because of equitization alone but we did observe that those utilities that had existing strengths and competences adapted better to working within the new structures.

Before we look at the financial and management situation of the equitized utilities, in the next section we review briefly the general performance of the sector and associated key indicators

2. Sector Performance[8]& Levels of Service Improvement:

(a) Benchmarking of sector performance

We show here information on water sector performance in Vietnam since 2006. The information is taken from the World Bank WSP supported International Benchmarking Network for Water and Sanitation Utilities (IBNET) website[9]

Key Performance Indicators for Vietnam:

Indicator	2006	2007	2008	2009	2011
1.1 Water Coverage (%)	69	69	72	75	57
2.1 Sewerage Coverage (%)	33	2	N/A	N/A	N/A
4.1 Total Water Consumption (l/person/day)	139	147	147	149	171
4.7 Residential Consumption (l/person/day)	93	99	100	103	115
6.1 Non Revenue Water (%)	34	32	31	30	31
6.2 Non Revenue Water (m3/km/day)	28.6	41.8	42.9	40.3	46
8.1 % Sold that is Metered (%)	100	100	100	100	N/A
11.1 Operational Cost W&WW (US$/m3 water sold)	0.12	0.12	0.15	0.15	0.14
12.3 Staff W/1000 W pop served (W/1000 W pop served)	1.2	1.2	1.1	1.1	N/A
18.1 Average Revenue W&WW (US$/m3 water sold)	0.24	0.24	0.25	0.26	0.27
23.1 Collection Period (Days)	367	250	263	245	12
23.2 Collection Ratio (%)	99	98	N/A	N/A	98
24.1 Operating Cost Coverage (ratio)	1.92	2.05	1.72	1.68	1.92

[8] 'Performance Monitoring' ; Public Private Partnerships in the Water Sector, X Cledan Mandri-Perrott and David Stiggers; IWA publishing ; 2013

[9]IBNET is an initiative to encourage water and sanitation utilities to compile and share a set of core cost and performance indicators. The objective of IBNET is to support access to comparative information that will help to promote best practice among water supply and sanitation providers worldwide.

Source: IBNET (2013)

This table shows that the water utilities in Vietnam have been making progress on coverage and bill collection, although key operational indicators such as NRW (m3/km/day) suggest problems with asset maintenance, operation and investment.

Drinking Water Quality:

Whilst articles appear in the press drawing public attention to poor drinking water quality (see examples below)[10], the Review found that there was very limited official information available on drinking water quality, especially at the point of consumption (the tap). This is a major deficiency in the regulatory reporting system that needs to be rectified. Drinking water quality is arguably the most important performance indicator for water supply utilities, with major public health implications. In many countries water utility operating costs and investment programmes are driven by the need for compliance with drinking water quality standards and the need to protect the health of consumers

RECENT PRESS COVERAGE ON DRINKING WATER HEALTH ISSUES:

VietnamNet Bridge 24/5/2014:

"What is "clean water" like?"

Nguyen Van Luc of the district of Long Bien said that a white-yellow layer precipitates to the bottom of his kettle after every time he boils water: "After I boil water four or five times with the same kettle, the residues can be peeled by hand," Luc said.

Pham Huy Khoa, a neighbour of Luc in the district's Ngoc Thuy Ward, said he had to have his water pipeline repaired a few days ago. "This is the second time in the last two years I have had to have the pipelines cleared to eliminate the dregs," he said.

"Can water filters protect Hanoians? "

Many Hanoians said they do not believe the "clean" water provided by the Hanoi Water Supply Company is clean enough.

Le Thi Lanh in Dong Da District said she has to filter the clean water supplied by the company with her RO-technology (reverse osmosis) filter before using the water.

According to Lanh, she bought the filter two years ago for VND4 million. She has to pay another VND500,000 every year to have the filter maintained and parts replaced.

Viet Nam News 15th May 2014

"Ha Noi tap water poses health risks"

The article quotes detailed tests by Ha Noi Preventive Medicine Centre. The centre says tests on samples taken from different water plants in Ha Noi since January this year show excessive levels of minerals and chemicals that can have serious consequences for residents.Tests show excessive levels of Permanganate, Ammonia and Chlorine, all with potential health risks to customers.

[10] Full text of Viet Nam Times article 15th May 2014 is given in ANNEX D ***"Ha Noi tap water poses health risks"***

It is also important to put the Vietnamese sector performance in the context of other countries (international benchmarking). The table below compares the Vietnamese KPIs with a range of other developing countries

KPI of other Countries relative to Vietnam

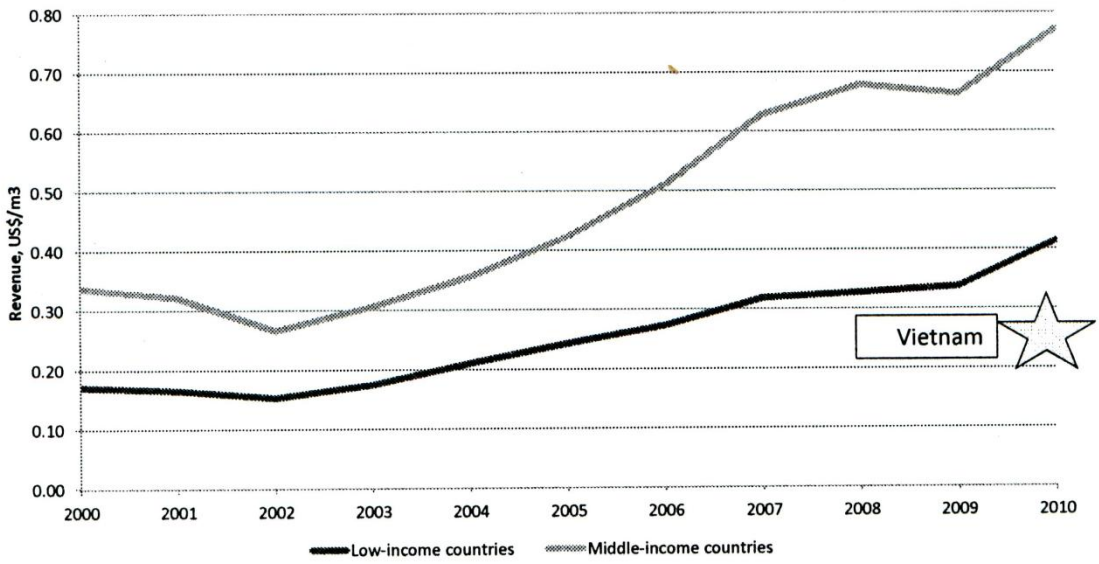
Indicator	Armenia	China	Brazil	Bangladesh	Phillipines	Vietnam
1.1 Water Coverage (%)	91	95	81	63	77	57
2.1 Sewerage Coverage (%)	37	41	47	30	6	N/A
4.1 Total Water Consumption (l/person/day)	126	156	174	108	156	171
4.7 Residential Consumption (l/person/day)	83	71	116	96	117	115
6.1 Non Revenue Water (%)	83	22	39	32	43	31
6.2 Non Revenue Water (m3/km/day)	102.2	41.1	32.6	116.4	194.3	46
8.1 % Sold that is Metered (%)	91	100	N/A	74	100	N/A
11.1 Operational Cost W&WW (US$/m3 water sold)	0.47	0.4	1.41	0.11	0.22	0.14
12.3 Staff W/1000 W pop served (W/1000 W pop served)	1.5	1	N/A	0.3	0.4	N/A
18.1 Average Revenue W&WW (US$/m3 water sold)	0.47	0.32	2.03	0.14	0.54	0.27
23.1 Collection Period (Days)	281	89	138	205	40	12
23.2 Collection Ratio (%)	80	73	99	84	99	98
24.1 Operating Cost Coverage (ratio)	0.98	0.8	1.44	1.24	2.4	1.92

Source: IBNET (all data is dated 2011, except the Philippines in 2009)

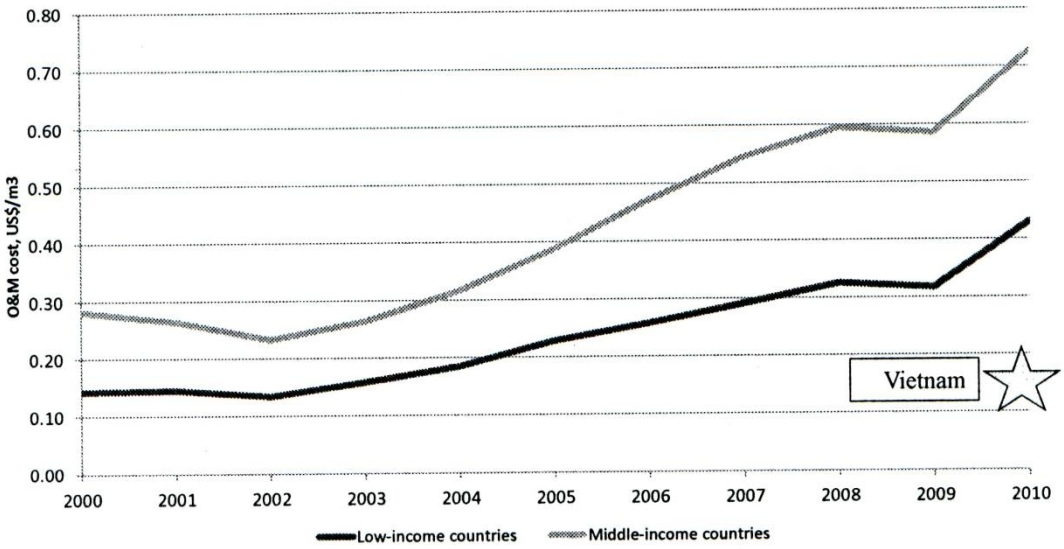
Vietnam compares reasonably well on many of these particular KPIs that feature in the IBNET country reports. It is noteworthy, however, that with the exception of Bangladesh, Vietnam has low expenditure on operating costs and low tariffs. Although operating costs are recovered on average across the sector, the low level of operating costs are consistent with poor performance found across the country in terms of drinking water quality, continuity of supply, leakage and pressure.

The charts below compare average operating costs and tariffs in Vietnam against the averages for low- and middle-income countries using IBNET data. As can be seen, tariffs and operating costs in Vietnam are low by international standards. This would indicate that there is significant scope in Vietnam to increase operating costs (and tariffs) to improve service delivery performance and overall sector sustainability. A major challenge will be for PPCs to increase their willingness to charge sustainable tariffs to improve customer service levels and bring the sector more in line with international comparators.

Tariffs in low- and middle-income country utilities



Operating costs in low- and middle-income country utilities



(b) Performance after equitization:

The study has found that there are few marked improvements in performance for those utilities that have been equitized. Some of the changes discovered are summarized below:

- **Connections/Coverage:** Equitized utilities ***slightly outperform*** state-owned ones in terms of coverage (62.9% vs. 59.6%)
- **Non Revenue Water (NRW) :** no big difference between equitized and state-owned utilities (21.3% and 22.9% respectively), although Ba Ria – Vung Tau performed particularly well (10.1% vs. 14.6% before equitization)
- **Labor/Staff:** the MOC WB 2013 report shows a significantly higher growth rate in labor costs after equitization (low: Binh Thuan 4%, high: Ba Ria – Vung Tau: 131%, Son La: 352%)
- **Training;** some of the equitized companies have increased their training programs with the aim of improving the capacity of staff and managers to operate under the new structure

A tabulation of some comparisons between State Owned and Equitized Utilities is given in ANNEX E[11]. It is difficult to find evidence to indicate that any performance improvements have occurred directly as a result of equitization. Those equitized utilities that performed well (such as Ba Ria - Vung Tau, Phu Tho) were already some of the better performers before the restructuring.

[11] ANNEX E. ANALYSIS TABULATION OF WATER UTILITIES

3. Utility Performance of equitized WSCs

In this section we look at the financial and economic performance of the equitized water and sanitation utilities.

The major benefit of the equitization program should be that it creates an autonomous utility structure, with defined capital, structure and responsibilities, and with clearly defined financial and operational responsibilities. This structure, no longer as a public service utility, offers the possibility of operating as a fully effective, autonomous service company with access to capital and the ability to manage the utility in a more 'commercial' and customer focused manner.

However on first review, apart from any potential beneficial effects on management and financial restructuring, the general operational and financial performance of the equitized utilities cannot be said to have improved directly as a result of the equitization process.

Certain well performing utilities were already improving their performance before equitization and continue to do so. In general the overall sector performance is not changed radically by equitization. However lessons can be learnt during the continuing reform process before and after equitization.

Management Performance:

International best practice for water utilities is that the most effective modern utilities operate with clear and consistent management practices within a well-defined strategic, operational, financial and commercial planning environment. This does not arise automatically just because of the shareholder restructuring.

A well-structured and well-managed utility will follow clear procedures within a total management planning environment, including[12]:

- Formal Business Planning for all aspects of the utility business
- Physical Asset Condition inventory and Asset Management Planning
- Establish Levels of Service(LOS) and Performance Targets (linked to asset condition & investment possibilities)
- Clearly defined investment plan
- Strong financial management and control
- Operational procedures and capacity to meet LOS
- Formalized approach to Cost Recovery

These principles feature in all the best run utilities, whether public, private or equitized companies.

Some of the better managed utilities follow this approach, but in general the management approach is lacking in the application of all or part of these best practice procedures.

Current Vietnam legislation requires water utilities to establish a formal contractual relationship between the state (e.g. PPC/PC) and the utility. This is specifically detailed in the current legislation, which includes the key provisions that have to be contained in the contract. Currently this is not done. Those few contracts that have been established have not followed the guidelines, and some contracts have not between the PPC and the utility as required.

[12]ANNEX F Lists further guideline elements required for establishing and regulating successful utility operation

The Decree 117 (Water Decree)has an Article 31– see text box below - concerning the required contractual agreement to be established between PPC and utility, requires that key details such as levels of service, tariff mechanisms and financing, as well as the other key management and planning practices should be included in the contractual agreement:

Decree 117 (Water Decree) Article 31 Agreements on provision of water supply services:

"1. Agreements on provision of water supply services are legal documents concluded between Peoples Committees or authorized agencies and water supply units providing water supply services in the areas.

2. An agreement on provision of water supply services has the following fundamental details:

- **a.** The area supplied with water
- **b.** The water supply development planning orientations;
- **c.** The projected financial sources for implementation of the water supply development plan;
- **d.** The water supply charges, the roadmap and principles for its adjustment;
- **e.** Service conditions (water quality, pressure, flow and continuity), roadmap for improvementof service conditions;
- **f.** Obligations and rights of the involved parties."

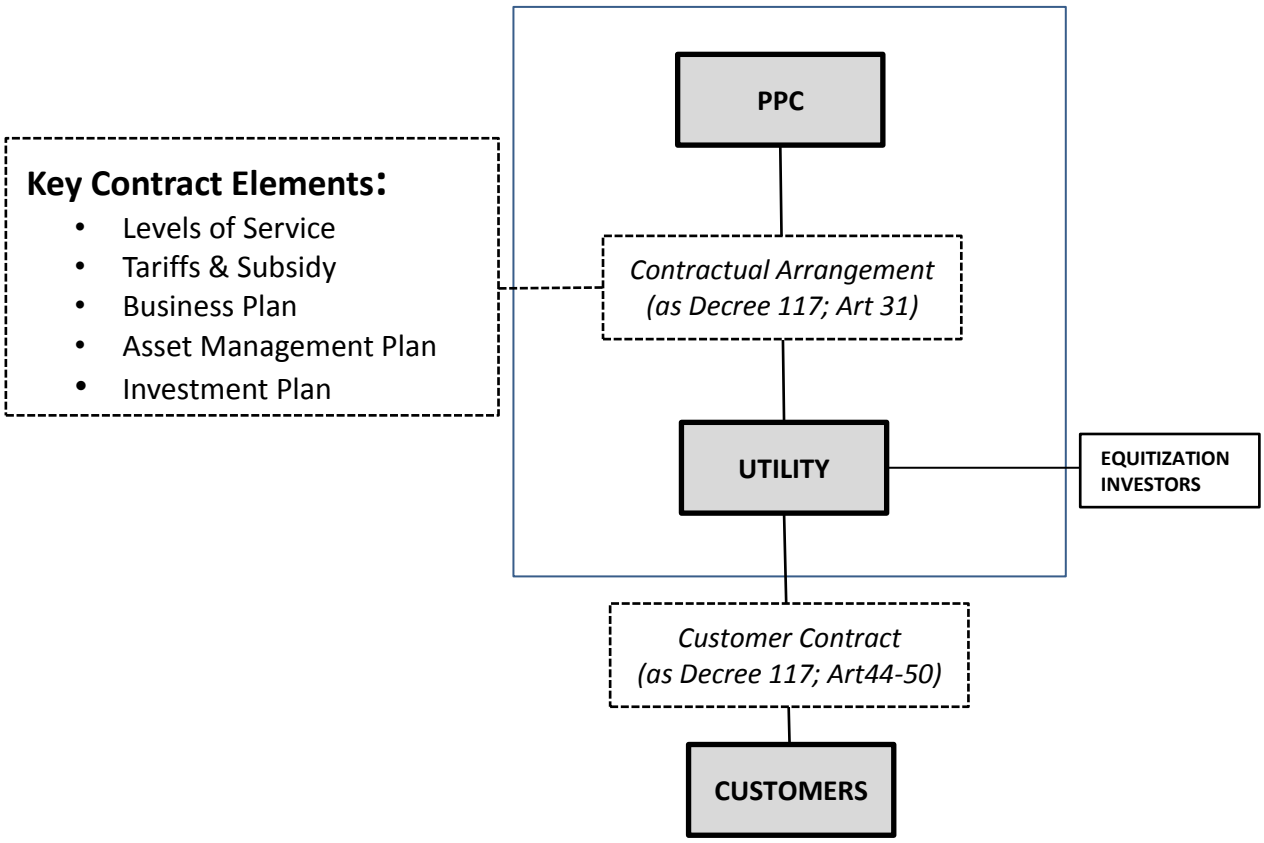
This Decree is effective but has not been implemented. It is strongly recommended that this contractual approach be used between PPCs and utilities to support the reform process. This contractual arrangement should be established for all the utilities – for the public utilities (as a precondition to equitizaton) as well as the equitized and private utilities

In practice, for the implementation of the Decree, it will be necessary to have detailed implementation guidance so that stakeholders know how to implement this requirement before it is enforced. To implement the Decree it will be necessary for the Government to develop and issue a Circular on how Article 31 of Decree 117 will be implemented to establish this contractual relationship. It will also be necessary to include all the previously noted management issues in such a contract.

Successful achievement of LOS improvements and financial and economic effectiveness depends on having clear management of all the interlinked items on the list shown earlier. In addition to establishing the contract this will also require considerable linked actions in developing policy and a comprehensive management approach by both state and the utility. This would require support and investment in the necessary resources, Technical Assistance, capacity building and institutional support by all parties.

The diagram below illustrates how the contractual arrangements between the PPC and the utility could be structured, and the highlights the key contract elements:

Statutory Contractual Requirements: PPCs & Utilities



Investment& Performance:

The nature of the water utility sector requires continuing and long term capital investment to maintain, rehabilitate and expand the treatment facilities and distribution systems. The nature of water utility assets, given the high proportion of underground assets in varying condition means a constant program of asset management and renewal is required. In turn this requires a fully funded and effective program of capital Investment.

Even with the injection of funds from the equitization process, given the high capital needs of the sector there will be a heavy need for ongoing state support for the foreseeable future – until the utilities operate independently on a financially sustainable basis with full cost recovery tariffs.

Utility funding sources:

1. **Tariff**

   Tariff levels, the principle source of income for the utilities, are set only with agreement of the PPCs. Tariffs are not currently linked to either levels of investment or to levels of service. Nor are there mechanisms in place to link them to cost/price inflation (eg regular inflation indexation).

A secure and sufficient level of tariff is of prime importance to ensure the true autonomy and efficiency of the utility. Currently all utilities have their tariffs controlled by the PPCs - on a non-regulated basis. Typically, since there is a social and political reluctance to allow sufficient or regular increases in tariff to allow full cost recovery (e.g. operation and maintenance (O&M),asset renewal and capital investment costs) tariffs are often maintained at below economic levels.

Only a few of the better functioning utilities are achieving the preferred minimum of meeting O&M costs from tariff income. Many utilities are not yet achieving full cost recovery (eg O&M plus debt payments) whilst at the same time they are not delivering acceptable levels of service:

Utilities	Average of approved tariff / tariff rate required by the water utility (expressed as % of required rate)
State-owned	87%
Equitized	85%
Private	94%
Total	**87%**

2. Shareholder Equity

Given the sector's poor financial sustainability, the shareholders equity funding is typically not enough to support continuous and heavy capital investment. The smaller utilities and those in poorer regions have the same level of investment needs per head of population but less capital to achieve it.

3. State Subsidy

The majority of current investment needs and some O&M needs are covered by direct or indirect state subsidy, for example Ho Chi Minh City People's Committee supports an investment budget for SAWACO with regard to Transmission Pipe grade 1 and 2. This will need to continue until such time as a full economic tariff can be established. This situation has not changed because of the equitization process. However, this is only a short term solution since, given the nature of their assets (eg buried pipework, new treatment plants) and the limited availability of capital from the public purse, all water utilities will need to borrow in order to establish an effective Capex program.

Currently utilities continue to apply to state government for funding on an ad hoc basis, and are not able to develop a full long term investment programs under these conditions.

4. Bonds, Loans, and Grants

Of the main funding instruments available, it is potentially possible for utilities to raise extra capital through issuing bonds. However, given the weak financial situation of most of the utilities, and difficulties of guaranteeing repayment it is not a likely general solution under the present climate.

Loans, soft loans and Grants in this sector are typically only available through State intervention, often sourced by donors.

There is significant potential demand for the capital funding for the reform and improvement of the water utility sector. A suitable national funding mechanism needs to be developed focused at utility level, or on-lent and managed through individual provinces,

5. PPP arrangements & Outsourcing

Limited use of PPP arrangements has been made for water supply. Some arrangements have been established, but generally the income stream needs to be guaranteed by state or the utility. This approach has been used for bulk water supply treatment plants – where the state or the utility pays the PPP operator directly for services provided (e.g. water produced or supplied).

Current PPP water projects include:

Table 1: major PPP projects in the water sector

No	Project	Capacity (m3/day)	Investment period: Commencement – Completion of construction	Total investment amount (million USD)	Investors	Status
1	Binh An BOT (HCMC)	100,000	1992-1999	37.5	A group of 3 companies from Malaysia	in operation
2	Thu Duc BOO (HCMC)	300,000	1997-2009	94	CII (Vietnam)	in operation
3	Song Da BOO (Hanoi)	300,000	2004-2009	80	Vinaconex (Vietnam)	in operation

In the drive for efficiency the more progressive utilities are considering outsourcing services and functions that can be more efficiently carried out by specialist service providers (e.g. facility cleaning and maintenance or vehicle maintenance, NRW reduction). This brings potential cost savings in overheads as well as economic and operational gains through the use of private sector services.

5 Water & Waste Water Utilities

The majority of the utilities are solely responsible for potable water supply (although it should be noted 29 of the 79 utilities nationally offer both water and waste water services). The focus of this review is on general utility management and operation, and many of the operational measures for improvement relate directly to the water supply sub-sector, although there are some sector specific differences for waste water services.

This review is focused on the progress of the existing institutional reforms, rather than on general policy for development and improvement of the connectivity and capacity of the waste water infrastructure in Vietnam.

However, for completeness we attach a brief review of the specific situation and issues in the wastewater utility sub sector in ANNEX G[13].

This reflects the similar utility issues for water supply utilities (e.g. insufficient revenues) but with the added nationwide problem of lack of coverage of sewerage systems and inadequate treatment levels. These sector specific issues, related to overall sector policy, are best considered outside the scope of the current review.

6. Market Fragmentation vs. Economies of Scale

In developed utility markets (eg United Kingdom and France ('syndicat des eaux')) the trend is towards regional management and regional schemes, that will take advantage of economies of scale, and making shared use of scarce resources and management skills.

In Vietnam, the development of a limited number of Regional Projects has been proposed, to capture the benefits of economies of scale. For instance,3 regional water plants are included in the Master Plan for the Mekong River Delta area, approved by the Prime Minister's Decision No. 2065 dated 12/11/2010. They are Song Hau 1, 2, 3 with capacity from 500.000-2.000.000 m3/day with water source from Hau River. Currently these are awaiting funding.

However, as part of the equitization process there is pressure to increase stock value through fragmentation of utilities. This has been evidenced by examples of the separation of functions such as water production and distribution/retail activities. For example, splitting an integrated city utility into a number of small water distributors is not effective because of losses of economy of scale, administrative costs and most importantly, loss of the ability to carryout O&M and investment/rehabilitation of the network city-wide. In the case of HCMC, the decision to split out and equitize individually 6 distribution branches has proved highly inefficient for SAWACO and the

[13] ANNEX G. NOTES ON SEWERAGE AND WASTEWATER SERVICES

management and development of the water supply system in the city. It led to the break-up of the city distribution network and created obstacles to efficient management and rehabilitation and expansion of service network. As a direct result SAWACO is having to consider "buying back" the private shares in those equitized water distributors.

If this restructuring of larger utilities along functional lines is to be carried out[14] it should be undertaken in such a way (eg by establishing functional divisions or subsidiaries, but not by establishing separate functional equitized entities) that shared services, manpower or resources are not split, or required to be duplicated in order to achieve the split.

7. Investment Programs:

As a result of inefficient mobilization of private investment (through equitization or capital markets), major capital investment is generally carried out using ODA loans or grant aid where available to supplement limited national funding (through government/provincial budget or credit investment scheme of state-controlled banks such as Vietnam Development Bank).

Concessional ODA sourced funding historically played a crucial role in funding the development of urban water supply in the last 20 years. Major donors include multi-lateral banks (WB, ADB) and some bilateral donors (Japan, Finland, France, Denmark, Netherland, Australia, Korea etc.) Often these funds are also linked to institutional or operational improvement.

According to the WB WSP Report on Service Delivery Assessment of water supply and sanitation in Vietnam (2014), anticipated public CAPEX for water supply and sanitation was estimated to be US$208 million per year and US$231 million per year, respectively. The available information also indicates a strong bias in expenditures in favor of urban areas. In the case of sanitation, for example, the anticipated public CAPEX of US$205 million per year in urban areas is about 95% of the total for the sanitation sector, and for water supply, the urban share is around 70% of the total water spending. Anticipated public and household investments for water supply and sanitation are lower than required capital investments by US$1,258 million per year and US$784 million per year, respectively. This huge gap can be filled by additional ODA funding, and more importantly, private investment under PPP program that is strongly promoted by the Government with support of donors.

[14]As an example in Can Tho, there are 3 equitized subsidiaries with Government stake of 60-80% (which is represented by the main company/Can Tho Wassco). They're 100% independent, no common services. There are a few more 100% owned by the main company, which may probably equitized in the future.

Table: Current major programs include:

Donor/IFI	Project	Value (USD)
ADB	Loan No. 0054: MFF Water Sector Investment Program	1 billion
WB	Urban Water Supply and Wastewater Project	200m
WB	Vietnam Urban Upgrading	382m
WB	Local Development Investment funds	190m
WB	Mekong Delta Urban Upgrading Project	292m
JICA	Nhon Trach 1 Water Supply Project	100m
JICA	Southern Binh Duong Province Water Environment Improvement Project	195m

8. REFORM REVIEW: SUMMARY & CONCLUSION

The process of equitization of the urban water &wastewater utilities is continuing. At present, out of the 79 Utilities, only 23 Utilities have been fully equitized. The rate of this process is slower than anticipated.

In addition to the restructuring to allow access to capital, the equitization process has created the potential benefit of autonomy for the utilities, and a clear financial and operating business structure that will allow the potential for more effective utility functioning. These advantages are not yet fully realized since the revised structure alone cannot bring all the advantages and efficiencies necessary.

Generally it cannot be said that performance improvements (financial and operational)have occurred directly as a result of equitization. Overall the improvement has been limited, but with the exception of those more efficient companies that were anyway performing well before they were equitized.

However the equitization restructuring does offer opportunities for continuing actions to support the reform process, leading to more effective provision of water and waste water services.

Some areas that would support the effectiveness of the reform process could include:

- Support to PPCs and utilities in 'commercial', managerial and financial preparation for equitization, and the financial and institutional support to become a fully professional utility operation on a sound commercial footing under the new autonomous equitized structure.
- Establishing a contractual relationship between the PPCs and the individual utilities as a key part of the ongoing reform process.
- Introduction of a formal approach to key financial and managerial functions across the sector including an approach that establishes and formalizes:
    - Levels of Service provision
    - Asset Management planning
    - Formalization of process of assessing investment needs
    - Clarity on the process for establishing and revising Tariffs and revenues.
    - Clear Financial Management objectives for the utility
    - Approach for effective project development and methods for attracting funding for investment

Development and implementation of this approach will be a key to successful reform, and in particular it will be needed for the viability of the utility, and required successful formalization of the contract between PPC and the utility and for successful regulation of the utility (as noted in Section 2 Regulation that follows) .

- Support for operational and management improvements for better utility performance. These would supplement existing sector initiatives, and would bring the necessary skills, capacity building and financial support to maximize results. This could result directly in improved levels of service (e.g. via NRW reduction programs) or general improvements in utility effectiveness (e.g. introduction of commercial systems, management training, customer service and billing systems etc.)
- Funding for capital investment schemes that offered the highest improvements in operating or financial effectiveness and that offer an improved levels of service to the customers

These are examples of some of the key issues that should be explored. Some are general to the whole sector. The operational, financial and management needs will vary from utility to utility. Some utilities will have greater needs than others, and some way of dealing with this variation should be explored further

For all issues there are institutional, financial and resourcing needs, and a need for general and coordinated change management processes. The sector is one of high importance to the Government of Vietnam and improving its performance will have a great influence on the welfare of the general population.

We welcome the opportunity to enter into further dialogue between the World Bank and the Government of Vietnam on ways to continue and improve the effectiveness of this Reform Process

REVIEW OF URBAN WATER & WASTE WATER REFORM & REGULATION

SECTION 2:REVIEW OF SECTOR REGULATION

In this Section we review the key aspects of sector regulation:

- 2.A Regulation of Health related aspects
- 2.B Regulation of Water Resources and Environmental aspects
- 2.C Economic Regulation

Of these aspects the main focus of this review and the main body of our work is the **Review of Economic Regulation**. The economic issues are our main objective, reviewing the operation of the sector and assessing how the economic and financial basis of the sector may continue to be improved. However, the other two regulatory issues are important, and all three aspects need to be managed holistically to improve the sustainability of the sector.

According to recent research,[15] in order to deal with problems related to both water quality and quantity as well as to strengthen the sustainable and integrative management of the nation's water resources, the Vietnamese Government has adopted a wide range of laws and regulations. In recent years, more than 300 water-related regulations on the guidance and implementation of the Law on Water Resources (1998 and 2012) have been issued and often amended to meet the requirements of the country's development and its increasing international integration. In spite of this, the current legal framework for water resources management in Vietnam remains ineffective and does not correspond with the reality on the ground. Furthermore, law enforcement is deficient and often national regulations are ignored by local authorities, who prioritize short-term economic growth of their communities over sustainability.

The system of state management of the water sector has not fully succeeded in formulating and ensuring its effectiveness in a coordinated manner. The functions and tasks of state management agencies for the water sector are still not clearly distinguished from those of agencies managing the daily operation of works for the exploitation and use of water resources and water supply services. In other words, Vietnam has still not achieved consistency and coordination of the systems of policies, laws, standards and norms in the domain of water resources for the sustainable development of the water sector.

It is against this background that we have conducted our review with a view to assess the current situation and to propose possible avenues for improvement

[15] Legal summary of water sector in Vietnam (Loan Nguyen, University of Munich 2013),

2.A Regulation of Health Aspects

Ministry of Health (MOH) -Health and Environment Management Agency (VIHEMA)

Responsibilities

The MOH has responsibility for the regulation of health aspects of the urban water utility sector, with specific responsibility for:

- Development of national standards (working with the appropriate Ministry)
- Drinking water quality control for urban water utilities, (rural water and small and domestic standards are a separate issue under separate legislation).
- Drinking water quality for utilities of capacity 1,000 cubic meters per day or more (Vietnamese Standard QCVN 01:2009/BYT)[16], and applied to piped water supplies and for plants and installations.

Standards:

Standards are well established nationally, within the legal framework:

- National Standards are developed on the basis of WHO minimum standards adapted to Vietnam conditions. They were developed through inter-ministerial involvement (including MOC, MONRE).
- The latest standards are set out in the 'National Technical Regulation on Drinking and Domestic Water Quality 2009'. This regulation details the various chemical, biological and radioactivity standards for drinking water.

Monitoring:

The MOH has a clearly established function for monitoring and control:

- The National Technical Regulations determine the frequency of sampling, monitoring and inspection prior to water use.
- The utilities are responsible for a program of reporting on water quality, and they have to report the results to MOH. Testing has to be done weekly, 6 monthly or every 2 years according to the category (A,B, or C parameters). Reporting is typically annually, but may be more frequent.
- MOH have responsibility for a program of verification of test results
- MOH have 4 technical institutes capable of carrying out all tests. Funding is from within MOH
- There are also DOH Centers for Preventative Health that work to an annual plan, get funding locally and submit reports to the local government. However these reports are also presented to MOH. These centers also have responsibility for monitoring hospital waste
- A major problem throughout Vietnam is arsenic, particularly in groundwater.

- **MOH/DOH Inspectors:**

[16] Less stringent standard QCVN 02: 2009/BYT is applied to domestic water including piped water providers for plants and installations of capacity 1,000 cubic meters per day or below

- These are at local government level. Most activities relate to food hygiene control, but they will be involved if there are specific problems related to potable water supply eg:
    - Cholera
    - Nitrates
    - Arsenic

General:

- Most efforts are applied to monitoring source or production quality (ex-works). Quality throughout the distribution networks may not be monitored or controlled sufficiently to ensure that consistent quality levels are met at the point of consumption. Additional testing and appropriate resources would be required to extend the testing regime.
- Generally quantity of water into supply is seen as being the main criterion of the water utilities – however there needs to be a balance to ensure water quality standards are met.
- DOH (preventive health centers) have limited resources for monitoring and control both at central and local level, and if expansion of the regulatory activity for the urban water sector is required (eg if more emphasis was paid to water quality issues within distribution networks and at the tap) then higher levels of resources and staffing at central and regional level would be required.

In discussion with MOH officials the comment was made that whilst MOH are responsible for water quality standards, there would be major benefit for MOH to be involved in water sector coordination discussions. At present MOH are not directly involved, and feel that their involvement and better coordination would be of benefit

Conclusion: Health Regulation

Current regulation is generally limited to source or treatment plant outlets. Quality levels within distribution systems and at household levels are not monitored or controlled systematically, except on an emergency basis, and generally quality levels are not achieved in these areas. However, if sector requirements for monitoring (eg monitoring distribution systems more widely) were to be increased then additional resources and management systems would be required.

2.B. Regulation of Raw Water Exploitation, Wastewater and Environmental Aspects

MONRE is a ministry responsible for regulation of water resources and wastewater standards in Vietnam. The amended Law on Water Resources of 2012 confirms that water is an essential natural resource of Vietnam and aims to protect water resources effectively, use them reasonably, and to prevent and remediate damages caused by water pollution while strengthening government management of water resources.

A. Water Resources

Licensing

The exploitation of water resources for domestic water supply by WSCs must comply with the master plan on water resources as specified in the Law on Water Resources 2012. At present no detailed procedures have been developed for applying the Law by national or regional authorities. WSCs must obtain permits for exploitation of raw water for WTPs. The licensing work is conducted at central and local levels. Under the provisions of Decree No. 149/2004/ND - CP dated 27 July 2004 and its replacement Decree No 201/2013, the discharge of wastewater into the environment, and licensing the exploration and exploitation of surface and ground water for works with a yield of 50,000 m3/day (surface water) and 3,000 m3/day (groundwater)or more is the responsibility of MONRE. Sources with the yields under these thresholds fall under the control of the PPCs.

The license granted to WSCs specify clearly the geographical points of water exploitation, volume per day, site monitoring and reporting mechanisms.

Monitoring

WSCs are responsible for regularly monitoring water sources to ensure the quality is sufficient for domestic use or for households ('daily –life water') and ensuring ongoing quality of such water sources. In case of an incident of water pollution, WSCs are required to develop a contingency plan for accessing other raw water sources. PPCs are accountable (i) to identify and publicize the Hygiene Protection Zone of various areas supplying daily-life water as prescribed by MONRE, and; (ii) to organize the dissemination of information on the quality of daily-life water sources, warn against abnormal water pollution or water quality events that could affect the quality of daily-life water sources in local areas.

At present about 40% of the water supply for urban areas is from groundwater. The urban areas using groundwater most heavily are Ha Noi (with nearly 1,000,000m 3 /day) and Ho Chi Minh City (more than 500,000m 3 /day). Rapid urbanization and economic development are having a big impact on water resources in Vietnam, with groundwater in the shallow aquifers in Hanoi and Ho Chi Minh and other cities showing signs of contamination by organic compounds (herbicides, insecticides, fertilsers etc)

The new Law on Water Resources 2012 specifies that the exploitation of underground water is restricted in areas which contain: (1) surface water resources able to satisfy stable demand ; (2) underground water with water levels declining in consecutive periods or experiencing dramatic decline; (3) danger of land subsidence, saline infiltration, and increase in pollution due to exploitation of underground water; (4) polluted underground water sources, or showing signs of pollution but without technological solutions to deal with water quality management; and (5) urban areas which have a point-source water supply or water supply services that are already adequate for local requirements. However, it has yet to be determined how this Law will be fully enforced in practice.

Conclusion: Water Resources

At present water resource regulation is weak – the laws and regulations are reasonable. but they have not been implemented fully. Proper and effective implementation will require additional resources and management systems.

B. Wastewater and environmental aspects:

Licensing by PPCs

PPCs are responsible for licensing and issuing permits for wastewater discharges. PPCs are also responsible for dispute settlement on environmental issues (as noted in Decree No. 149/2004/ND-CP).

One of the specific objectives of discharge permits is to control the pollution of water sources and end the use of toxic chemicals in industrial and agricultural production that would adversely affect exploration, exploitation and use of water resources. MONRE has a shared responsibility (with PPCs and other stakeholders) for the protection of water resources; for identification of areas being polluted or depleted; for assessment of the current status of water quality and for provision of monitoring and supervision of water resource quality and discharges of sewage into water sources.

Apart from the national technical regulations on the environment, there are also regulations on environmental impact assessment (EIA), strategic environmental assessment, and environmental protection. The Vietnamese government has issued Decree No. 29/2011/ND-CP of 18 April 2011 providing regulations on strategic environmental assessment, environmental impact assessment and environmental protection commitment. Based on this decree, on 18 July 2011 MONRE adopted Circular No. 26/2011/TT-BTNMT providing detailed guidance on strategic environmental assessment, EIA, and environmental protection commitments.

SECTION 2.C REVIEW OF ECONOMIC REGULATION IN THE WATER SECTOR

This Section provides a detailed review, and proposals for improvement, of economic regulation in the water sector in Vietnam, and is the main focus of this part of the Review.

A key issue for sector sustainability is the lack of formal economic regulation. There is indirect control, through national and state budget constraints on financial issues, or by the application of laws and regulations on the operation and management of the utilities. Those utilities that are not yet equitized are subject to normal public service checks and balances, but not specifically for the utility services. The equitized companies are controlled by their shareholders, but there is no direct regulation of the way that they provide their services to their customers. PPP contracts and outsourcing activities will impose contractual obligations that can be enforced, but there is no general and comprehensive system for regulating the way in which these utilities provide services to the Public.

2.C.1 Identifying Regulatory Problems

In Section 1 we identified a number of factors that are linked to the poor performance of the sector. Even with utilities that are able to provide effective operation and management of existing systems, the levels of service provided to customers cannot be maintained or bettered without a number of supporting issues being addressed:

- Sustainable tariffs and funding structures
- Formal business planning
- Asset management and development
- Financial planning
- Capital investment

The importance of these issues for sector viability is recognized in Decree 117 (Water Decree) Article 31. This Decree requires the establishment of a contractual relationship between local state government and the Water Supply companies (WSCs),and includes specific content covering these particular issues. However, as noted previously these important contractual relationships have not been implemented. It is recommended that the PPC, rather than lower levels of government, is the contracting party with the utility. This will improve sustainability since the PPC approves tariffs and has much greater capacity (technical and financial) to manage contract implementation compared with town and commune level governments.

The main functions of an effective Economic Regulator would be:(a) to assist the PPCs and utilities in developing, establishing and maintaining their necessary systems and procedures to support their contractual and regulatory obligations associated with the provision of water and sanitation services, and (b) to ensure that both the PPCs and the utilities were compliant with the terms of the contract. The benefits of such regulation would be an ordered and productive sector, improved levels of service to the customers, and improved economic and financial efficiency.

The current ineffective regulation of the water and sanitation sector in Vietnam results in performance by the utilities that is not fully satisfactory to either customers or to owners of the utility (PPCs or shareholders/investors). Poor results occur when the regulatory framework does not provide adequate incentives for proper performance or behavior. This Section builds the groundwork for recommendations to improve the regulatory framework by identifying how and where problems occur:

A. Goals of Economic Regulation

Economic regulation[17] consists of the set of rules and institutional arrangements[18]that set, monitor, enforce, and change allowed tariffs and service standards. Its purpose is to address the problem of natural monopoly.

Natural monopoly[19] occurs when the total cost of providing a service is minimized by having a single firm provide that service. The problem of natural monopolies is that they are not subject to competitive pressure, so they lack the competitive impetus to offer services customers want at a price that reflects costs. Economic regulation mimics competitive pressure, enforcing desired service standards and controlling prices so that service providers recover reasonable costs.

Effective economic regulation averts the potential problems caused by monopolies, such as tariffs that are above the reasonable cost of service, quality of service that is below desired levels, or failure to serve less attractive low income households. Indicators of effective economic regulation of water and sanitation services include the following:

- Providers of water and sanitation services are financially sustainable and operate at an efficient level
- Returns provided by water and sanitation utilities are not above what could be considered fair and reasonable, and are sufficient to attract required capital
- Water is supplied on an optimal-cost basis
- All customers, including the poor, receive the expected quality of service and good quality of water
- Sector objectives for water and sanitation are achieved (such as universal coverage, continuity of supply, sufficient pressure, health standards met)
- The benefits of the regulatory framework exceed its costs

Poverty and Inclusiveness

It will be important to ensure that these regulatory reforms are undertaken in an explicitly poor-inclusive manner. Although Vietnam has introduced a policy of free water supply connections for all, this policy has not been supported by additional budget allocations to ensure that poor communities benefit. As a result urban utilities frequently have insufficient funds to meet the demand for network extensions and new connections, and it is more isolated, poor communities that are the least likely to be connected. Reforms are also likely to result in tariff increases to ensure financial sustainability. It will be critical for the regulatory arrangements to ensure that poor household affordability is taken

[17] Groom, Halpern, and Ehrhardt, Explanatory Notes on Key Topics in the Regulation of Water and Sanitation Services, The World Bank Group, p. 1

[18] ANNEX F gives a summary of "WATER UTILITIES & REGULATION – GOOD PRACTICES"

[19] Viscusi, Harrington, Jr., and Vernon, Economics of Regulation and Antitrust, Fourth Edition, p. 524

into consideration (eg lifeline tariffs, progressive tariffs), and that the poor (and society in general) have a voice in the reform/regulation agenda.

In the next section, we detail the main challenges facing the water and sanitation sector in Vietnam from a regulatory perspective

B. Economic Problems in the Water and Sanitation Sector

In this section, we identify the typical poor economic outcomes for utilities in Vietnam, following our review in Section 1. Then, we describe how the lack of a framework for economic regulation contributes to these inefficient outcomes. The problems identified in this section drive the regulatory recommendations in the final section.

In a properly functioning market, service providers receive fair and reasonable returns in exchange for operating efficiently and providing customers with the service they desire at a price they can afford. Markets in sectors that are characterized by natural monopoly (a structural lack of competition) will only function properly if they are governed by an effective regulatory framework. Therefore, poor outcomes in the water and sanitation market signal deficiencies in the regulatory framework.

The table below provides an indication of key typical failings in the water and sanitation market, related to regulatory issues, as applied to the general case in Vietnam

Table 2.1: Identifying Typical Problems to Be Addressed by Economic Regulation

Regulatory Issue:	**Key Concern?**
Tariffs are not adequate for financial sustainability of the water utility at existing level of efficiency and coverage	Yes
Tariffs are not sufficient for capital investments to achieve desired level of sewerage coverage (collection and treatment)	Yes
Tariffs are well above cost of service and are not affordable by some of the utility's customers	Not applicable NA
Returns earned by owners of the water utilities are above what could be considered fair and reasonable	NA
Utility does not have adequate incentives for operating efficiently	Yes
Unfair competition undermines financial sustainability of the water utility	NA
Quality of service provided to customers is not adequate	Yes
No effective, independent entity or mechanism in place for customers to redress their grievances	Yes
No effective dispute resolution procedure for PPCs, Utilities or customers	Yes
Service provided and/or tariffs are leading customers to seek alternative source of supply	NA

This key concerns highlighted in the table demonstrate the need for economic regulation:

- All utilities lack a functioning regulator
- Utilities are generally not operating at a sustainable level
- Customers are not receiving the best level of service that is economically feasible
- There is no official customer grievance procedure
- There is no effective dispute resolution system

The water and sanitation market in Vietnam has no functioning regulator.

The key purpose of an economic regulator is to ensure that utilities are held accountable for the services they provide and that tariffs charged to customers cover the reasonable costs of providing those services. An effective economic regulator provides the feedback loop that is absent without competition. In a competitive market, customers signal to a supplier that they are unsatisfied by changing their behavior—either by purchasing the product from a different supplier or by switching products. In the market for utility water and sanitation services, however, customers are not free to replace their provider with another. Regulatory authorities can address this market failure. Customers of regulated natural monopolies can notify the regulator if they are unhappy with price or quality of service. A regulator will also provide the PPCs and utilities with a forum for dispute resolution.

For instance, if a utility allows the quality of its service to deteriorate, there currently exists no reliable body in the Vietnam that customers can turn to address this problem. An independent regulator could fill this role.

The Utilities Operate Unsustainably

From the review in Section 1 the utilities face well-documented problems of poor finances, deteriorating infrastructure, and low quality of service. These problems are closely linked to a poor regulatory structure that keeps WSC's tariffs well below the full cost of service. This section explains how regulatory difficulties contribute to a WSC's poor performance.

The Utilities deteriorating financial position

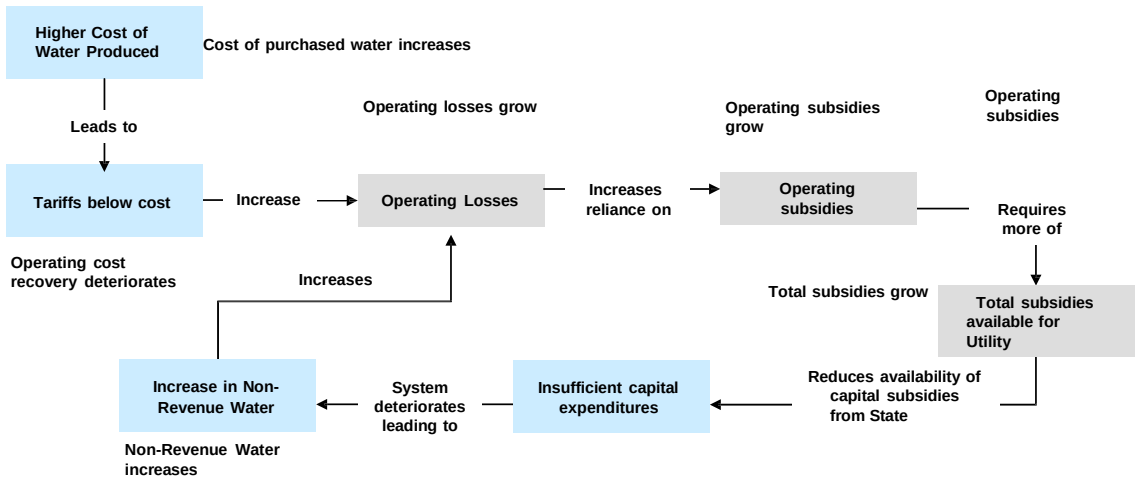
With tariffs set below its full cost of service, a WSC relies on government subsidies to cover its losses. This system of recouping losses through government subsidies has led to deterioration of the WSCs' financial and operational performance, for the following four, interrelated reasons:

1. A utility's costs of service has increased with rises in the costs of inputs (such as electricity)
2. A utility's tariffs have fallen below the company's cost of service,
3. Subsidies available for the utilities often have had to be used to cover the increasing operating costs, and thus decreased the already limited availability of funds for capital investments
4. The decreased capital expenditures (on asset maintenance and renewal) leads to further asset condition and performance deterioration. This lack of investment hampers ongoing efforts to improve system performance measures, such as levels of NRW[20]

[20] Non-revenue water equals the volume of water put into supply minus the volume of water billed.

Figure 2.2 illustrates the cycle leading to the utility's financial deterioration.

The Utility dynamic of increasing operating losses



After Castalia: September 2013 Bahamas Regulation

In the following sections we look at international experiences with regulatory models and how they might be applied in the Vietnam water sector

2.C.2 International Experience of Regulation of Water Supply and Sanitation

This section summarizes briefly some of the regulatory mechanisms applied around the world for economic regulation of water supply and sanitation, looking at both developed and developing countries[21]. Each country's regulatory framework has been developed/ influenced by its historical, political, economic and legal environment, as well as factors relevant to the sector itself. These examples are given to illustrate the key issues that need to be considered and options for dealing with them. The Government of Vietnam will need to craft the chosen solution to take into account the specificities and challenges of the water sector in Vietnam.

The international experience can be summarized in four regulatory approaches:

- Separate regulatory agency with a Licensing Regime
- Regulation by contract
- Regulation by contract with a separate Regulator (hybrid)
- Self-regulation

A. Separate Regulatory Agency with a licensing regime–an agency separate from the service provider issues licenses to service providers and sets the terms of supply services. This model has traditionally been used to regulate private service providers (as in the case of England and Wales and the United States), but is being used increasingly to regulate public service providers (eg some states in Australia and the US). In some countries this agency is established as an independent, autonomous institution to distance the agency from political interference and

[21] This section draws on previous World Bank studies (including Options Paper on Water Regulation in the Philippines WB 2013)

influence. Regulatory agencies may be at a national (England and Wales), regional (US and Australia states) or local level.

In each case the regulator has been established as an independent Commission or Authority by statute, with commissioners appointed for relatively long terms (between 5 and 7 years) and financed out of tariffs. Their functions are clearly set out in statute and cover standard setting and monitoring, data collection on financial and operational performance, tariff setting and monitoring, and consumer complaint handling. Their mandates have evolved and require greater consultation with consumer groups. In England and Wales in particular OFWAT uses extensive benchmarking of water companies to compare performance, which is widely circulated. The regulators have broad powers derived from statute and supported by contracts or licenses established between the regulator and utility, with powers to impose penalties/ sanctions and give incentives and broad powers to require disclosure of data and information. In some cases they have dispute resolution powers regarding contracts entered into by the utilities (such as the bulk supply arrangements entered into by water companies in England and Wales). Each of the regulators carries out price reviews on a periodic basis (in Australia and England, usually 5 years, in the US, more frequently). Decisions of the regulators can be challenged in court (although for England and Wales there is an appeal mechanism via the Competition Commission). In each case there is a separate agency or agencies responsible for water sector policy and an agency responsible for monitoring water quality and enforcing environmental standards. The regulators coordinate with these agencies to ensure that utilities have the funds to cover planned and mandated investments and service improvements.

The regulator in England and Wales is at national level but it is has a relatively small jurisdiction. The commissions in the US and Australia are at state level and mostly multi-sector regulators, with specialists for each sector. The state commissions are relatively close to their constituents but there is concern that approaches are not uniform between state commissions and there have been calls in each country for coordination at a national level of service standards and tariffs.

Tariff setting methodology in England and Wales is based on a price cap which allows utilities to retain efficiency gains as long as tariff limits are not exceeded. By contrast, the approach taken in the US is to apply a rate base/rate of return methodology based on: the value of assets on which a return can be earned (the rate base), the authorized (but not guaranteed) rate of return to recover capital costs, and the allowable operating expenses for the utility. Once the utility's total revenue requirements are established, the commission approves the tariffs that can be charged to various classes of customers. Whilst the system is not entirely without incentives as underperforming utilities will not earn their authorized return, gains achieved from cost savings are generally allocated to consumers and so there is limited incentive to achieve efficiencies. Some State commissions in the US are moving towards performance based regulation in the energy sector and have done so in the telecoms sector. There are calls to do so in the water sector also.

In England and Wales responsibility for water supply and sanitation service provision was aggregated into 10 regional bodies established along river basin lines, which in turn were corporatized and privatized. It was at this juncture that economic regulation was introduced by statute. In the US the water sector is very fragmented and there has been little attempt at aggregation or policy to promote efficiency and economies of scale.

Advantages and Disadvantages: Separate Regulatory Agency with a licensing regime

Advantages	Disadvantages
Strong independent regulator free from political influence	Some argue that there is still some political interference
Functions and powers established by statute - clear	
Good coordination between policy and regulatory agencies, with generally well defined and distinct functions	Regulation comes at a cost – reviews and regular accounting requires time and resources on part of regulator and utility companies
Consistency in tariff setting and measuring performance (particularly in England and Wales with a national regulator) – significant improvement in performance, significant private sector investment	Monopoly position of companies – difficult to introduce competition and resistance from private companies as companies have invested in the sector.
Aggregation of service providers along river basin was implemented in England in 1973 prior to privatization and introduction of regulation (1990)	US system is fragmented – there has been little aggregation and regulation has not been catalyst to aggregation
Most of license provisions standardized	
General consistency in enforcement of obligations	
Flexible – licenses can be amended by agreement	
Sanctions and incentives – license with penalties and incentives, with ultimate sanction of termination	
Accountability through courts	
Extensive obligations for disclosure of information	
Extensive use and publication of benchmarking of performance (England)	
England and Australia regulator regulates almost all service providers. In US, more piecemeal regulation (most private providers, some public providers)	

B. Regulation by Contract- a contract typically defines the relationship between the asset owner and the service provider. France has a long history of these arrangements with private sector providers contracting with local government. Such arrangements are in place in Metro Manila and Jakarta. These arrangements are also being used increasingly for public utilities through performance contracts (in the case studies, France, Germany and Uganda). In some cases third party approvals (such as parliament or a government agency) are required for approving changes in tariffs.

Whilst there is some standardization of terms and conditions of contracts (in France the association of mayors has developed standard terms for affermage contracts for example), there is criticism that regulation by contract allows tariffs to be determined on a case by case basis, with significant differences in tariffs allowed in different communes, and there have been calls over the years for some standardization in tariff setting methodology and national economic regulation. In France such calls are fiercely opposed by communes and the private sector.

The range of contracts and arrangements available in France and Germany mean that there are a number of models that can be applied to the particular circumstances of the utility, with greater or lesser financing and investment risk passed to the private sector depending on the contract. There is also use of mixed ownership companies.

In France regulation by contract has worked relatively effectively in terms of policies promoting aggregation of water operations, with incentives for communes combining to form clusters to delegate services to private sector providers. There has also been significant consolidation amongst the private sector service providers (with three main water companies dominating the sector which are now international providers). However, this concentration has raised concerns- these

companies are well resourced and sophisticated and their negotiating power is often considered to be much stronger than that of the communes.

Drinking water quality and environmental standards are typically monitored at the state or national levels, but there is limited benchmarking of service providers and data is not always widely distributed and published.

Municipalities have the ability to enforce sanctions against service providers directly, through regulation by contract, and so accountability is achieved at a local level. Administrative courts also step in, particularly in France, to ensure that both the public and private parties are performing their contractual obligations.

In France and Germany regulation by contract is limited to private operators and so the public utilities are subject to limited oversight and to political influence. As a result, public providers tend to have lower tariffs but also lower performance levels. Uganda has developed a system of performance contracts for public service providers, which has been effective, although there is a perception that the system works in Uganda due to significant political support and consistent policies and that it might be difficult to replicate elsewhere.

Advantages and Disadvantages: Regulation by Contract

Advantages	**Disadvantages**
Clear separation of policy function (at national level) and asset ownership and oversight function (municipalities)	Limited regulatory oversight of public operators
Entity overseeing performance (municipality) is local	Limited capacity of some municipalities
In France, aggregation of services of communes (economies of scale) has been encouraged through legislation, with some aggregating along river basins	In Germany the sector is fragmented and no policy towards aggregation
	No central body setting tariff methodology – lack of consistency in tariffs.
	Germany and France, regulation only covering private sector operators.
Limited standardization of contracts	Inconsistency in enforcement of contracts
Flexible – contracts can be amended, courts will determine on changes of circumstance	Still some lack of transparency in contract award and extension of contracts – particularly in France where there are three dominant private operators in market (which may reduce room for effective competition)
Sanctions and incentives – contract with sanctions and incentives, municipality with ultimate sanction of termination	Limited disclosure of information – little benchmarking of private operators
Administrative courts ensure equilibrium between parties and both parties perform their contractual obligations	
Some obligations under law for disclosure of information	Limited number of contracts (concessions) where private sector is investing heavily
Private sector participation extensive in France	

C. Regulation by contract with a separate regulator (hybrid)– Under the hybrid model regulation by contract is combined with regulatory supervision by an independent regulator.

Typically tariffs agreed between the parties to the contract at the local level need to be approved by the regulator. This combined approach has been used for public utilities (Colombia and Kenya) and private WSCs (Niger and Colombia).

In Kenya and Colombia, there is a particular disparity between the large urban water providers and the small scale rural providers and community based systems.

In Kenya there is a central economic regulator regulating publicly owned asset holders and service providers. The regulator establishes a tariff setting methodology, approves tariffs agreed between the public asset holders and the service providers and provides standardized contract terms and conditions, whilst the local public asset holders monitor performance of the service providers through a contract. The standard service agreements allow for different levels of service depending on the size of water system/service provider and so has flexibility. Whilst there have been significant improvements in service achieved since reform of the Kenyan water sector in 2002, there has in practice been limited enforcement of investment obligations on the asset holders by the regulator or enforcement of service provision standards and there is concern that there is limited capacity and lack of accountability at the more local level.

In Colombia water service provision is decentralized to the municipal level. For the public service providers regulatory functions are divided between three central agencies. These agencies have ensured that there is resource and capacity located locally to effectively implement this approach. Municipal utilities have been transformed into public stock companies that allow for private sector participation and there are a number of examples of private sector participation in the water sector in Colombia. Communal water boards still mainly provide water supply services in rural and peri-urban areas, and the private sector is mainly involved in larger urban areas. Where there is a concession or a lease/affermage contract between municipality and a private company, the general practice is to set service standards and tariffs in the contract which are to be monitored and enforced by the municipality (ie regulation by contract). However, the municipal concession and lease contracts are required to be consistent with national service standards and tariff setting methodologies established the national level by central bodies.

Advantages and Disadvantages: Regulation by contract with a separate regulator (hybrid)

Advantages	**Disadvantages**
Central agency/ agencies with clear function and powers and clear mandate	Risk that central agency will be central focused and focused on larger providers, rather than at local level – but this could be offset by local presence and/ or performance contracts at a local level.
Can maintain the status quo of contractual arrangements in place in creating regulation by contract for private sector participation (Colombia)	
Maintain flexibility in the actual regulatory arrangement whilst achieving some standardization and consistency	
Possibility of creating greater accountability of public service providers at local level and developing flexible approaches through performance contracts.	Risk that local government will not monitor performance of WSCS sufficiently – but regional offices of regulator can provide oversight
Has been shown to be appropriate for both private and public entities	
Potential for amalgamation and combination of services.	

D. Self-regulation– this is where the public service provider regulates its activities, sets tariffs and performance standards and monitors performance. The utility is typically accountable to a third party – such as a board of directors (as for many public utilities in the US where the municipality is providing the service eg San Francisco) or a monitoring body, such as the city council (with or without a formal contract). The majority of LGU service providers in the Philippines are currently self-regulating and this has proved unsatisfactory as significant political interference has resulted in low tariffs and underinvestment in many of the LGUs. There is also a difficulty in many self-regulating models with respect to a lack of uniformity in performance standards or tariff setting, with huge fluctuations from one service provider to another. Cambodia also has one service provider in the capital that self-regulates. In sectors where there is competition (eg telecommunications), it is often argued that market forces are sufficient to keep pressure on tariffs and performance allowing the sector to "self-regulate**".**

Table: Comparison of Regulatory Models in Case Studies[22]

	ENGLAND + WALES	US	AUSTRALIA	FRANCE	GERMANY	UGANDA	COLOMBIA	KENYA	CAMBODIA
Separate Regulating body	Yes - National Regulator	Yes - State utilities commissions	Yes - State service commissions	No - public party to contract	No - public party to contract	Yes – national, Min of Water	Yes - National CRA SSP	Yes – national, WASREB	No – self regulating
Sanitation part of mandate	Yes	Yes	Yes	Reg by contract	Yes – separate providers	Yes – limited in practice	Yes	Yes – limited in practice	No – self regulating
Regulated entities	Private	Mostly priv. utilities Public - self-regulate	Public	Private Public utilities self-regulate	Private (minority) Public utilities self-regulating	Public – NWSC + Branches	Private – by contract Public – CRA and SSP	WSBs and WSCs (by contract and regulation)	National water provider
Source of Power	Legislation License	Legislation License	Legislation License	Contract	Contract	Legislation + Performance contracts	Contract (pr) Law (Public)	Law, license, Contract (SPA)	N/A
Tariff setting function	Yes	Yes	Yes	Yes- with agreement of private party	State water authority	Approved by parliament	methodology- CRA monitor – SSP	approval – WASREB Contract	Yes – plus parliament
Set service standards+ monitoring	Yes	Yes	Yes	Yes – set in contract	Yes – set in contract	Set out in contract	Set - Min of Econ Devel, Monitor - SSP	Yes – model contracts	Yes
Set and monitor drinking water standards	No - DWI	No - State environment agency	No - State DoE	No - National agency	Federal Ministry of Health	Ministry of Water	Min of Econ Development	Min of Water and Irrigation	Yes
Set effluent standards	DEFRA	State environment agency	Fed and state levels	National agency	Federal and state	National agency	Min of Environment	Min of Water and Irrigation	Yes
Independence	Yes	Yes	In some cases	No	No	No	No	Yes	N/A
Handle customer complaints	Yes	Yes	Yes	Yes			SSP (Public)	Yes	Yes
Accountability/ dispute resolution	Competition Commission, Courts	Office of Gen Counsel, Courts	Courts	Administrative courts	Administrative courts	Board and sub-cttee Bonuses	SSP (Public), Courts – via contract (Pr)	WASREB	Accounts
Transparency and disclosure	Price reviews Accounts	Price reviews Audits and accounts	Price reviews Accounts	Contract + Competitive procurement	Accounts	Corporation – accounts	Contract (pr) Accounts	Accounts Price reviews	Little
Funding source	Consumers	Consumers	Consumers	consumers	Budget	Budget		Tariff	Tariffs
Enforcement powers	Fine + terminate license	Fine + terminate license	Yes – fines	Penalties + bonuses + termination	Penalties + bonuses + termination	Bonuses Termination	Fines (SSP) Termination (Pr)	Yes – fines, termination of license	N/A

[22] Options Paper for Water Sector Regulation in the Philippines;August 2013; World Bank WSP; Victoria Delmon, Senior Counsel;Alexey Morozov, Consultant

2.C.3 Regulatory Design: Lessons learnt from International Experience

There are significant differences between the regulatory models highlighted in the international examples but there are a number of commonalities:

a) whilst traditionally economic regulation has been introduced in respect of private WSCs, there are more and more examples of effective economic regulation of public WSCs
b) typically regulators regulate both water and sanitation service provision, although in practice regulation of sanitation provision has proved more effective where there are extensive centralized sewerage systems
c) whilst the two principal models of regulation (other than self-regulation) used around the world have been regulation by a separate agency or regulation by contract, there is a growing number of hybrid models of regulation with a regulatory body operating alongside asset holders, or complementing regulation by contract
d) a written license or contract between the WSC and the licensor (regulator)/ asset owner setting out clearly performance obligations and targets and establishing tariffs (for both public and private WSCs) enables oversight and benchmarking of performance (an important issue already raised in separately Section 1 of this Review in relation to improved utility effectiveness)
e) a separate centralized regulatory function can be useful to promote standardization of terms and oversee tariff setting, even where there is in place regulation by contract,
f) effective regulation requires a clear mandate and effective enforcement powers - the majority but not all of the regulators in the case studies were commissions or authorities established by statute with powers to enforce their functions and impose fines,
g) regulatory mechanisms need to have flexibility build into them to allow them to adapt to meet the challenges and changing demands of the sector,
h) effective economic regulation has not been achieved instantly and it has taken time to build capacity within both the regulating entities and the regulated utilities
i) significant staff and resources are needed both at a central as well as local level to make regulation effective. In countries where there are national regulators and a large number of WSCs, the regulators have regional offices to serve WSCs at the local level. In some federal countries regulatory bodies have been established at a state level. Regulation by contract provides a more local link between the WSC and the regulator.

2.C.4 Regulation of the Electricity Sector in Vietnam

A good example of a relatively successful regulator in Vietnam is the Electricity Regulatory Authority of Vietnam (ERAV). It has a clear mandate on its authority, functions and responsibilities[23]. It is has a key role in an established sector reform agenda. Its activities and methodology approach have been well established and over time resources, organization and capacity have been established to carry out its regulatory functions.

There is a general perception that ERAV is evolving into a well-functioning and experienced regulator for the electricity sector, but it is recognized that even after 6 years of operation it still has much work to do.

Whilst any regulator for the water sector will have to deal with sector specific issues, ERAV provides some important lessons for establishing a successful utility regulator in Vietnam:

Clear legal Mandate:

ERAV is established within the Vietnamese legal framework, under the Ministry of Industry and Trade through Prime Ministerial Decision #153/2008 /QD-TTg da.

Defined Position and Function:

ERAV is an agency under the Ministry of Industry and Trade: implements advisory functions to help the Minister in governmental management of electricity activities; organizes to carry out the regulatory responsibilities in the power industry to ensure supplying electricity safely, stably, to quality, using electricity economically/effectively and to ensure fairness, transparency, and complying with the law.

ERAV has a legal status with separate official seal and bank account. It has an operating budget supported by the national budget and from fees collected from the utilities. It has a head office located in Hanoi.

Defined Responsibilities & Authorities

Whilst these include items specific to the electricity industry, many of them are also relevant to the water sector. These include:

- Responsibility for approval or issuance of:
    - Regulation of setting the methodology, processes and procedures for promulgation of retail tariffs
    - Retail tariff setting
    - Regulation of compliance with the law within the sector
- Advice and support to the Minister for promulgation of regulation and projects:
    - Granting, altering, amending and withdrawing Licenses
    - Regulation of least cost planning
    - Regulation of sector effectiveness (eg consumption, power purchase agreements, codes, standards)

[23] "General Introduction' Paper ERAV 2014 "The functions responsibilities, authorities and organization of the Electricity Regulatory Authority under the Ministry of Industry and Trade are stipulated in the Decision #153/2008/QD-TTg dated 28 November 2008"

    - Regulations for methodology and approval of prices and fees
    - Regulation on inspection of sector activities, and dispute resolution for specific contracts
- Assist the Minister on inspections, monitoring, assessment and implementation of laws, policies, plans, projects programs and regulations related to Regulation
- Issuance of documents, guidelines and procedures
- Responsibility for implementing regulatory activities in the electricity market:
    - Appraisal of development plans of the provinces and cities under Central Authority
    - Publication of annual investment plans, monitoring the implementation of the plans
    - Licensing activities
    - Setting fees
    - Approval of supply contracts
    - Various additional sectors specific activities
- Annual reporting on sector regulatory activities
- Defining the source and use of funding established for sector regulation.
- Management of staff, finances and resources to carry out its regulatory responsibilities

Established Organization

ERAV has an official Board of Management with a Director and two Deputy General Directors. It has a well-staffed organization, with appropriate qualifications and skills. These are organized in functional departments:

- Administration
- Legal
- Customer Relation & Licensing
- Market Development Department
- IT
- Tariffs and Rates Department
- Planning & Technical Regulation

The Head Office is in Hanoi. Regional offices are envisaged for the central and southern regions to reflect the regional structure of the power distribution utilities.

Lessons learned from ERAV

Whatever the approach for regulation in the Vietnam water sector, the lessons learnt in establishing and implementing ERAV should be taken into account. It is a relatively effective regulator under Vietnamese conditions. Although the sectors are different, the key issues for establishing, implementing and operating a regulatory environment are the same.

2.C.5 Recommendations for Economic Regulation of the Urban Water Utility Sector

This section sets out the recommendations for the regulatory approach for the water sector, taking into account the findings from the previous sections.

The current situation for water services in Vietnam is described in detail in Section 1 of this report. This highlighted some of the challenges that are affecting the progress of reform in the water sector. One of the main challenges is the lack of formal economic regulation.

The decentralized nature of the sector, with 79 WSC's, a mixture of public, equitized and private companies, and a small number of PPP contracts will bring particular issues of management and control.

In Section 1, reviewing progress of the equitization process and associated sector reform, it was noted that there is a lack of formal control and integrated management across the water sector business(pulling together and integrating levels of service, asset management and needs, O&M planning, investment needs and business plans). Whilst guidelines for implementation of a method of implementing this approach (e.g. through the proposed contract between PPCs and individual WSCs) are already established, the detailed methodology, resources and program for implementation are not yet in place.

A pre-requisite for the successful development of a Water Regulatory Agency is that it would have to be undertaken in parallel with the formalization of the contractual agreements between PPCs and individual utilities- a key part of the sector reform process. In particular this would require the establishment of levels of service targets combined with formal asset management and planning, investment planning, tariff setting and business planning procedures, without which effective economic regulation would not be feasible.

Resolution of these key issues is necessary for effective economic regulation. Any regulatory approach must be linked to their development and implementation.

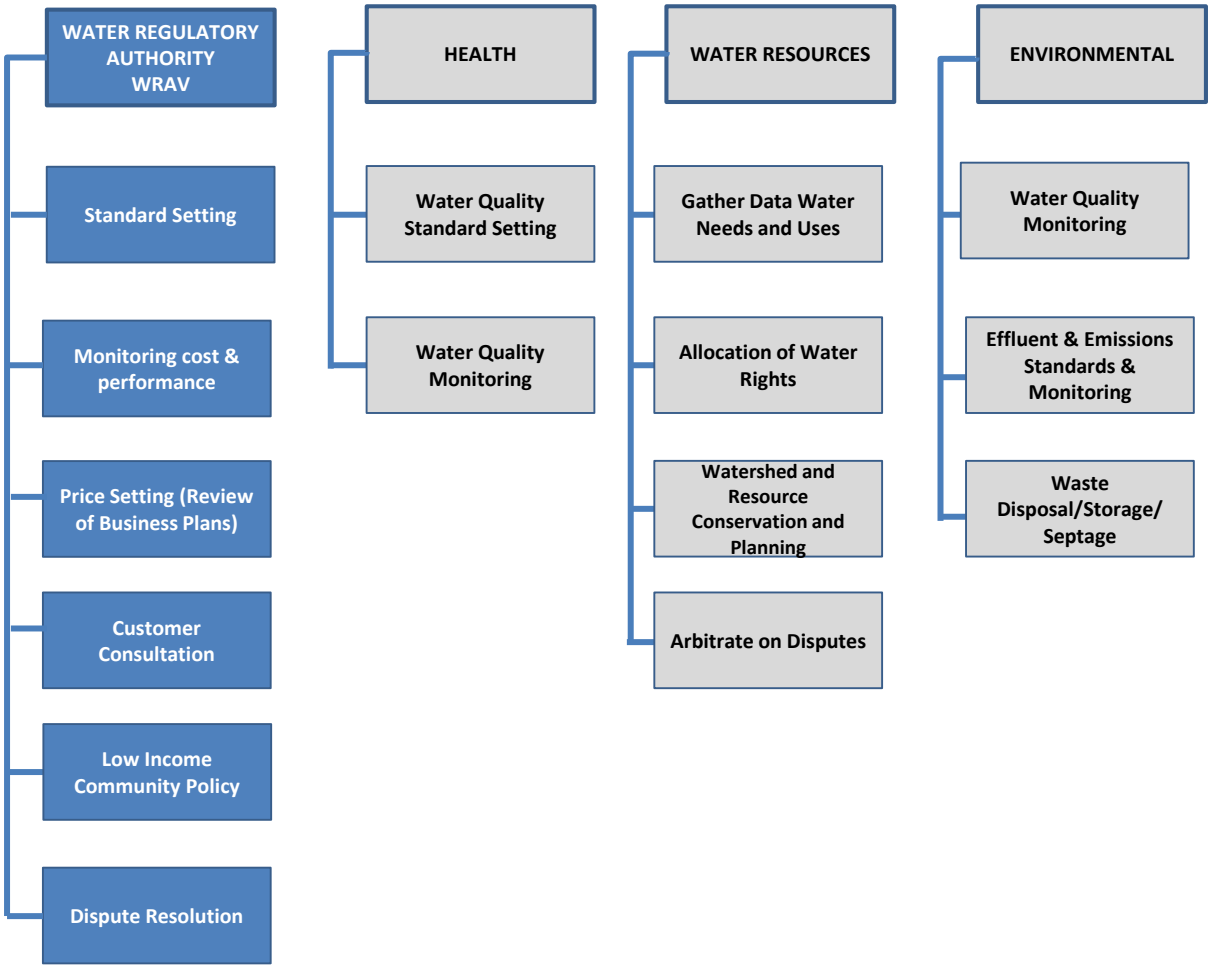
Section 2.C.3 summarized international experience of water sector regulation that the government could draw on, focusing on 3 main models: a separate regulatory agency with a licensing regime, regulation by contract, and a hybrid mechanism combining regulation by contract with a separate regulator. Section 2.c.4 reviewed the regulatory model in the electricity sector in Vietnam (with regulator ERAV).

Proposed approach for establishing an Economic Regulator:

Drawing from the international case studies **we recommend that the most appropriate regulatory model for the water sector in Vietnam would be the model of regulation by contract with a separate regulatory agency**. This model would need to be adapted to the decentralized nature of the Vietnam water sector. This model is similar in principle to the ERAV model for the electricity sector although with adaption to the specific needs of the water sector.

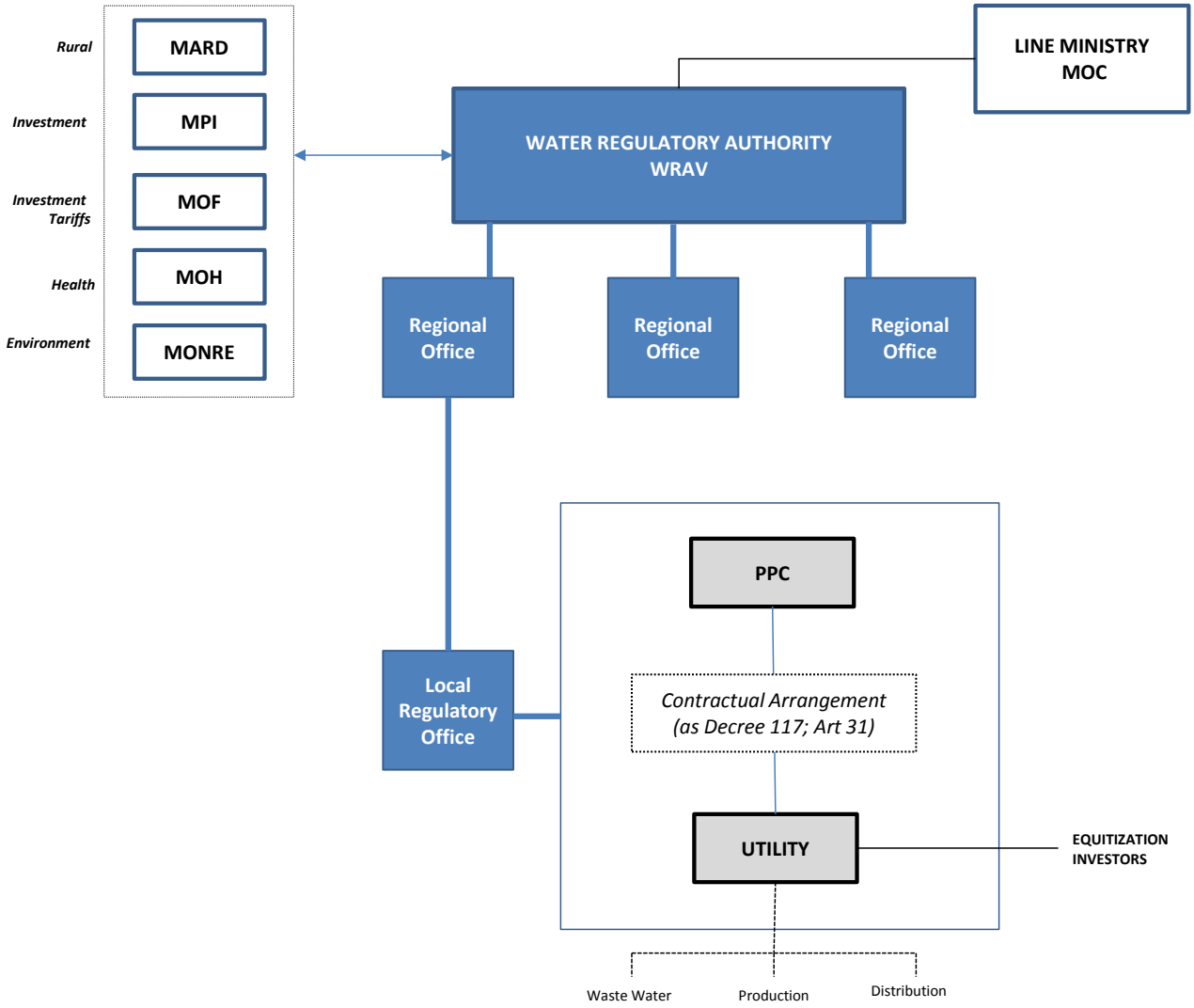
The main functions of the proposed Water Regulatory Authority for Vietnam (suggested here as WRAV) are shown in the following diagram below, which also references the main roles of the other existing regulators and stakeholders in the water sector:

Diagram: Proposed Functions for the Water Regulatory Authority of Vietnam (WRAV)



The WRAV would be an autonomous body, but under the guidance of the Ministry of Construction, the line ministry for the sector. With a head office in Hanoi we recommend the establishment and resourcing of a number of regional offices to deal with the large number of individual utilities in the provinces. It will be important that the WRAV coordinates with the Ministries and Government Departments involved in setting and administering policy on the water and sanitation sector as well as with the other sector regulators.

Diagram: Water Regulation - Institutional Arrangements



At the core of this regulatory model is the establishment of the contractual agreements between PPCs and utilities. The diagram above outlines the proposed institutional arrangements that would link these contractual arrangements at the provincial level to the WRAV, with a small Local Regulatory Office being established for each province to work directly with the PPC and utility. This Office would have the role of facilitating PPC/utility dialogue on contract compliance, establishing and monitoring a robust annual business planning process, and reporting on service quality, performance indicators and tariff related issues on behalf of the PPC and the utility. This would be an autonomous office, with close liaison with the WRAV head office. This local regulatory office would offer support in facilitating the initial establishment of the necessary contractual and reporting systems, as well as ensuring the effectiveness and validity of long term reporting and monitoring for regulatory purposes.

Whilst it will be important that the Local Regulatory Office retain its autonomy for regulation of the utility contract, the Office can also offer advice and resources to the PPC and the utility to facilitate the achievement of the regulated goals of the utility.

The key steps to implement this regulatory model include the establishment of WRAV, regional regulatory offices and the local regulatory offices:

1. Create a central independent regulatory Authority for water supply and sanitation based in Hanoi with a limited number of regional sub-offices

The benefits of creating a separate independent and autonomous regulatory Authority are that it will be established by statute (and so can be given a clear mandate and powers to regulate private and public WSCs), can take independent decisions, can draw expertise from the private sector (if deemed appropriate), and can source its operating budget through the central budget and/or through a fee added to the tariff (as for ERAV).

There is also direct experience in the energy sector of economic regulation performed by an independent Authority established by statute, and the water sector regulator can be designed drawing on the experience of and lessons learnt from regulation in that sector.

2. The Authority should be established by statute

The international case studies highlight the potential sources of regulatory power (eg through legislation, a license, a contract, or a combination of these). In the case of legislation there is also a question as to whether this needs to be primary legislation or secondary legislation. In most cases the separate regulator was established through primary legislation. Where there is an existing overlap of institutional mandates and the need to clarify functions and powers (as is the case of the Philippines), it may be difficult for a regulatory entity to assert its authority unless it is established under primary legislation. This is particularly important regarding WRAV's mandate with respect to the PPCs.

It is important for the regulator to have well-resourced regional sub-offices since the water sector is highly decentralized, with many of the utilities and PPCs lacking the resources or capacity to develop and implement tariff methodologies and so needing support and assistance from WRVA. Ensuring a regional presence will enable WRAV to provide support at a local level and also to achieve more effective oversight. It will also enable a forum for consumer bodies to be formed at a regional level and to publicize service standards and explanations for tariff levels. The regional offices will also be able to assess more easily the immediate needs of the smaller WSCs and facilitate better coordination with PPCs on investment planning and review of subsidies.

It is recommended to keep WRAV as a standalone agency, working in parallel with other regulatory bodies (Health, Water Resources and Environment).

3. Composition of Authority

WRAV would be autonomous, under the purview of the Ministry of Construction. It could comprise, for example, of 5 commissioners appointed for long terms (eg 7 years) – each with

prescribed levels of experience in particular relevant activities (eg water sector operations, economics/finance, legal,). Appointments should be staggered (perhaps 2 or 1 changing every 2 years) to preserve continuity and avoid capacity vacuums Experience and expertise on establishing and implementing a regulatory authority might also be drawn on – especially that for ERAV, but also international experience.

4. Domain of the Authority

The Authority's domain would include all WSCs (including public, equitized and private), including those currently under concession or lease arrangements. Legislation may need to be enacted or current legislation amended.

5. Functions and Powers of the Authority

The Authority would be the economic regulator of the water sector. Functions would include:

a. Confirming tariff setting mechanisms and tariff decisions and conducting price reviews. To preserve local provincial autonomy it might be appropriate to prescribe a national tariff setting methodology for the PPCs to apply, and then monitor PPC adherence to the tariff setting and adjustment methodology. It is important that PPCs have a performance based contract with their WSC's that sets out clear service standards and provides at least a methodology for tariff setting that will be followed. Similar to the approach taken in Kenya, the Authority could develop standardized contracts. Price reviews would be mandatory on a periodic basis (such as every 5 years) and the Authority would have the responsibility to ensure that the tariff setting methodology was being followed in these reviews.
b. Developing harmonized service and performance standards, targets and reporting requirements commensurate with the size and capacity of different WSCs. This would be in consultation with other agencies.
c. Dealing with private sector participation in water services - the Authority would adapt procedures for regulation of existing and new PPP contracts
d. Monitoring performance (operational and financial) of WSC's and assist PPCs to monitor contract compliance.
e. Obliging WSCs to develop business plans and asset management plans and gather financial and performance data.
f. Sharing data with other agencies and working with the existing MOC database system to benchmark WSC performance. The Authority will need to have clear enforcement powers (again, it could look at the powers of regulators in other sectors). The government may wish to put limits on these powers or impose general obligations of fairness and proportionality on the regulator, and determine how often tariff setting and reviews should take place. It should be noted, however, that such checks and balances tend to work better in an environment where the rule of law and judicial institutions are strong.
g. Ensuring that poor households have equal access to utility services. The Authority could write a low income household policy that utilities should implement and could work with PPCs and utilities to ensure that sufficient funds are made available for equitable access. The Authority could also consider establishing social fund for this purpose. The policy could also cover the establishment of tariff and disconnection regulations to specifically protect the interests of poor households.

6. Data collection and benchmarking

The Authority should share data with other agencies and benchmark WSC performance within the sector. The Authority would be well placed, provided that it is well resourced at the regional level, to collect data and to assist smaller WSCs in preparing data and developing investment plans. It would then feed this information into other government agencies, and develop performance reports that it could disseminate to consumers as well as WSCs.

7. GoV could consider incentivising local governments and PPCs to cluster operations (regionalise)

to achieve economies of scale and improve performance (perhaps with loans or grants for investments from a fund administered by the Ministry of construction). Allocation of incentives would need to be coordinated with the Authority and MPI/MOF.

8. Water resource management

Permitting functions should remain with the Department of Water Resource Management, but should be undertaken with formal coordination with the Authority to ensure consistency with PPC-utility contract conditions and utility business plans.

1. **Drinking water standards and environmental regulation**
2. should remain the responsibility of MOH and MONRE, but in consultation and coordination with the Authority.

3. **Policy**

for the water sector would remain with MOC

4. **Water sector investments**
5. would continue to be coordinated by MOC, MPI and MOF, with inputs from the Authority relating to the contents of regulated utility business plans (investment plans, asset management plans etc).

6. **Funding**

The establishment and operation of the Authority should be funded from the State budget until it is fully functional, with significant resources devoted to staffing and establishment of the regional offices as well as central functions. Subsequent funding could be supplemented by a charge included in water tariffs, allowing government funding to gradually fall away. This would also enhance the political independence of the Authority.

One of the challenges facing regulators is often lack of resources and staff. Effective regulation requires significant resources, particularly in such a decentralized sector. An initial activity, as indicated in the roadmap below, is to set aside a budget appropriation for establishing and equipping the Authority. If MOC is to provide incentives to service providers through loans, grants and subsidies, thought will also need to be given to how these are to be funded.

7. **Consumer consultation committees**
should be set up in the different sub-regions and be mandated by statute. There is often very low consumer awareness of the levels of service that the utility should provide – and that they should expect. In this respect the utilities could follow the UK model and issue a Customer Code of Practice which sets out all the utility's obligations to its (domestic) customers under the terms of its contract with the PPC. International case studies have shown the benefits of formally establishing consumer representative groups, with increasing recognition of these groups in statute. The Authority should be mandated to consult these groups on issues such as complaints, service performance and tariffs.

8. **Communication**
The Authority should have a strong mandate to communicate water policy to stakeholders and provide support and information to all PPCs and WSCs. This will also link in with benchmarking and consultation with consumer groups.

9. **An appeals procedure**
should be established in the law for appealing decisions of the Authority. The Regulator needs to be held accountable for its decisions. Stakeholders such as investors and customers will also be anxious to know how the Regulator can be brought to account for its actions and whether there is to be a mechanism for appeal against regulatory decisions and the remedies available if the regulator is found to have been unreasonable. In case studies there are examples of specific mechanisms created to provide this accountability (such as the Competition Commission in England and Wales) and also examples of the courts playing this role.

10. **Wastewater and Sanitation should also fall under the mandate of the Authority**
but with recognition that whilst centralized sewerage provision is present in the larger cities, it is more limited in other areas and so the role of the Authority may need to evolve over time. The Authority could be responsible for setting/ establishing a tariff setting methodology for wastewater and sanitation and assisting WSCs to budget for centralized sewerage systems in more densely populated areas. It could also coordinate with other agencies to develop performance standards for septic tank construction and maintenance, and septage haulage, disposal and treatment, could develop and oversee a licensing system for faecal sludge/septage management. The possibility of requiring the water tariff to include a levy for investment in sanitation services could also be considered.

11. **Consultation & Creation of Local Regulatory Offices**.
These Offices, created after consultation with local stakeholders, would have the role of facilitating dialogue and action between PPC and Utility to meet regulatory requirements, and facilitate the production of deliverables required by regulatory processes and procedures such as Business and Investment Plans, monitoring of KPIs. The Office would have a role in supporting the tariff setting process.

In order to implement such changes there would need to be supporting policy and planning decisions and significant financing put in place. Any new regulations would need to be developed in

close coordination with the ministries, agencies and departments responsible for public health and environmental regulation.[24]

It will be important to engage the different stakeholders in consultation on the regulatory approach or model to be adopted in order to ensure that there is appropriate buy in and that the approach will be effectively implemented. The government should also bear in mind the importance of building flexibility into the regulatory model to allow the system to adapt with the changing challenges and issues facing the sector in the coming years, and also in recognition that from international experience it is difficult to design a perfect mechanism and that in practice the mechanisms will need to be adjusted to fit the environment. Finally, the government should also not underestimate the time that it takes to introduce and build capacity in a regulatory body, even where existing resources and expertise are available in the market.

Below is a draft roadmap suggested steps to be taken by the government to implement the recommended regulatory model.

Roadmap

Design and Establishment of the regulatory framework

1. Study and development of:
    a. detailed regulatory framework,
    b. key statutory provisions/requirements
    c. outline design for Regulatory Authority and associated resourcing needs

Design and establishment of Regulatory Authority

1. Consultation with stakeholders to gain consensus on outline design
2. Develop cost estimates for establishing the Authority and building capacity (at central and local levels)
3. Draft statute to create the Authority and establish its mandate and powers,
4. Enact the legislation
5. Secure initial funding from the national budget
6. Appoint commissioners
7. Appoint heads of departments (including those for the regional and local offices)
8. Appoint other staff and acquire other resources
9. Develop a website for the Authority
10. Identify or establish customer representation organizations
11. Develop regulations and operating guidelines

Initial Regulatory Activities

1. Consultations on performance standards and targets for different service levels (with stakeholders including PPCs, utilities and consumer groups)
2. Communication campaign to explain and engage on reforms and obligations of different stakeholders

[24]For further discussion, see Explanatory Notes on Key Topics in the Regulation of Water and Sanitation Service, Groom, Halpern and Ehrhart, World Bank 2006

3. Introduce performance contracts and work with PPCs (and utilities) to introduce a tariff setting methodology based on cost recovery
4. Assist utilities and PPCs to understand and implement performance based contracts, collect data and meet reporting requirements
5. Collate data and start disseminating it to other agencies and the public
6. Coordinate with MOF and MOC on tariff setting, and MOC/MOF/MPI on tariffs, subsidies and development of a funding plan or framework for the water sector.

Section 3 Conclusions

In Section 1 we provided a review of the progress of the reform process in the water sector, together with recommendations for improving this process, and the performance of the sector in general. This review covered the not only the equitization process, but also improving levels of service, and the introduction of the integrated disciplines of asset management planning, business planning, investment planning, and financial planning. It also recommended that all this be underpinned by the establishment of contractual relationships between PPCs and WSC's. Institutional and capacity building support will be needed in this reform process, which will need dedicated funding – along with capital investment funding for asset maintenance, renewal and expansion if levels of service are to be improved.

In Section 2 we reviewed the need for regulation of the urban utility water utilities. Whilst there is a national and regional framework in place for the regulation of health, water resources and environmental aspects of the sector, there is no established economic regulatory framework or system to ensure sustainable and effective provision of water services.

From our review of International and regional experience, plus the example of ERAV in Vietnam, we concluded that an adaptation of a centralized Economic Regulatory Authority model supported by sub-regional offices would be the recommended option for the Vietnam urban water sector. However, development and implementation of the Regulator will require strong coordination with the ongoing water sector reform program, including, critically the formalization of contractual arrangements between PPCs and individual WSCs.

The steps for establishing the Economic Regulator have been outlined, together with a suggested road map for implementation.

This review and recommended reform options are aimed at helping the Government of Vietnam in developing a technically and financially sustainable water utility sector providing good levels of service to customers and an efficient tariff level. We hold ourselves ready to discuss any aspect of this review and its recommendations, and to provide further advice and assistance as may be needed.

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ANNEXES

ANNEX A. LIST OF WATER UTILITIES

ANNEX B LIST OF STAKEHOLDERS AND PERSONS MET

ANNEX C. SUPPLEMENTARY DATA ON SELECTED PROVINCIAL WATER & WASTE WATER UTILITIES

ANNEX D Viet Nam Times Article 15 May 2014 *"Ha Noi tap water poses health risks"*

ANNEX E. ANALYSIS TABULATION OF WATER UTILITIES

ANNEX F WATER UTILITIES & REGULATION – GOOD PRACTICES

ANNEX G. NOTES ON SEWERAGE AND WASTEWATER SERVICES

ANNEXA: List of water utilities (MOC database)

No	Utility Name	Province	Main city	Type of ownership	Population ('000s)
1	Công ty TNHH cấp nước Bình An	Bình Dương	Thành phố Hồ Chí Minh	Private	null
2	Công ty Cổ Phần BOO Nước Thủ Đức	Hồ Chí Minh	Thành phố Hồ Chí Minh	Private	null
3	Công ty TNHH một thành viên Cấp thoát nước Tây Ninh	Tây Ninh	Thị xã Tây Ninh	State-owned	380,368
4	Công ty Cổ phần Cấp thoát nước - Công trình đô thị Hậu Giang	Hậu Giang	Thành phố Vị Thanh	Equitized	762,125
5	Công ty cổ phần điện nước An Giang	An Giang	Thành phố Long Xuyên	Equitized	1,473,674
6	Công ty TNHH một thành viên Cấp nước Sóc Trăng	Sóc Trăng	Thành phố Sóc Trăng	State-owned	346,372
7	Công ty TNHH một thành viên kinh doanh nước sạch Nam Định	Nam Định	Thành phố Nam Định	State-owned	434,692
8	Công ty TNHH một thành viên Nước sạch Hà Đông	Hà Nội	Thành phố Hà Nội	State-owned	274,266
9	Công ty TNHH một thành viên nước sạch Hà Nội	Hà Nội	Thành phố Hà Nội	State-owned	3,470,000
10	Công ty Cổ phần cấp nước Sơn Tây	Hà Nội	Thị xã Sơn Tây	Equitized	120,000
11	Công ty cổ phần đầu tư xây dựng và kinh doanh nước sạch (VIWACO)	Hà Nội	Thành phố Hà Nội	Private	600,000
12	Công ty Cổ phần nước sạch Hòa Bình	Hòa Bình	Thành phố Hòa Bình	Equitized	700,672
13	Công ty TNHH một thành viên kinh doanh nước sạch tỉnh Lào Cai	Lào Cai	Thành phố Lào cai	State-owned	166,166
14	Công ty cổ phần cấp nước Sơn La	Sơn La	Thành phố Sơn La	Equitized	152,600
15	Công ty TNHH Xây dựng và cấp nước Lai Châu	Lai Châu	Thị Xã Lai Châu	State-owned	50,456

16	Công ty TNHH một thành viên Cấp thoát nước Tuyên Quang	Tuyên Quang	Thành phố Tuyên Quang	State-owned	171,384
17	Công ty TNHH xây dựng cấp thoát nước Nghĩa Lộ	Yên Bái	Thị xã Nghĩa lộ	State-owned	28,062
18	Công ty TNHH 1 thành viên cấp nước Yên Bái	Yên Bái	Thành phố Yên Bái	State-owned	97,000
19	Công ty TNHH một thành viên kinh doanh nước sạch Ninh Bình	Ninh Bình	Thành phố Ninh Bình	State-owned	936,262
20	Công ty TNHH một thành viên Cấp nước Hải Phòng	Hải Phòng	Thành phố Hải Phòng	State-owned	1,149,382
21	Công ty Cổ phần xây dựng tổng hợp Tiên Lãng	Hải Phòng	Thị trấn Tiên Lãng	Private	13,822
22	Công ty TNHH một thành viên kinh doanh nước sạch Quảng Ninh	Quảng Ninh	Thành phố Hạ Long	State-owned	635,750
23	Công ty TNHH một thành viên cấp nước Thanh Hóa	Thanh Hóa	Thành phố Thanh Hóa	State-owned	1,140,400
24	Công ty TNHH một thành viên cấp nước Nghệ An	Vinh	Thành phố Vinh	State-owned	421,800
25	Công ty TNHH một thành viên Cấp nước và Đầu tư xây dựng Đăk Lăk	Đăk Lăk	Thành phố Buôn Ma Thuột	State-owned	377,549
26	Nhà máy nước Đăk Mil	Đăk Nông	Thị Trấn Đak Mil	State-owned	54,000
27	Công ty TNHH một thành viên Cấp thoát nước Quảng Bình	Quảng Bình	Thành phố Đồng Hới	State-owned	152,347
28	Công ty TNHH Nhà nước một thành viên Xây dựng và Cấp nước Thừa Thiên Huế	Thừa Thiên Huế	Thành phố Huế	State-owned	1,123,704
29	Công ty TNHH một thành viên cấp thoát nước Bình Định	Bình Định	Thành phố Quy Nhơn	State-owned	538,130
30	Công ty TNHH một thành viên Cấp thoát nước Phú Yên	Phú Yên	Thành phố Tuy Hoà	State-owned	206,577
31	Công ty Cổ phần đô thị Cam Ranh	Khánh Hòa	Thành phố Cam Ranh	Equitized	121,354
32	Công ty TNHH một thành viên cấp thoát nước Khánh Hòa	Khánh Hòa	Thành phố Nha Trang	State-owned	455,268
33	Công ty Cổ phần Cấp thoát nước Bình Thuận	Bình Thuận	Thành phố Phan Thiết	Equitized	285,673

34	Công ty cổ phần cấp thoát nước và xây dựng Bảo Lộc	Lâm Đồng	Thành phố Bảo Lộc	Equitized	94,687
35	Công ty Cổ phần Cấp nước và xây dựng Di Linh	Lâm Đồng	Thị trấn Di Linh	Equitized	25,620
36	Xí nghiệp cấp nước Đông Mỹ Hải	Ninh Thuận	Thành phố Phan Rang - Tháp Chàm	State-owned	36,584
37	Công ty Cổ phần cấp nước Ninh Thuận	Ninh Thuận	Thành phố Phan Rang - Tháp Chàm	Equitized	330,861
38	Công ty Cổ phần cấp nước Phú Thọ	Phú Thọ	Thành phố Việt Trì	Equitized	667,000
39	Công ty cổ phần cấp thoát nước số 1 Vĩnh Phúc	Vĩnh Phúc	Thành phố Vĩnh Yên	Equitized	132,164
40	Công ty cổ phần nước sạch Vĩnh Phúc	Vĩnh Phúc	Thị xã Phúc Yên	Equitized	112,182
41	Công ty TNHH một thành viên Cấp thoát nước Bắc Giang	Bắc Giang	Thành phố Bắc Giang	State-owned	161,720
42	Công ty TNHH một thành viên cấp thoát nước Bắc Ninh	Bắc Ninh	Thành phố Bắc Ninh	State-owned	212,805
43	Công ty cổ phần nước sạch Thái Nguyên	Thái Nguyên	Thành phố Thái Nguyên	Equitized	268,765
44	Công ty TNHH một thành viên kinh doanh nước sạch Hải Dương	Hải Dương	Thành phố Hải Dương	State-owned	691,471
45	Công ty TNHH 1 thành viên kinh doanh nước sạch Hưng Yên	Hưng Yên	Thành phố Hưng Yên	State-owned	107,751
46	Công ty cổ phần Cấp thoát nước Quảng Nam	Quảng Nam	Thành phố Tam Kỳ	Equitized	302,956
47	Công ty TNHH một thành viên Cấp nước Đà Nẵng	Đà Nẵng	Thành phố Đà Nẵng	State-owned	819,332
48	Công ty TNHH một thành viên Kinh doanh nước sạch tỉnh Thái Bình	Thái Bình	Thành phố Thái Bình	State-owned	244,076
49	Công ty TNHH một thành viên cấp nước và xây dựng Hà Tĩnh	Hà Tĩnh	Thành phố Hà Tĩnh	State-owned	186,604
50	Công Ty TNHH một thành viên Cấp Thoát Nước Lâm Đồng	Lâm Đồng	Thành Phố Đà Lạt	State-owned	591,000
51	Công ty TNHH Nhà nước một thành viên Cấp thoát nước Bắc Kạn	Bắc Kạn	Thị xã Bắc Kạn	State-owned	43,888
52	Công ty cổ phần đô thị Ninh Hòa	Khánh Hoà	Thành phố Nha	Equitized	34,743

			Trang		
53	Công ty cổ phần công trình đô thị Vạn Ninh	Khánh Hoà	Thị trấn Vạn Giã	Equitized	56,200
54	Công ty TNHH 1 thành viên cấp nước Cao Bằng	Cao Bằng	Thị xã Cao Bằng	State-owned	89,000
55	Công ty TNHH một thành viên Cấp thoát nước Hà Giang	Hà Giang	Thành phố Hà Giang	State-owned	41,925
56	Cty CP cấp nước và PTĐT Đăk Nông	Đăk Nông	Thị xã Gia nghĩa	Equitized	39,400
57	Công ty Cổ phần Đầu tư phát triển An Việt	Bắc Ninh	Thĩ xã Từ Sơn	Private	15,985
58	Công ty cổ phần cấp nước Vật Cách Hải Phòng	Hải Phòng	Thành phố Hải Phòng	Equitized	60,226
59	Công ty cổ phần cấp nước Bà Rịa - Vũng Tàu	Bà Rịa - Vũng Tàu	Thành phố Vũng Tàu, thị xã Bà Rịa	Equitized	708,930
60	Công ty TNHH 1 Thành viên cấp thoát nước Bến Tre	Bến Tre	Thành phố Bến Tre	State-owned	220,000
61	Công Ty cổ phần nước sạch Hà Nam	Hà Nam	Thành phố Phủ Lý	Equitized	70,000
62	Công Ty Trách Nhiệm Hữu Hạn Một thành viên Cấp Nước Bạc Liêu	Bạc Liêu	Thành Phố Bạc Liêu	State-owned	151,436
63	Công ty cổ phần cấp thoát nước và xây dựng Quảng Ngãi	Quảng Ngãi	Thành phố Quảng Ngãi	Equitized	183,000
64	Công ty TNHH MTV Cấp nước và Xây dựng Quảng trị	Quảng trị	Thành phố Đông Hà	State-owned	271,598
65	Công ty TNHH MTV Cấp Thoát Nước Tỉnh Bình Phước	Bình Phước	Thị xã Đồng Xoài	State-owned	205,766
66	Công ty TNHH MTV Cấp thoát nươc- Môi trường Bình Dương	Bình Dương	Thị xã Thủ Dầu Một	State-owned	579,585
67	Công ty Cổ phần Cấp nước Phú Mỹ tỉnh Bà Rịa - Vũng Tàu	Bà Rịa - Vũng Tàu	Thị trấn Phú Mỹ	Equitized	58,000
68	Tổng Công ty cấp nước Sài Gòn	Hồ Chí Minh	Thành phố Hồ Chí Minh	State-owned	6,670,046
69	Công ty TNHH một thành viên Cấp nước Gia Lai	Gia Lai	Thành phố Pleiku	State-owned	272,445
70	Cty TNHH một thành viên Cấp nước Đồng Nai	Tỉnh Đồng Nai	Thành phố Biên Hòa	State-owned	897,591

71	Công ty TNHH một thành viên cấp nước Vĩnh Long	Vĩnh Long	Thành phố Vĩnh Long	State-owned	222,390
72	Công ty Trách Nhiệm Hữu Hạn Một Thành Viên Cấp Nước Tiền Giang	Tiền Giang	Thành phố Mỹ Tho	State-owned	559,891
73	Công ty TNHH Một thành viên Cấp thoát nước Kiên Giang	Kiên Giang	Thành phố Rạch Giá	State-owned	1,395,565
74	Công ty TNHH một thành viên cấp thoát nước và công trình đô thị Cà Mau	Cà Mau	Thành phố Cà Mau	State-owned	261,789
75	Công ty TNHH Một Thành viên Cấp nước Kon Tum	Kon Tum	Thành phố Kon Tum	State-owned	142,632
76	Công ty Trách Nhiệm Hữu Hạn Một Thành Viên Cấp Nước và Môi Trường Đô Thị Đồng Tháp	Đồng Tháp	Thành phố Cao Lãnh	State-owned	1,667,706
77	Công ty TNHH Một thành viên Cấp nước Long An	Long An	Thành phố Tân An	State-owned	373,049
78	Công ty TNHH một thành viên Cấp Thoát Nước Cần Thơ	Cần Thơ	Thành phố Cần Thơ	State-owned	783,104
79	Công ty TNHH một thành viên Cấp thoát nước Trà Vinh	Trà Vinh	Thành phố Trà Vinh	State-owned	170,405

ANNEX B: List of Stakeholders and Persons met

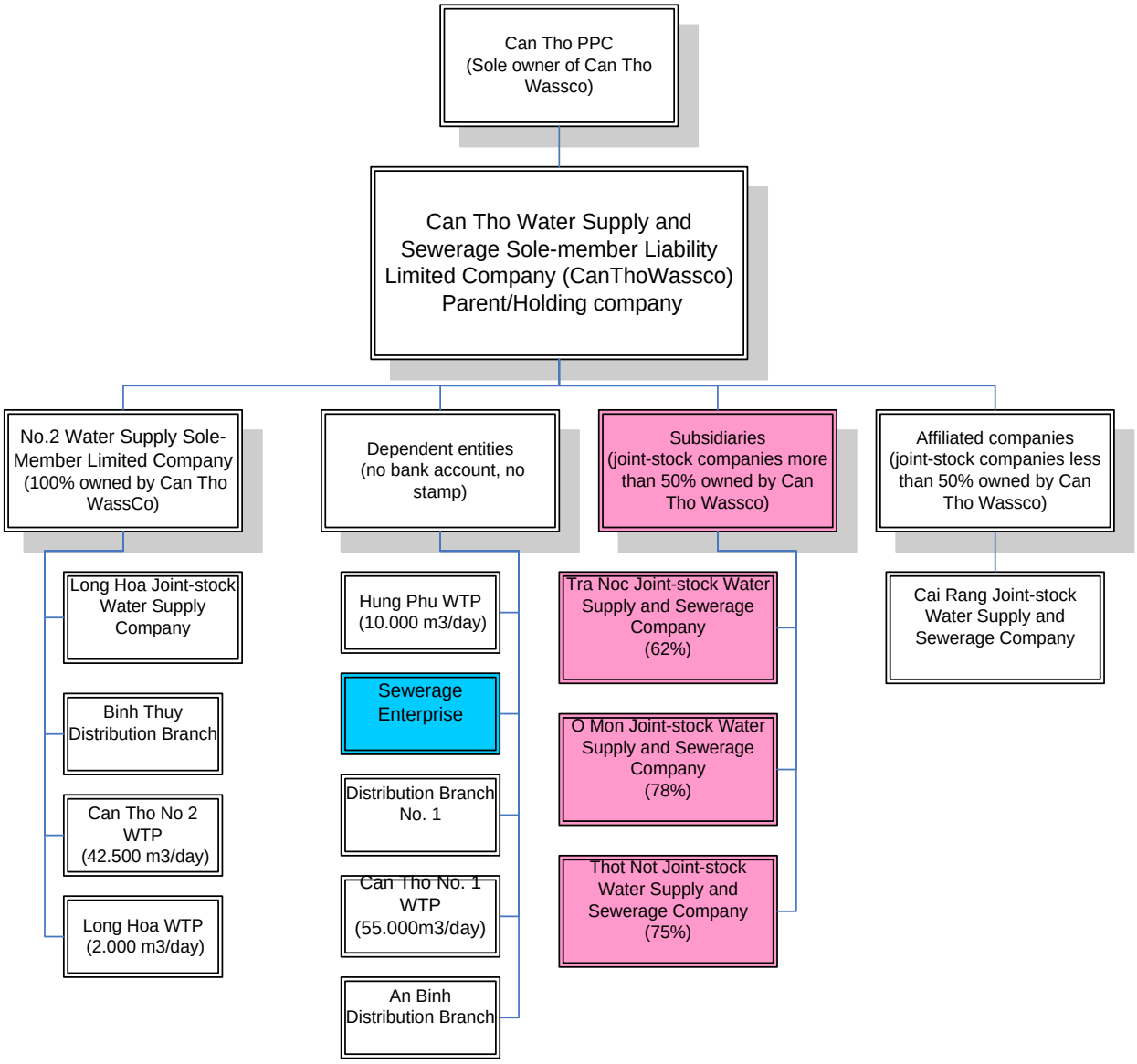
Stakeholder			Person Met
Ministries or government agencies			
Construction			
	Authority of Technical Infrastructure/MABUTIP		Dr. Nguyen Tuong Van, Deputy Director General Mr. Nguyen Minh Duc, Head of water supply management division
	Department of Enterprise Reform and Development		Mr. Dang Van Long, Director General
Health			
	Environment Management Agency (VIHEMA)		Dr. Nguyen Huy Nga, Director General Dr. Do Manh Cuong, Specialist (Division of Environmental and Community Health)
Office of the Government			
	Department of Economic Management		Ms. Pham Thanh Binh, Officer
Natural resource & Environment			
	Department of Water Resources		Ms. Hue, Head of Ground Water Division Mr. Hung, Deputy Head of Ground Water Division
Planning and Investment			
	Department of Infrastructure and Urban Development		Mr. Tran Tuong Lan, Director General Mr. Vu Thua An, Senior Officer
Industry and Trade			
	Electricity Regulatory Authority of Vietnam (ERAV)		Mr. Le Hieu, Deputy Head of Power Market Division Mr. Pham Quang Anh, Officer of Power Market Division
Donors			
World Bank Vietnam			Mr. Parameswaran Iyer

Water Utilities			
	Ba Ria – Vung Tau Water Supply Joint-stock Company (BWACO)		Mr. Dinh Chi Duc, Chairman and CEO Ms. Duc, Manager of Customer Service Division Ms. Linh, Deputy Manager of Administrative Office
	People's Committee of Can Tho City Can Tho Water Supply and Sewerage Company		Mr. Tinh, Assistant to PPC Vice Chairman, Office of SOE Reform Mr. Nguyen Tung Nguyen, General Director
	SAWACO		Mr. Bach Vong Hai, Deputy Director General Mr. Vuong Quang Sang, Director of NRW PMU Mr. Le Huu Quang, Head of Business and Customer Service Department Mr. Duong Hong Phuong, Deputy Head of Cooperation-Development Department Mr. Dang Tran Ve Giang, Deputy Head of Personnel Department Ms. Le Anh Dao, Deputy Head of Administrative Office Mr. Nguyen Huong Lan, Head of Planning and Investment Department

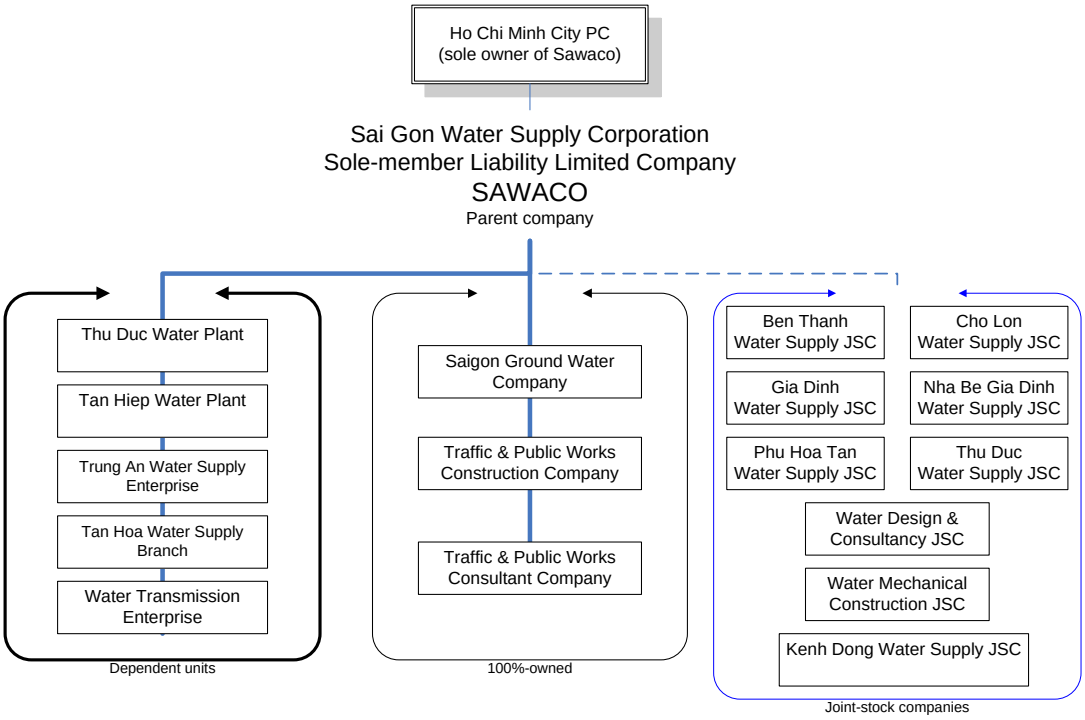
ANNEX C: Supplementary Data on Selected Water Utilities in Vietnam

- **UTILITY: Can Tho Water Supply and Sewerage Company (Can Tho Wassco)**
- **UTILITY : Sai Gon Water Corporation (SAWACO)**
- **UTILITY : Ba Ria – Vung Tau Water Supply Joint-stock Company (BWACO)**

UTILITY : Can Tho Water Supply and Sewerage Company (Can Tho Wassco)



UTILITY : Sai Gon Water Corporation (SAWACO)



SAWACO as a holding company

SAWACO has gone through a number of organizational transitions over the last 10 years.

Currently SAWACO has some branches, subsidiaries and affiliates as follows:

a. Dependent accounting units (no independent bank account, no legal entity)

- Thu Duc Water Plant
- Tan Hiep Water Plant
- Trung An Water Supply Enterprise
- Tan Hoa Water Supply Branch
- Transmission Enterprise

b. Company 100% owned by SAWACO (Sole-member Liability Limited Company)

- Saigon Ground Water Company
- Traffic & Public Works Construction Company
- Traffic & Public Works Consultant Company

c. Joint-stock companies showing SAWACOs shareholding

	SAWACO interest
Distribution companies	
Ben Thanh	53.15%
Cho Lon	51.01%
Gia Dinh	51.21%
Nha Be	53.44%
Phu Hoa Tan	70.39%
Thu Duc	51.00%
Other	
Water Design & Consultancy Joint-stock company	51.00%
Water Mechanical Construction Joint-stock company (affiliate)	25.50%
Kenh Dong Water Supply Joint Stock Company (affiliate)	22.00%

UTILITY : BWACO

Vung Tau Water Supply Company was established as a result of the merger of Chau Thanh WTP and Vung Tau WTP in 1982. Total capaciy was 13,000 m3/day serving 2,500 customers.

In 2005, the company was converted to the sole-member liability limited company which is 100% owned by the PPC.

In 2007, the PPC approved the plan for equitization of the company. The Ba Ria – Vung Tau Water Supply Joint-stock company (BWACO) came into operation since 1/1/2008.

Current capacity is 180,000 m3 per day. Coverage area includes Vung Tau City, Ba Ria town, 4 other towns, 10 commmunes and an industrial park with total clients of 130,000.

The PPC still own 54.94% of BWACO with a charted capital of 190 billion VND.

There are 5 departments in the company: Financial department, Technical-economic Department, HR department, Customer Service Department, Quality Assurance Department, Network Management Department.

Dependent units:

+ Water Treatment Enterprise

+ Construction Enterprise

+ Distribution branches for Vung Tau City, Ba Ria Town, Long Dien, Xuyen Moc and Chau Duc

Branch Company: Phu My Wasuco:

In 2004, the Phu My Branch of Ba Ria – Vung Tau Water Supply Company was converted to a joint-stock company by the Decision 6023/QD-UB of the PPC. The new joint-stock company (Phu My Wasuco) came into opeartion since 1/1/2005. Its coverage area is Phu My Town. Its chartered capital is 90 billion VND, of which BWACO share accounts for 28,43%.

ANNEX D: Health Issues - Extract from Viet Nam Times 15th May 2014

Ha Noi tap water poses health risks

Ha Noi- Tap water
Samples collected from different plants in the capital city fail to meet the Health Ministry's hygiene standards and pose a public health hazard, according to the Ha Noi Preventive Medicine Centre.

The centre says tests on samples taken from different water plants in Ha Noi since January this year show excessive levels of minerals and chemicals that can have serious consequences for residents. A sample from the Phap Vfo Water Plant showed the Permanganate index, which can cause dermatitis, exceeding the regulated level by 1.6 times, while that collected from the Ha Dong Water Plant exceeded the allowed level by 0.4to 0.8 times.

Seven of 23 samples from different water plants in Ha Noi this March were also found high amounts of Permanganate and ammonia. This time, samples from the Phap Yan and Ha Dong water plants had permanganate contamination exceed the regulated level by 1.92 and 2.57 times respectively.
At the Phap Van Ha Ding water plants, the ammonia levels were3 0.3 to 0.7 times the regulated level. .
Two samples from the Son TayWater Supply Company had chlorine levels exceed maximum regulated levels. High chlorine levels can affect the digestive system, liver and kidneys.

Nguyen Hoa Blnh, deputy director of the Ha Noi Preventive Medicine Centre, told the *TilnPhong* (Vanguard) newspaper that the Phap Van and Ha Dingh water plants suffered contamination problems often because they were old and lacked good quality underground water sources.

Tran Hon Con, lecturer at the Ha NC)i University of Natural Science, also told *Tiln Phong* that at 0.3mg of chlorine per litre, the water can be sterilized, but at more than 0.5mg in each litre, it becomes a harmful substance that can cause digestive disorders and, in some cases, mental disorder, he said. C6n said that if the amount of ammonia in water exceeded the regulated level by very little, it would not affect people's health. But if it was too high, it can transform to nitrite which can lead to anaemia and cancer. - VN

ANNEXE: Analysis Tabulation of Water Utilities

Population of service areas

Status	No.	Sum of Population ('000s)	Number of domestic connections
Equitized	23	6,760,832	871,426
Private	5	629,807	88,231
State-owned	51	30,681,089	3,686,424
Grand Total	**79**	**38,071,728**	**4,646,081**

Some key indicators of 3 groups

Status	Average of population served (% of the total population number in the whole area of operations)	Average of Production utilisation (expressed as a % of design capacity)	Average of Residential Consumption (per capita consumption)	Average of Non-Revenue Water (expressed as a % of net water supplied)
Equitized	62.9	80.2	104	21.3
Private	97.4	88.0	91	20.4
State-owned	59.6	80.5	110	22.9
Grand Total	**62.0**	**80.8**	**107**	**22.3**

Status	Average of Operating cost m3 sold (VND/m3 sold)	Average of Operating cost m3 produced (VND/m3 produced)	Average of Staff per 1000 connections served (number)	Average of Staff per 1000 population served (number)
Equitized	3,312	2,589	6.97	1.67
Private	1,721	1,406	5.76	1.28
State-owned	2,969	2,295	7.03	1.64
Grand Total	**3,006**	**2,325**	**6.96**	**1.63**

Status	Average of Non-Revenue Water (expressed as a % of net water supplied)	Average of Average price water produced (mVND per m3)	Average of approved tariff / tariff rate required by the water utility (expressed as % of required rate)	Average of % Increase in domestic connections (% of the number of connections at the start of that year)
Equitized	21.3	4,395	0.85	8.84
Private	20.4	3,395	0.94	9.32
State-owned	22.9	4,002	0.87	8.88
Grand Total	**22.3**	**4,078**	**0.87**	**8.88**

ANNEXF: Water Management & Regulation - Good Practices

This note is prepared as a checklist for the current project:

Transitional Situations

1. Adopt a long-term policy of full economic cost recovery based on affordable service standards.
2. Adopt tariff policies that define the approach that will be used to determine revenue requirements and tariff structure and subsidies.
3. Understand the condition of existing infrastructure and establish progressive performance targets based on existing asset condition and likely investment possibilities.
4. Require business plans to be prepared by regulated utilities that focus on agreed-upon performance measures and strategies for obtaining full cost recovery.
5. Adopt uniform financial planning software to support the business planning process and periodic updates of the business plan and request for tariff adjustment.
6. Require regulated utilities to conduct willingness to pay surveys to understand the limits of tariff adjustments in the short and long term.
7. Recognize that service improvements will most likely be needed before any significant tariff increases will be accepted.
8. Initially focus on recovery of operations and maintenance cost and other cash expenses. Do not get carried away with theoretical positions regarding capital cost recovery until after operations and maintenance costs are recovered.
9. Work closely with quality regulators to set realistic public health and environmental standards. The standards need to be based on the starting condition of the utility, availability of current and future investment, willingness to pay and incentives for achieving higher standards over time.
10. Reaffirm or adopt policies that provide for termination of service to customers and the conditions that allow for termination of service.
11. Adopt a policy of direct subsidies by government to customers.

Setting Performance Targets

1. Be realistic about the starting condition of the infrastructure and available investment capital and the impact both have on a water utility's ability to improve service and efficiency.
2. Establish progressive targets based on the condition of the infrastructure and analysis of performance by other utilities and countries.
3. Update performance targets based on comparative analysis of regulated water utilities.
4. Provide significant incentives to regulated companies that will provide motivation to meet and exceed performance standards.
5. Focus on a small number of the most meaningful targets rather than numerous targets. These are often the indicators that are directly associated with customer satisfaction and with financial sustainability of the utility.
6. Require annual reports from regulated utilities that document progress toward meeting cost recovery objectives and performance measures.

7. Require independent verification of the performance measures by the regulated utilities.

Numerous Small Utilities

1. Only regulate to the level of administrative capacity.
2. For utilities that are regulated:
    a. Provide incentives to encourage small utilities that are regulated to consolidate into regional authorities.
    b. Promote PSP that results in multiple contracts with regulated utilities with one or a few private companies.
    c. Provide incentives to large utilities to adopt institution support mechanisms (ISMs) targeted at smaller utilities.
    d. Base state subsidies to small utilities on comparative analysis (of performance) and means testing procedures.
    e. To the extent possible, adopt a policy of declining state subsidies to motivate small utilities to become more efficient and to increase tariffs to willingness to pay levels.
    f. Allow for simplified tariff and reporting methods for smaller utilities.
    g. Encourage central government agencies to provide low-interest loans or grants to utilities that demonstrate compliance with regulations.
3. For utilities that are not directly regulated:
    a. Adopt policies that provide for community based systems and provide guidelines to support their organization, operation and administration.
    b. Coordinate with NGO's to promote, organize and train community-based organizations.

Public Participation

1. Require service standards to be published and displayed in payment offices and other public places.
2. Require regulated utilities to enter into written service standards with customers that describe service standards and customer rights, duties and remedies.
3. Issue annual reports that provide information about the condition of the sector, progress achieved and future targets.
4. Provide periodic information documents to government agencies and print media about the cost of water service and need for tariffs.
5. Conduct information sessions with NGOs and public institutions (schools) about the condition of the sector, progress, future targets and need for rate adjustments.
6. Organize and support water watch groups.
7. Require regulated utilities to provide early notice of their intent to request tariff increases.
8. Provide for customer input in the tariff review process through public hearings.
9. Allow for either (a) rebates to customers that do not receive service to the level of agreed-upon service standards or (b) roll-back of tariffs is service standards are not met.

May 2014

ANNEX G: Sewerage & Wastewater Services

Over the past 20 years, the Government of Vietnam has made considerable effort to develop urban sanitation policies and to invest in urban sanitation including wastewater treatment systems.

According to the WB Urban Wastewater Review Report (2013), by 2012 some 17 urban wastewater systems had been constructed in Hanoi, Ho Chi Minh City and Da Nang and another five systems in provincial towns and cities with a total capacity of 530,000 cubic meters per day (m3/day). Currently some 30 new wastewater systems, primarily comprising combined systems, are in the design/construction phase.

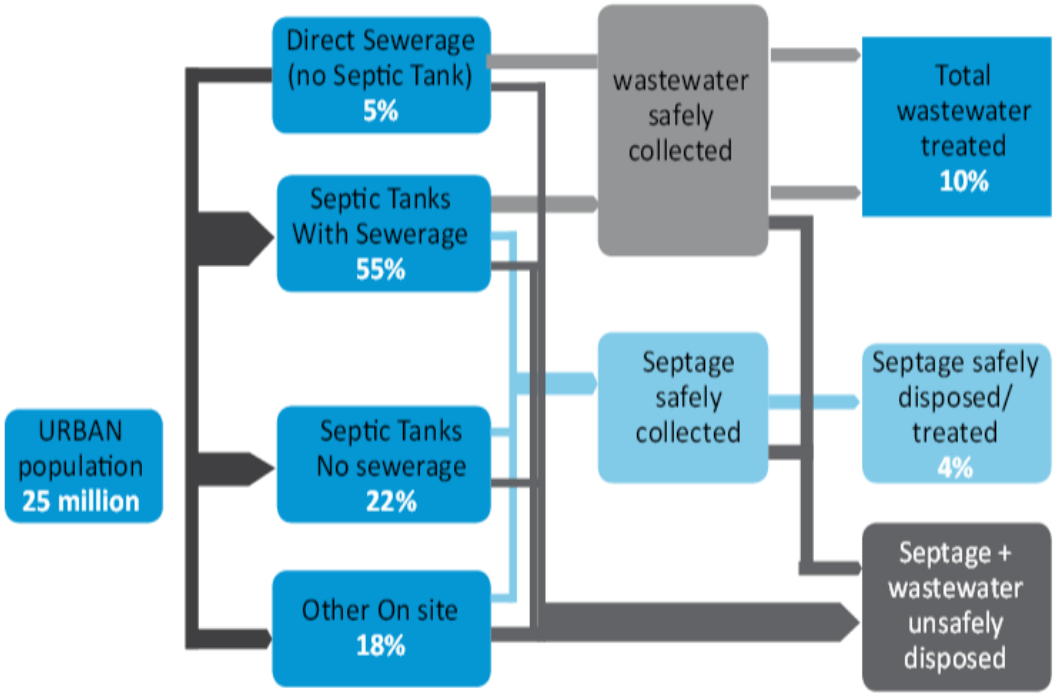
During the past decade annual sanitation sector investment has been USD 150 million or USD 2.1 billion for drainage and wastewater during the period 1995-2009. This represents 0.45 percent of GDP annually.

Despite these impressive initiatives, urban sanitation continues to face critical issues that need to be urgently addressed:

- Although 60 percent of households dispose of wastewater to a public system, much of this is directed informally to the drainage system and only 10 percent is treated.
- While 90 percent of households dispose of wastewater to septic tanks, only 4 percent of septage is treated. Fecal sludge management is generally poor in most cities
- The focus of wastewater expenditure to date has been in constructing treatment facilities, but this has not always been accompanied by appropriate collection systems.
- Despite wastewater tariffs in the order of 10 percent of water tariffs being charged, cost recovery of the capital and operations and maintenance (O&M) costs of the wastewater systems is generally low.
- Institutional arrangements do not encourage efficient system operation with the wastewater enterprises having limited autonomy to manage operations and undertake system development.
- Financing needs are still very high. It is estimated that USD 8.3 billion will be required to provide sewerage to the forecast 2025 urban population of 36 million. This needs to be addressed in the context of the estimated economic losses resulting from poor sanitation of USD 780 million per year or 1.3 percent of GDP (WSP, 2007).

The status of urban waste water management in Vietnam is illustrated in the following diagram:

Figure 1. Status of urban waste water management in Vietnam



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