

Learning Brief

FINANCIAL HEALTH OF PRIVATE SECTOR WATER SERVICE BUSINESSES IN RURAL VIET NAM

October 2022

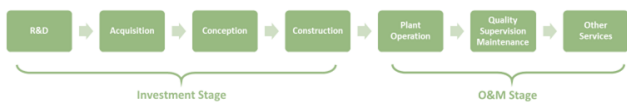
Phan Manh Tuan, Dr Lien Pham

1. FINANCIAL RISKS IN WATER BUSINESSES

There is a wide range of literature on financial risks relating to private sector water operators including technical journals, reports, event summaries, and magazines authored by academics, government ministries, multilateral organizations, and industry experts¹.

The discussion follows the value-chain approach. There may have been several value chain models in water service provision, however they seem more or less similar. IEEM² developed value chain model based on Michael Porter’s general value chain approach, in which service providers are those who provide typically operation management of drinking water works. Some of these operators provide a whole range of services related to water management.

Figure 1: Water Service Provision Value Chain



In Vietnam practices, the 4 first management links in the above chain are normally combined in the ‘Investment stage’ and the last 3 links are grouped into the ‘O&M stage’.

At the Investment stage, the R&D starts with obtaining information about the water resources, including hydrogeological, weather, meteorological data, and study on population data and planning at the proposed service areas, need assessment, willingness to pay (for remote and poor areas), and investigation of other parameters such as costing data of all input components, quality requirement for the service areas (for poor and remote areas, the quality requirements are sometime compromised with the need to basic access water) (MARD 2003). For the poor and remote areas, the involvement of local governments and mass organizations are crucial for the data investigation and assessment. Rural water supply works for rural residents are constructed with the investment (i) from State budget or originated from State budget (such as NTP-RWSS³, Program 134⁴, Program 135⁵, Program 1592⁶), and (ii) from various Donors from Development Partners to

INGOs (such as UNICEF, JICA, ADB, WB, DFAT, DFID, WSP, Danida, Childfund, World Vision, East Meet West Foundation, Plan Vietnam, Oxfam GB, IDE, SNV, etc.). One note to make here is the sustainability of the schemes was not always in focus at the planning stage, the priority was to provide access to piped water for poor residents (top down) but not from the real need and ability to pay for from the end-users (bottom up).

At the O&M stage, operators (water companies, agencies, organizations, community groups) are in charge of implementing the (i) operation, (ii) maintenance, including regular maintenance, periodical repair and ad-hoc repair with the aim to maintain technical situation and normal operation of the works, (iii) collection of water fee, and in cases (iv) communication and advocacy for clean water use and sanitation.

A number of risks that affect the financial health of private sector at various levels have been identified in the water service value chains to include:

- Tariff
- Subsidy
- Operation
- Asset Value
- Core Function of water units
- Access to Finance and Lender hesitation
- Management, IEC
- Willingness to pay
- NRW
- Low consumption

Tariff - a crucial parameter for survival and development of private sector participating in WASH business. The tariff not always follows the market mechanism, it largely regulated by the local authority and tends to be kept as low as possible. Water supply sustainability has been hampered by low tariffs (UNICEF 2020, p7). On paper, governments are committed to bridging the gap between water production costs and income through affordable tariff. However, in practice the relevant policy has not been implemented at the provincial level, local political considerations often prevent the timely application of tariff adjustments (Enterprise in WASH WP2b, Anna Gero & Juliet Willetts, 2007, p15). Low water tariffs have provided little incentive for rural water companies to maintain the distribution network, suffered service quality, and are not attractive to private sector (ADB 2010, p7).

¹ Some examples include: ADB Southeast Asia Department Working Paper, ADB Review of Opportunities for the Pacific WASH Sector, WSP Water Supply and Sanitation in Viet Nam - Turning Finance into Services for the Future, UNICEF Policy Brief - Water, Sanitation And Hygiene In Viet Nam, Sanitation value chains in low density settings in Viet Nam, and others.

² The Institute of Environmental Engineering and Management, an autonomous and nonprofit institute at the Witten/Herdecke University/

³ National target program on rural clean water and environmental hygiene.
⁴ Program on supporting production land, resident land, houses and daily-life water for ethnic minorities with poor and difficult life
⁵ Program for Socio-Economic Development in Communes Faced with Extreme Difficulties.
⁶ National target program on new rural areas, the National strategy on water resources, Program

Subsidy - Rural WASH business is widely understood as a social activity because of its service population – the poor and other marginal dis-advantaged people, the Government, therefore pay special attention to support WASH in rural areas, including subsidy for WASH business by private sector, at least in policy and regulatory tools. Water supply services in Viet Nam are available at low-set tariffs, the inadvertent impact of this is a government-subsidized service for both residential and commercial users. The main objective of the concept of subsidies in the provision of infrastructure or services should be to fill the gap between acceptable user fees and actual costs of a service which is judged to be essential, socially or environmentally valuable, or both (ADB 2021, p11).

Operation - Private sector operating in rural water supply business vary from professionals to community groups and are not always the good sharp of governance and operation. For the country, private sector organizations active in the rural market are typically micro, small and medium enterprises, ranging from individual operators of small schemes to utility-style companies providing piped water (WSP 2014, p14). To many utilities, operation and maintenance budgets are set at rates which are very low by international comparisons, and do not enable utilities to maintain acceptable levels of service (WSP 2014, p25). Increasing water tariffs is a mitigation measure to raise income, reduce non-targeted subsidies and provide better incentives to reduce wastage; reducing non-revenue water, to increase company revenues and as an indicator of improved operational control and discipline (ADB 2021, p18).

Asset Value - Rural WASH infrastructures are invested and erected from various sources of support, from Government, NGOs, Donors, private investors, communities, etc. and may be transferred to private sector operators at latter stage, and therefore the asset value becomes a problem. Lack of transparency and informal modes of selection of enterprises, the valuation process in instances where a private enterprise takes over ownership of an existing system was unclear, and formal rules around ownership of water system assets were unclear (Enterprise in WASH WP2b, Anna Gero & Juliet Willetts, 2007, pp13-14). The private sector's lack of confidence in the prevailing regulatory framework for investment in the sector, compounded by an absence of reliable data on the nature and condition of assets (ADB 2021, p11).

Core Function of water units - Several rural water service businesses are equitized (becoming private)

from former SOE public services providers, having operated in only water service business, and after equitization they tend to expand their business occupation out of the low-revenue activity. One of the major sector risks is the involvement of newly equitized water and wastewater companies in non-core businesses, with a high risk of making bad investments (ADB 2010, p5). Equitization was introduced without establishing clearly defined and verifiable performance indicators or providing incentives to improve service coverage and quality for all, and therefore has not yet delivered efficiency gains or performance improvement.

Access to Finance and Lender Hesitation - Rural water service business, because their small size, low-profit activity, and narrow core function are not in good position to access finance or obtain loans. The financing gap for the sector in Viet Nam is such that Government and ODA sources are not sufficient to fund essential investment without additional fund flows from the global private sector. However, the current institutional and legal environment does not provide sufficient confidence to leverage domestic and international capital markets (ADB 2021, p18). Few public utilities have been able to access commercial finance. A critical obstacle here is the difficulties for utilities to obtain government guarantees, as well as weak capabilities for public-private partnership contracting and management (WSP 2014, p16). It is difficult for most water companies to access commercial finance, as the perceived risks to the lender remain too high (WSP 2014, p13).

Management, IEC - People running rural water service activity are not always the professionals in its full meaning, and people using water service are not always the best customers. Therefore, the success of rural water service business depends a lot on level of management competency and IEC efforts in the locality. Critical difficulties remain in water quality as well as operation and maintenance of projects once built, and in the functioning of the CERWASS as the main government organization responsible for planning, and monitoring and evaluation. Rural communities opt for a level of service which is not always financially or technically feasible but is supported by CERWASS nevertheless, affecting the long-term sustainability of schemes (ADB 2021, p13).

Willingness to pay - The willingness-to-pay (WTP) is a must in market survey to be conducted prior to any investment attempt in rural water service. However, if not properly conducted and analyzed, the result may miss-lead the investment decision. The financial

sustainability of rural schemes is undermined because households are either reluctant or unable to pay for water supply. Willingness to pay often remains a mere indication and, after schemes have been built, people either do not use them at all or use them sparingly, supplementing them with water from unimproved sources, resulting in an unintended overcapacity of schemes themselves (ADB 2021, p10).

NRW - NRW was and is always the most concern of any water operators from the technical and business points of view, especially those of rural pipe water supply, though reported as having been reduced from 39% in 2000 to around 30% in 2009 (ADB 2010, p7). Questions have been raised on the reliability of the data on NRW provided by VWSA members, and high levels of water losses (both technical and commercial) is not being dealt with systematically (ADB 2021, p11).

Low Consumption/Demand - Rural population is characterized by the custom of using various sources while the pipe water is not the only their dependence. Previous regulation⁷ regulated that water-using households connected to water supply networks of water supply units are obliged to pay for the prescribed minimum water-using volume of 4m³/household/month to guarantee a minimum revenue for the water operator to recover their expenses in maintaining the service in the pipe system. However, this provision was removed.⁸

2. THE STUDY

A survey was conducted with private sector water operators involved in the Women Led Output Based Aid project to gather information about their assessment of the risk factors in terms of severity, frequency and allocation of risks occurrence and preference among the project partners and stakeholders. The survey elicits information on: (1) the participant supplier's legal structure, financial capacities, years of expertise and experience (2) his/her evaluation of the severity, frequency, and allocation of the risk factors.

The survey aims to address three research questions:

- 1) What are financial health risk factors for WOBA's private sector water businesses in accordance with the nature of WOBA project, and generally in Vietnam's water markets?

- 2) How severe and frequent are these risk factors in relation to the financial viability of WOBA private sector water businesses?
- 3) Where are the financial risk factors allocated between parties in the WOBA project, and generally in other WASH projects?

This learning note describes and discusses the findings of the survey to provide private sector water suppliers and government partners with a map that assists them to know their responsibilities, their assigned risk factors, and thereby, the strategies that they should set out to execute more public-private subsidy- based projects for the public sector with a profitable satisfactory level for the private one. In addition, the learning note provides insights for international and domestic investors and donors about prevalent financial risk factors for private sector water businesses in rural Vietnam and offers recommendations for effective solutions to deal with these risks in pursuing inclusive water services programs.

3. DEMOGRAPHIC BACKGROUND OF WATER SERVICE PARTICIPANTS

The survey was sent to 4 private sector water suppliers. The majority declined to participate in the survey. Only 2 water business respondents completed the survey. Both respondents run business in rural and regions meeting with difficulties in water sources in provinces of Nghe An and Ben Tre. Both were male, with university level of education, and in management position (director and deputy-director). One company have been in water business for long time (over 10 years) and one is new comer under 3 years). They maintain relatively compact employment (10 to 20), of which only one company employs 1 family member. Both companies run only 1 core business (piped water service) and gain monthly revenue of USD8,000 to USD43,000. Both companies have received exemption from land use levies (or leased land by the State with exemption from land use levies) as a finance support source from Government, in addition, they wish to receive financial support on commercial loan (interest rate subsidy) and subsidy on water price. Characteristic of Vietnam water sector is the operator water sets water price in conjunction with other government bodies, and that price was stable for a long time.

⁷ Decree 117/2007 (Article 42.2)

⁸ by the Decree 124/2011

4. FINANCIAL RISKS AND IMPACT

According to the respondents in Water Service, among all FRs listed, the risks that private sector water businesses encounter most are: High investment costs (e.g. construction costs, piped network costs), and Commercial finance and credit; then at a lower degree: Water pricing and tariff, Low demand and consumption of water, and Inflation.

The above mentioned by respondents most-encountered FRs are true to Vietnam water service sector in general, where the water service value chain is normally combined of “the Investment” stage and “the post-investment management” stage. At the Investment stage, rural WASH infrastructures are invested and erected from various sources of finance, either by private sector or from Government, NGOs, Donors, communities, etc. then transferred to private sector operators at latter stage, and therefore the cost of investment and commercial finance and credit becomes a main concern of the investor who develop the scheme, and/or the asset value (a combination of investment cost and loan cost) becomes that of the operator who receives the scheme. At the O&M stage, operators (water companies, agencies, organizations, community units) are to in charge of implementing the O&M, and therefore the source of revenue (a combination of water pricing, tariff, demand and consumption of water, and inflation are definitely their most concerns).

In term of negative impact to cash flow/profitability and financial viability, companies encounter from FR types in different extent.

Among the ‘top’: High investment costs (e.g. construction costs, piped network costs) - Impact level of 20 (10³+10), Low demand and consumption of water - Impact level of 10 (10+10), Inflation - Impact level of 10 (10+10), and then End-user households use alternative source of water - Impact level of 10, Asset valuation and management - Impact level of 10, Commercial finance and credit - Impact level of 10, Change in regional water supply planning - Impact level of 10.

Among the ‘next-top’: Low water pricing and tariff Impact level of 13 (5+8), Specific (recognized by individual respondent), Subsidies (household and business) - Impact level of 7, Water theft - Impact level of 7, Bad water bill - Impact level of 5, High operation costs - Impact level of 5, Diversification into non-core

business areas of water operators - Impact level of 5, Non-revenue water - Impact level of 4, and Lack of management skills and capacity - Impact level of 4.

The extent of impact here tells the level of concern that water service businesses express, e.g. the high (top scored) impact to them when they have to decide the expansion of service areas beyond their existing area of service (“high-hanging fruit” area) that would involve extra-high investment (longer pipe line, more risky terrains) to serve lower-attractive population (low density, low business activity), and require longer-time for return on investment. In contrast, any expansion of water piped system means benefit for population who need clean and hygiene water and welcomed by the Government who are to care of the local social-economic development. The next-top scored by respondents FR impacts correspond to the general concerns of Vietnam water service businesses in operation (post-investment) stage, where the enhancement of revenue and minimalization of cost would take crucial place in ensuring profit and financial viability of the businesses in the sector.

5. RISKS FACTORS

There are various factors that respondents posed as having high impact on different type of risks the respondents encounter, and some certain risk types or risk factors affect financial viability more than others:

- To the risk type of ‘low demand and consumption of water, low willingness to pay, and non-payment of bills’ – the most prevalent factors are: Low consumption due to supplementary use of unimproved water sources result in lower capacity compared with installed capacity; no guarantee of a minimum revenue for water operators (due to low consumption) leads to inability for the business to recover expenses in maintaining the service in the water pipe system; low ability to pay of the poor; poor service quality; market change.
- To the risk type of ‘Asset valuation and management’ – the absence of clear mechanisms for determining the price of assets, absence of reliable data on the nature and condition of assets, and a lack of consistent regulations on asset management cause private sector's lack of confidence in the prevailing regulatory framework for investment in the sector.

⁹ where 1 = least negative impact, 10 = most negative impact

- To the risk type of 'Commercial finance and credit' - the most prevalent factors are: lack of access to commercial finance causes the business inability to undertake essential investment to start operation (e.g., R&D, acquisition, construction); not able to maintain or replace existing infrastructure when required; lack of skill or experience in producing attractive application dossier causes the business inability to pursuit a loan from commercial bank; difficulty for the business to obtain government guarantees to gain access to commercial finance; the business lacks of contract monitoring processes and management required in commercial finance contracts; ineligibility of water system assets causes the business lack of collateral to access commercial loans; lack of reliable operational and financial data prevents the business from meeting the criteria for financial accountability required in commercial loan contracts; lack of an investment incentive climate makes the water sector not viable and attractive to large scale commercial investors and lenders; weak voice and position of private sole proprietorship.
- To the risk type of 'Low water pricing and tariff' - the most prevalent factors are: low water tariff prevents the business from recovering costs resulting in poor service (e.g. intermittent water supply or low water pressure), and forces the business to cut cost on expenditure and personnel to secure the financial balance for operation.
- To the risk type of 'High operation costs' - the most prevalent factors are: High energy costs make cost of water servicing high; inflation raises the cost of production and operation and impacts the business's loan repayment; the use of larger number of local employees make difficult to improve professionalism and service quality.
- To the risk type of 'Non-revenue water' - the most prevalent factors are: 31-3-4-7 poor condition of pipe network causes the water pressure of the company's service lower than expected; high costs in the construction and operation stage impose high water connection fee which results in reduced demand for water services; agriculture activity of farmers harms the water pipe system.

All the above-mentioned factors, that respondents posed as having high impact on different type of risks the respondents encounter, well correspond the factors revealed at the Literature Review of the Study. This can be explained by the generality and commonality of rural

water service in both investment and post-investment operation stages.

Among all the risk types that respondents encounter, their risk factors vary in terms of impact on financial viability. The top risk types reported are:

- The risk type of 'commercial financing and credit' had nine 'High impact' evaluated over ten factors (90%).
- The risk type of 'Lack of households' willingness to pay, low consumption, and non-payment of bills' had four 'High impact' evaluated over five factors (80%).
- The risk type of 'Infrastructure and water theft issues' had three 'High impact' and 3 'Medium impact' evaluated over seven factors (45%).
- The risk type of 'Water pricing and tariff' has two 'High impact' and two 'medium impact' over five factors (40%).

Those risk types or risk factors the respondents encounter, that affect financial viability more than others, are typical for the post-investment operation stage of the Vietnam rural water service sector in general as recorded at the Literature Review stage of the Study.

6. WAYS TO MITIGATE FINANCIAL RISKS – BUSINESS LEVEL AND GOVERNMENT LEVEL

At business level, some measures that help suppliers to lessen impact of financial risk on viability were suggested by respondents as follows:

- Advance payment from end-users upon connection agreement helped additional revenue to balance the finance during the difficult time at the beginning,
- Assistance from NGO (like EMW) in capacity building in business management.

At Government level, some ways that the government can do to help improve financial viability of these suppliers were recommended by respondents as follows:

- The Government should implement support policy to Rural Water Supply Enterprises (e.g. by the pipe

system length due to the high initial cost of investment and low rate of ROI, or support in water safety and protection of pipe system during the operation to reduce cost of incident settlement).

- Support in tax and water price in remote areas.

In addition to the above, the respondents expressed their wish to receive support from the Government in form of financial support on commercial loan (interest rate subsidy).

7. FINANCIAL VIABILITY AND POOR AND VULNERABLE HOUSEHOLDS

Both respondents indicated that they were financially viable for the next 1-5 years, and that they would continue to deliver water services to the poor and socially disadvantaged.

From the water service businesses perspective, it could be that the poor and vulnerable HHs are just a fraction of their clientele and there are other commercial clients to which they can negotiate better tariff to compensate the revenue shortage, in this case the business goes with the market economy mechanism and follow its principles. Another encouraging sight to business is that their O&M and business management capability have been improved thanks to technical assistances from Governments and NGOs. From the local Government perspective, the poor and vulnerable HHs are their objects of care, and politically the poor and vulnerable HHs are entitles to take priority in all local socio-economic development program and planning.

This dilemma would suggest an improvement of Government regulatory implementation that support the poor (and poor and vulnerable HHs) in general and in WASH in particular, support rural water service businesses in servicing poor and vulnerable HHs (as a small portion market).

8. CONCLUSIONS AND IMPLICATIONS

The common financial health risk factors that similarly negatively impact the profitability and financial viability of WASH businesses are:

- Low consumption and low demand
- Low user's affordability
- Low user's willingness to pay

These risk factors are derived from the nature of the market they serve – rural and dis-advantaged areas where the population is small, their demand is low due to their poor perception of using WASH services (of clean water and hygiene latrines) and no access to loan and credit (they are poor, they have no asset for collateral). To assist the poor, various supports have come from Government and Donors programs, on one hand allow the poor HH to have access to WASH services, however on the other hand, this intervention distorted the market and deeper the finance risks private sector WASH businesses.

The specific financial health risk factors that have high impact on cash flow/profitability and financial viability of private sector water service businesses, beyond the common financial health risk factors to WASH businesses mentioned above, are:

- High investment costs (e.g., construction costs, piped network costs)
- Inflation
- Asset valuation and management
- Commercial finance and credit
- Change in regional water supply planning

To support WASH businesses in general, a number of policy/practices are suggested as follows:

- focus of resources, efforts and interventions on the awareness raising, promotion of using WASH services to the community, poor and vulnerable HHs), and improvement of Government regulatory implementation that support the poor (and poor and vulnerable HHs) in general and in WASH in particular to create a better market for the sector.
- provision of knowledge and ability to access commercial loans for WASH businesses.
- avoidance of direct Government intervention in price of service and cost of products, let the principles of market mechanism work; and application of support schemes that let market mechanism work.
- application of integrated WASH sector-wide business support intervention to achieve long-lasting effect improvement.

- application of support policy and practice that support HHs in improving their access to finance (micro-finance, fintech, commercial loan and credit), but not by direct subsidy that distorts the market.

To particularly support Water Service businesses, a number of policy/practices are suggested as follows:

- consideration of PPP comprehensive cooperation mechanism or support scheme by the Government to the private sector to support water supply company to expand service areas beyond their existing area of service and decide investment expansion, that would involve extra-high investment (longer pipeline, more risky terrains) to serve lower-attractive population (low density, low business activity), and require longer-time for return on investment.
- throughout and effective implementation of regulations that request the Governments to implement statutory financial scheme that support rural water supply sector, especially against the water pricing and tariff, to fill the gaps between the revenue and cost of private sector rural water service units, and enhancement of voice and power of private sector water supply units in claiming the statutory supports.
- enhancement of Government role in harmonizing interests of poor and vulnerable HHs and water supply units by facilitating the water supply units in negotiation a higher water tariff with non-poor customers in the service area to compensate low preferential tariff to the poor and vulnerable HHs.
- additional comprehensive operational capacity enhancement (by Government and NGOs) for rural water service units, especially the operational an management capacity to improve access to commercial financing and credit, eliminate non-payment of bills and water thief, and ability in negotiating and enforcing better water pricing and tariff, and enhancement of capacity of water service units to manage their customer base to service customers that are poor and socially disadvantaged.
- application of support policy and practice in those remote and disadvantaged areas, which is to provide financial supports (in form of interest rate subsidy, or other financial incentive, on top of the recent land levy exemption policy) as well and other capacity building in O&M and asset management that allow

water service businesses to reduce O&M cost and improve their revenue and financial viability.

- application of support policy and practice in those remote and disadvantaged areas, which is to support poor HH in connecting to the water piped system and allow free-market mechanism work between the water service businesses and their non-poor clients.
- study on the practice of negotiation on advance payment from end-users upon connection agreement, and replication in other rural areas during the extended investment project preparation and initial investment stages.

REFERENCES

1. 2020FMM, Asia and the Pacific Finance Ministers' meeting of 2 December 2020
2. Aaron Burton, SFW, 2015, Competition in the Water Sector: Financing the Fourth Generation of Water Infrastructure (Financing Sustainable Water)
3. ADB 2010, Viet Nam Water and Sanitation Sector Assessment, Strategy and Roadmap
4. ADB 2021, Review of Opportunities for the Pacific WASH Sector
5. Enterprise in WASH WP2b, Anna Gero & Juliet Willetts, 2007, Private and social enterprise engagement in water and sanitation for the Poor - Incentives shaping enterprise engagement in Viet Nam
6. End Water Poverty, Water Aid, 2021, Blueprint: financing a future of safe water, sanitation and hygiene for all
7. CEWASS 2020, Report on the implementation of the RWSS National Program toward 2030 with vision to 2045
8. James Leigland et al, 2016, Achieving Universal Access to Water and Sanitation by 2030 - The Role of Blended Finance
9. EMC 2014, Supply Chain Analysis for Rural Sanitation Products and Services in Lao PDR
10. Enterprise in WASH, 2018, Access to piped water services from private water enterprises in rural Viet Nam
11. Georgina Sandford and Erick Baetings, 2016, IRC International Water and Sanitation Centre (IEC WASH)
12. IEEM 2016, Water Market Value Chain Approach – MOSA Phase II Summary Report
13. IMF, Anja Baum, 2020, Vietnam's Development Success Story and the Unfinished SDG Agenda
14. ISF 2011, Vietnam - WASH Sector Brief
15. ISF 2015, Sanitation value chains in low density settings in Vietnam

16. Lien Pham et al, 2021, Mid-Term-Review Report of the Women-Led Output-Based Aid (WOBA) Vietnam
17. Lien Pham et al, 2021, Presentation on the Review of the results of SANOPA piloting in the five project provinces and recommendations
18. Lien Pham et al, 2021, WOBA Viet Nam partnership structure Lessons learned from the Mid-term Review
19. Lien Pham et al, 2021, OBA and WASH services for marginalized households in rural Viet Nam Policy implications from the Mid-term Review of WOBA Viet Nam
20. Lien Pham et al, 2021, Impacts of WOBA for marginalized households in rural Viet Nam Lessons learnt from the Mid-Term Review of WOBA Viet Nam
21. MARD 2003, Handbook on Design of small-scale centralized rural water supply works
22. Nathaniel Mason et al, 2015, Private Sector and water supply, sanitation and hygiene
23. Nguyen Thuy Lan Chi et al, 2018, Water Supply Status in Rural Areas of the Mekong Delta and Development Measures
24. OECD iLibrary 2019, Making Blended Finance Work for Water and Sanitation: Unlocking Commercial Finance for SDG 6
25. ResearchGate 2019, Supply chain analysis on sanitation and hygiene: how can we improve demand and supply chain barriers in rural dry zone area of Myanmar
26. SNV 2010, Study of Rural Water Supply Service Delivery Models in Vietnam
27. SNV 2012, Rural Sanitation Supply Chains and Finance - Progress Brief
28. UNICEF 2017, Progress on household drinking water, sanitation and hygiene
29. UNICEF Jan2018, Viet Nam Water, Sanitation and Hygiene (WASH) Sectoral and OR+ (Thematic) Report
30. UNICEF 2018, Evaluation of UNICEF Viet Nam Rural Sanitation and Hygiene Programme (RSHP) 2012 – 2016
31. UNICEF 2020, Policy Brief - Water, Sanitation and Hygiene In Viet Nam
32. Vu Quynh Mai et al, 2020, Review of Public Financing for Water, Sanitation, and Hygiene Sectors in Vietnam
33. WB 2016, Socialist Republic of Vietnam - Scaling Up Rural Sanitation – Strengthening Demand Creation and Supply Chain
34. WB, UNICEF, 2017, Sanitation and Water for All - How Can the Financing Gap Be Filled?
35. World Bank 2019, Evaluating the Potential of Container-Based Sanitation: x-runner in Lima, Peru, <http://www.worldbank.org/gwsp>
36. World Bank, 2016, RB-SupRSWS Report on the Rural Water Supply Management Models and its Sustainability
37. WSP 2014, Water Supply and Sanitation in Vietnam - Turning Finance into Services for the Future
38. WSP 2012, Findings from Hygiene and Sanitation Financing Study in Lao PDR
39. WSP, PSI, Sanitation Marketing Toolkit - Latrine Sales Agent Trainee Handbook