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Vietnam Results-Based Rural Water Supply and Sanitation Under the National Target Program: Impact Evaluation

Process Evaluation

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Program-for-Results (PforR) of Rural Water Supply and Sanitation in the Red River Delta, Vietnam:

A Process Evaluation

Acknowledgements

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Acronyms and Abbreviations

CRR	Comprehensive Results Report
DARD	Department of Agriculture and Rural Development
DEPOCEN	Development and Policy Research Center
DLI	Disbursement-linked Indicator
DoET	Department of Education and Training
DoF	Department of Finance
DoH	Department of Health
DPI	Department for Planning and Investment
FGD	Focus Group Discussion
GoV	Government of Vietnam
IDI	In-depth Interview
IEC	Information, Education and Communication
IVA	Independent Verification Agent
JMP	Joint Monitoring Program
MARD	Ministry of Agriculture and Rural Development
MDG	Millennium Development Goal
MoET	Ministry of Education and Training
MoF	Ministry of Finance
MoH	Ministry of Health
MoNRE	Ministry of Natural Resources and Environment
MPI	Ministry of Planning and Investment
NCERWASS	National Center for Rural Water Supply and Sanitation
NTP	National Target Program / National Target Program for Rural Water Supply and Sanitation
NTP SO	National Target Program Standing Office
NTP3	National Target Program for Rural Water Supply and Sanitation Phase 3
ODA	Official Development Assistance
O&M	Operation and Maintenance
OM	Operational Manual
PforR	Program-for-Results
PAP	Program Action Plan
PCERWASS	Provincial Center for Water Supply and Sanitation
PDO	Program Development Objective
PPC	Provincial People's Committee
PSC	Provincial Steering Committee
RRD-RWSSP	Red River Delta Rural Water Supply and Sanitation Project
RWSE	Rural Water Supply Enterprise
RWSS	Rural Water Supply and Sanitation
SAV	State Audit of Vietnam
TTL	Task Team Leader
VBSP	Vietnam Bank for Social Policies
VHLSS	Vietnam Household Living Standards Survey
VIHEMA	Health Environment Management Agency
VND	Vietnamese Dong

Executive Summary

The Program for Results-based Rural Water Supply and Sanitation under the National Target Program (PforR) was designed to support Phase 3 of the National Target Program (NTP3) for Rural Water Supply and Sanitation in Vietnam. The NTP3 is implemented between 2012 to 2015, and the PforR approach supports NTP3 activities eight geographically-clustered provinces of the Red River Delta: Phu Tho, Quang Ninh, Ha Noi, Hung Yen, Bac Ninh, Ha Nam, Vinh Phuc, and Thanh Hoa.

The overall aim of the NTP3 is to significantly improve the sustainability of water systems and the quality of the water produced, and to push the sanitation agenda, making institutional changes to enhance delivery of software support for sanitation promotion and hygiene education. Under the PforR a new approach for the NTP will be tested through the introduction of results-based planning and financing and by strengthening the institutional mechanisms related to governance, procurement, financial management and environmental and social management systems. The PforR aims to progressively transform the NTP into a more focused and efficient system for delivering sustainable investments. Namely, it seeks to address the weaknesses identified in the NTP by shifting the incentive structure of the program from one based on inputs (financial resources) and activities (design and construction of water schemes) to one based on outputs (water connections, toilets constructed) and outcomes (coverage and sustainability of clean water / hygienic sanitation).

Under the PforR, program results are tracked and verified through an annual independent verification exercise. To understand not just whether, but how, outputs were achieved and the degree to which those results can be attributed to the PforR itself, a process evaluation was designed to document and critically describe the process and mechanisms used to achieve the results, and the extent to which the approach addresses the weaknesses identified in the NTP. The evaluation measures program outcomes and effectiveness vis-à-vis the traditional NTP approach using a mixed-methods approach, and through a combination of qualitative and quantitative research tools.

The objective of the process evaluation is to provide timely insights and recommendations to the World Bank and the GoV to inform implementation of Rural Water Supply and Sanitation under NTP3 and future implementation of rural water supply and sanitation under the Rural Development NTP. It also seeks to assess how well the PforR instrument meets its stated objectives of incentivizing results and strengthening country institutions. A secondary objective is to understand what aspects of the program may be amenable to design variations and impact evaluation at a later date.

In the first two years of operation program-wide results are considered acceptable. In 2013 96 percent of the target for household sanitation was met and 70 percent of the target for commune-wide sanitation was met. The targets for sanitation, both individual household sanitation and commune-wide sanitation, were met or exceeded in 2014, while targets for water supply connections were partially achieved (65%). In both years the targets for program planning and reporting were fully achieved. Additional resources under the PforR have provided a significant boost to implementation of NTP3, especially for sanitation – its budget has doubled or tripled that in non-PforR comparison provinces. Increased investment along with increased rigor of monitoring, reporting, and independent verification have improved the accuracy of information systems, and led to better results.

The program is contributing to high levels of service for rural households, with disbursement linked indicators tied to quality, quantity and continuity of water and quality of sanitation. While it is too soon to assess whether the program is improving the sustainability of rural water supply and

sanitation investments, beneficiaries are quickly adapting to having piped water and report consuming large quantities, despite having alternative safe water sources. However, where it is free and available, households still prefer to use other sources of safe water for drinking and cooking purposes and just one-fifth of households exclusively use piped water for domestic purposes. The evidence suggests that implementing agencies have not placed much emphasis on changing these behaviors to shift demand towards piped water, which could harm cost recovery efforts and longer term sustainability.

Demand for hygienic sanitation in the Red River Delta is high, with a strong preference for bathroom facilities, as opposed to separate latrine facilities. These preferences lead to high expenditures on average for hygienic sanitation (predominately pour-flush septic). Only a small proportion of households received a subsidy or purchased their toilet using a loan – the vast majority used savings or other income. As the sanitation targets get more ambitious over the program period, and the PforR penetrates more deeply into areas where a higher number of poor and ethnic minorities live, affordability may become a challenge. The PforR will need to adapt the approach to serve a less populous population with fewer resources.

The provinces have faced challenges meeting the targets for water supply, stemming from system over-design, high unit costs, low levels of counterpart funding and a low procurement bid savings. There are indications that the targets may not be met and that key objectives of cost-efficiency and sustainability may be in jeopardy if the program fails to adapt. The program also highlights some of the institutional and behavioural bottlenecks to keeping school toilets clean and operational. Greater emphasis on measures of sustainability of school sanitation were introduced during restructuring that allow for a new disbursement linked indicator tied to school sanitation that is still hygienic 2 years after the initial verification. This issue also demonstrates the behavioural complexities of setting output based targets that may not appropriately align incentives.

There are institutional and behavioural challenges to adopting the PforR approach that are informative for other countries considering PforR. Most notable is the perception among stakeholders that the PforR is an output-based investment *project*, as opposed to a results-based budget support *program*. This perception has contributed to low levels of counterpart funding and artificial separation between NTP and PforR investments. Poor program planning and budgeting are further exacerbated by the lack of familiarity with the PforR approach.

Additional findings, which have particular relevance for other countries considering PforR are summarized in Table 1 below.

Table 1: Issues of broader relevance to clients considering PforR

Ratio of PforR to non-PforR financing can influence the ability of the borrower to provide pre-financing.	PforR financing is approximately 77 percent of total NTP3 budget in the program provinces by design, although in practice it is less. A high ratio of PforR to program financing may result in bottlenecks if the borrower is unable to secure resources for capital investments, but also places high pressure on the borrower to deliver on the outputs.
Inability of the borrower to pre-finance investments could have unintended	The number of bidders competing on a sample of contracts in the first 2 years of the Vietnam PforR

consequences	suggests the pool of potential construction works bidders is smaller and costs have escalated as a result.
Performance-based incentives at different institutional levels can help ensure that the shift in the incentive structure of the PforR reaches to the level of program implementation.	There are no performance based grants or other monetary incentives at the sub-national level in Vietnam, but findings suggest these may be an effective way to reward performance and lower costs.
Rigorous monitoring, reporting, and independent verification have improved the accuracy of information systems, and led to better results.	Where possible reporting and verification systems should utilize sector and / or national monitoring systems to enhance accuracy and reliability of these systems.
The design of DLIs needs to align these performance measures as closely as possible to the desired outcome.	In the Vietnam case it was not sufficient to include criteria on hygienic sanitation in schools since these facilities were not being maintained after the targets had been achieved. A new DLI on sustainable school sanitation was added, which disburses based on random verification of the operation of the school toilets 2 years after the initial target was met

Road Map of Report

The report has three main objectives. First, it describes key findings based on desk review and field visits to the eight provinces of the impact of the program on water supply and sanitation targets and results, and the effectiveness of the program in strengthening country institutions. Second, the report outlines findings at the household level for beneficiaries of the program. Based on these findings the report outlines a set of factors that facilitated success or posed barriers to the overall PforR objectives. In doing so, the report highlights recommendations for design variations of the PforR more broadly and NTP in particular, that would be amenable to impact evaluation in the future. In the final section the report concludes with a summary of key findings.

I. Introduction

The Vietnam Ministry of Agriculture and Rural Development (MARD) estimates that around 75 percent of the rural population of Vietnam has access to improved water[1], however access to 'clean' water, defined by national potable water quality standards, is estimated to be only 35 percent.[2] Water quality in Vietnam is compromised by pesticide and fertilizer pollution as well as fecal contamination, especially where shallow groundwater is used. There is also a significant risk of contamination with iron and arsenic in deeper groundwater sources in the two major river deltas, the Mekong and Red River.

Access to hygienic and properly maintained sanitation is estimated to be 51 percent in rural areas. Many of those that remain unserved lack the financial resources to afford hygienic latrines. Over the past decade access to improved household sanitation has been accelerated through lending for domestic sanitation through the Vietnam Bank for Social Policies (VBSP).

The Government of Vietnam (GoV) has been proactive in responding to the challenge of increasing access to and ensuring the quality and sustainability of rural water supply and sanitation services. The National Target Program for Rural Water Supply and Sanitation (NTP) is the GoV's primary instrument to achieve the objectives of its National Strategy for Rural Water Supply and Sanitation (RWSS) and the Millennium Development Goal (MDG) target 7 for water and sanitation.

However, several weaknesses have been identified with the NTP, including: (i) insufficient attention to household and institutional sanitation; (ii) lack of financial sustainability of water supply systems; (iii) weaknesses in the expenditure framework; (iv) spreading investment resources thin; (v) system inefficiencies; and (vi) governance weaknesses (see Table 1 below for details).

These challenges were the main drivers of the GoV decision to pursue a targeted, results-based approach to rural water supply and sanitation under the new phase of the National Target Program. The Program for Results-based Rural Water Supply and Sanitation (hereafter PforR) under the National Target Program supports Phase 3 of the National Target Program (NTP3) to be implemented from 2012 to 2015 in eight geographically-clustered provinces: Phu Tho, Quang Ninh, Ha Noi, Hung Yen, Bac Ninh, Ha Nam, Vinh Phuc, and Thanh Hoa. The NTP3 aims to significantly improve the sustainability of water systems and the quality of the water produced, as well as push the sanitation agenda and make institutional changes that will enhance delivery of software support for sanitation promotion and hygiene education. In these provinces, and in response to the challenges outlined above, and detailed in Table 1, a new approach for NTP3 will be tested through the introduction of results-based planning and financing and by strengthening the institutional mechanisms related to governance, procurement, financial management and environmental and social management systems. The PforR aims to progressively transform the NTP into a more focused and efficient system for delivering sustainable investments.

The PforR focuses on (i) expanding water supply services; (ii) expanding household and institutional sanitation; and (iii) strengthening institutions, including improved planning, monitoring and evaluation. Each of these is tied to a Disbursement Linked Indicator (DLI).

1 National Target Program on Rural Water and Sanitation 2012-2015 document, approved by Prime Minister's Decision 366. **"**Hygienic**"** is equivalent to the WHO / UNICEF Joint Monitoring Program for Water Supply and Sanitation definition of "improved water source" or a source that "by nature of its construction or through active intervention, is protected from outside contamination, in particular from contamination with fecal matter"

2 National Target Program on Rural Water and Sanitation 2012-2015 document, approved by Prime Minister's Decision 366 (2010)**. '**Clean' water, according to MoH definition, refers to specific water quality parameters defined in the standards QCVN 02/BY.

Table 2 summarizes the main NTP weaknesses identified at program design stage and the solution proposed by the PforR.

Table 2: PforR Approach to transform the NTP into a more focused and efficient system for delivering sustainable investments

No	NTP identified weakness	Details	PforR solution
1	Insufficient attention to household and institutional sanitation	Sector investments have tended to focus on water supply at the expense of sanitation. As a result, sanitation coverage is lower than water supply and there is a need to incentivize investments in sanitation.	PforR will foster more balanced investments through the design of the disbursement-linked indicators (DLI) mechanism that tie water and sanitation disbursements. A delay in either water or sanitation will reduce the amount of funds which can be disbursed in a given period.
2	Lack of financial sustainability of water supply systems	Some systems face revenue problems for the following reasons: (a) low household connection ratios due to availability of other water sources, including borehole or tubewell water[3] , rainwater and bottled water and low awareness of arsenic pollution in the RRD, thus sub-optimal household demand for piped water; and (b) low household willingness to pay the required connection fee and tariffs. There also exists low willingness to charge for piped water supply services.	The program incorporates a DLI on sustainability of water schemes, which requires operational and maintenance cost-recovery and benchmarks for non-revenue water. Water connection fees and tariffs will not necessarily change under the PforR, however local actors may have incentives to structure these in order to maximize connections and water usage. Lack of demand for piped water is not explicitly addressed by PforR mechanism, but it is expected the program will design information, education and communication activities specifically targeted to increase demand for the use of piped water to prevent health related risks of using other unsafe sources for drinking and cooking
3	Weaknesses in the expenditure framework	Budget requests included in provincial plans far exceed the resources that provinces ultimately receive or are able to mobilize. The process of reconciling allocations to plans results in water supply contracts being funded ahead of other activities such as sanitation and information, education and communication. Investments are therefore biased toward water supply even if the original plan itself is balanced.	Disbursement-linked indicators (DLI) that tie water and sanitation disbursements will trigger a reduction in the amount of funds which can be disbursed in a given period if either water or sanitation outputs are delayed. Technical assistance will be provided to improve the cost-efficiency of both the designs and the contracting process of water supply systems
4	Spreading investment resources thin	Provinces tend to start numerous schemes without certainty that funds will be available to complete them in the planned period. NTP reviews show that average construction periods are typically double the engineers' estimates, as funding shortages prevent timely contract payment and contractors slow work to match payments.	The focus on achieving results (e.g., working water connections) is designed to overcome the problem of excessively long construction times. Where works are completed more quickly, funds will be disbursed more rapidly.
5	System inefficiencies	There are few incentives to promote cost-efficiency in design and construction. Funding to provinces flows on the basis of receipt of invoices from contractors, and there is little incentive to promote cost savings. The relevant procurement law supports competitive	To encourage cost-efficiency, disbursement amounts are fixed, so any cost-savings achieved during the design and construction process will represent additional funding which can be used to finance further investments.

3 Ground water is considered improved water source, but is not 'clean' water as defined by MoH

		practices, but leaves room for non-competitive choices in smaller contracts where Bank experience in similar investments shows competition will yield lower prices.	
6	Governance weaknesses	NTP suffers from weaknesses in terms of fiduciary, social, and environmental management. For example, civil society has inadequate access to information on community selection, procurement, and contract management, and the grievance resolution mechanism is inadequate.	The program includes a DLI on improving transparency and strengthening overall management of NTP. Independent verification of results reported by MARD will be undertaken by the State Audit of Vietnam. Verification of targets will trigger disbursement. Technical assistance will be provided to build capacity to deliver improvements in environmental, social and fiduciary systems

The PforR focuses on (i) expanding water supply services; (ii) expanding household and institutional sanitation; and (iii) strengthening institutions, including improved planning, monitoring and evaluation. In particular, the Program aims to provide and will measure achievement of the following results:

(i) 130,000 new toilets constructed over the project period
(ii) 340,000 new working water supply connections
(iii) 1,275,000 people benefit from commune-wide sanitation, defined as 0% open defecation (at least 70% improved); 100% of institutions (schools, commune health centers) have access to sanitation and water supply
(iv) 850,000 additional people have working water supply connections that are sustainable

Disbursement of the loan under the PforR is tied to independent verification of these results, derived from the results framework and defined as Disbursement-Linked Indicators (DLIs).

Objective of the evaluation

The objective of the process evaluation is to provide timely insights and recommendations to the World Bank and the GoV to inform implementation of Rural Water Supply and Sanitation under NTP3 and future implementation under the Rural Development NTP. It will do this by documenting the process of implementation of the PforR and gathering evidence on the effectiveness of the approach in addressing the weaknesses identified in the NTP (Table 1). Effectiveness of the program in achieving the intended results and stated goals will also be measured and assessed. A secondary objective is to understand what aspects of the program may be amenable to design variations and impact evaluation at a later date.

Research Questions and Study Approach

The unique structure of the PforR in the Red River Delta posed several limitations to use of a rigorous impact evaluation design. As the project would be a learning process for both the World Bank and the Client, since it was both the first PforR in the East Asia and Pacific Region, and the first in the Water and Sanitation sector, stakeholders convened for an Impact Evaluation Workshop in Hanoi in December 2013 decided to pursue an in-depth process evaluation rather than an impact evaluation.

The process evaluation was designed around several key research and learning questions, motivated by a need to understand the Program's effectiveness in addressing weaknesses in the NTP. These include:

(1) How does the PforR compare with standard NTP3 along the following dimensions:
    a. Cost-efficiency of design and construction of water supply systems
    b. Sustainability of water supply systems[4]
    c. Financial and operational focus on sanitation
    d. Provincial planning processes
    e. Governance, transparency and accountability mechanisms

To further explore and document key innovations of the PforR, the following questions were addressed *in PforR provinces only*:

(2) What are the incentive structures and dynamics for different types and levels of stakeholders and how do these facilitate or hinder achievement of targets?

(3) How effective are the NTP monitoring system and verification procedures for enhancing capacity for and improving the quality (accuracy, completeness, frequency) of routine monitoring data

Finally, to understand the effect of the program on beneficiaries the evaluation looked at the effectiveness of the PforR in increasing coverage of piped water and household hygienic sanitation, using the most rigorous method possible. At the household level, the evaluation gathered beneficiary feedback on water and sanitation services, and assessed the constraints (financial, technical and administrative) that households face for constructing and maintaining hygienic toilets and connecting to and using piped water for drinking and cooking.

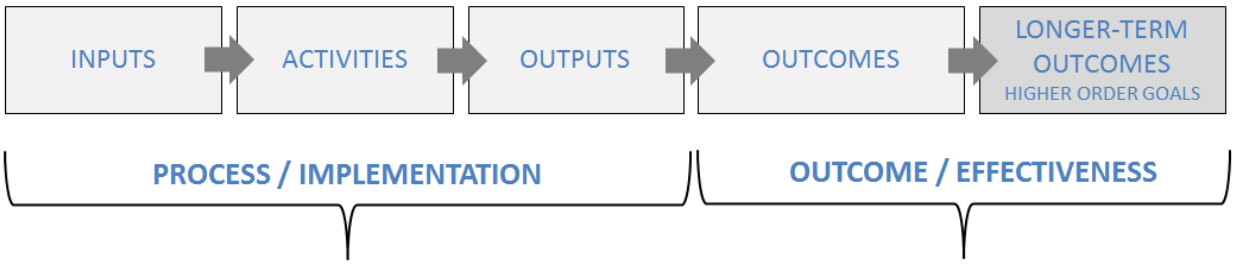
The evaluation covers the expansion of water supply services, household and institutional sanitation, and institutional strengthening, including improved planning, monitoring and evaluation. It focuses on the period of implementation of the PforR between project initiation in January 2013 through June 2015, capturing the first 2 full years of implementation and results verification. The evaluation is undertaken in the eight provinces comprising the project area: Phu Tho, Quang Ninh, Ha Noi, Hung Yen, Bac Ninh, Ha Nam, Vinh Phuc, and Thanh Hoa and in five non-PforR comparison provinces: Hai Duong, Thai Nguyen, Nam Dinh, Hoa Binh, and Nghe An.

[4] While the DLI for sustainable water supply systems will not be verified until Year 4 of the program, the evaluation will assess interim indicators of sustainability

Methodology

Program results (outputs) are tracked and verified through an annual independent verification exercise. To understand not just whether, but how, outputs were achieved and the degree to which those results can be attributed to the PforR itself, the evaluation gathered in-depth qualitative and quantitative data on the process and mechanisms for achieving these results, and measured outcomes and effectiveness vis-à-vis the NTP using the most rigorous methodology possible. That is, the evaluation focuses on the full results chain as shown in Figure 1.[5]

Figure 1: Results Chain



A mixed-methods approach using quantitative and qualitative research tools was used to document and critically describe the process and mechanisms used to achieve the results of the PforR. Where appropriate these processes and outcomes are compared with non-PforR sites and closely comparable water schemes, which serve as a counterfactual for the PforR. Data were collected by Depocen, a local Vietnamese research institute, following a detailed concept note and Terms of Reference (TOR), which outlined the proposed evaluation design and research questions. The final evaluation design including research questions, methodology, and data collection instruments were developed collaboratively between the Client, the World Bank project team and Depocen.

In-depth interviews and focus group discussions

In-depth interviews (IDIs) and focus group discussion (FGDs) were conducted with various stakeholders from the central to local levels (Table 3). A list of guiding questions was developed for FGDs and IDIs (see Annex A for a list of questions key informants and participants of Focus Group Discussion).

At the central level, besides consulting with the World Bank, the following stakeholders were consulted: (i) National Center for Rural Water Supply and Sanitation (NCERWASS); (ii) National Target Program Standing Office (NTP SO); (iii) Health Environment Management Agency (VIHEMA); (iv) Ministry of Education and Training; (v) Ministry of Finance; (vi) Ministry of Planning and Investment; (vii) State Audit of Vietnam.

At the provincial level, focus group discussions were conducted with the participation of Department of Agricultural and Rural Development (DARD), Provincial Center for Rural Water Supply and Sanitation (PCERWASS), Department of Health (DoH), Department of Planning and Investment (DPI), Department of Finance (DoF), and Department of Education and Training (DOET). In addition, IDIs with key personnel of PCERWASS were conducted in each province.

[5] The evaluation does not measure distant development outcomes, such as child health, nutrition, poverty reduction

Two FGDs were held at the commune level in each province. One was with relevant stakeholders including commune leaders, local project coordinators, health workers, and women's union while the other was local villagers. The criteria for selection of commune are mainly the performance of the program at these communes (i.e. whether the water connection is completed, whether the construction is still going on, and whether the commune-wide sanitation is being implemented). Priority is given to communes where both water and sanitation are being implemented. The selection of communes of 8 provinces ensures the diverse participants and implementation progress of the program at these provinces.

Table 3: Participants of FGDs and IDIs

Level	Number of sample	Total number of FGDs and IDIs
Central level		- 2 FGDs - 2 IDIs
Provincial level	8 provinces	- 8 FGDs (participants from relevant departments/agencies) - 16 IDIs
Commune level	2 commune/province x 8 provinces = 16 communes	- 8 FGDs at household level - 8 FGDs with commune officials and local organizations
Total	**8 provinces and 8 communes**	**26 FGDs and 18 IDIs**

Quantitative surveys

The surveys are conducted via face-to-face interviews. Two types of surveys were conducted, including:

Household survey: (i) a survey with 400 households with newly constructed latrines; and (ii) a survey with 400 households that connected to the piped water system. The surveys measure affordability of water and sanitation infrastructure, expenditure and financing of water and sanitation, perceptions of quality, satisfaction, among others. The households were selected randomly from the list of households that are directly benefited from the program in the first two years.

The sampling frame used for the household survey is the complete list of beneficiary households reported by the Program in the Comprehensive Results Report (CRR). For households benefiting from piped water connections two communes were randomly selected from each province from the full list of communes reporting connections. In each selected commune two villages were randomly selected and between 12 – 13 households selected per village. Total sample size per province was 50 households (n=400 for water connections). For households benefiting from new household sanitary latrines, a total of 400 households were selected at random from the full list of reported latrines since no clustering approach was used in implementation. In total, 800 households were selected for the surveys. See Annex B for the household questionnaire.

Water scheme survey: A water scheme survey using a semi-structured questionnaire and covering system design elements, finances, operations and maintenance was conducted with 23 water schemes in PforR provinces and 19 water schemes in non-PforR provinces, selected to be similar technical, financial, and geographic aspects. Specifically, 20 newly constructed water schemes, 2 legacy schemes and 1 extension scheme were surveyed in the PforR provinces. While all the surveyed schemes reported to be operational at the time of the survey, only 15 had submitted water

connections for DLI 1.1 in 2014, with the remainder anticipated to submit targets for DLI 1.1 in the 2015 annual verification cycle. See Annex C for the water scheme survey questionnaire.

Theory of the result-based approach and issues with the NTP it seeks to address

Results-based approaches[6] are becoming increasingly mainstream for achieving desirable outcomes in development. Contrary to traditional approaches to development, results-based approaches offer financial or non-monetary reward upon demonstration of measurable outputs or outcomes. While the details of each approach differ, they share a common aim to shift from financing of infrastructure to *delivery* of public services, thereby achieving greater balance of incentive structures.

These approaches aim to address what is a common situation that arises in interactions where incentives and information are misaligned, which is often the case with development projects. This is known as the principal agent problem (Ross 1973; Sappington 1991). The theory suggests that a breakdown in service may occur when one actor (the principal) must rely on another actor (the agent) to produce an output or deliver a service even when the interests of these two parties are not aligned and access to information is not the same. Output based approaches aim to align these incentives by linking development outcomes sought by principal to the particular motivations of the agent.

Under the standard NTP model central government[7] (principal)[8] disburses funds to provincial implementing agencies (agent) to finance certain activities or inputs, such as construction of water supply schemes, funding of demonstration toilets and conduct of information, education and communication activities (IEC). Funding under this arrangement is disbursed based on presentation of an annual provincial plan of activities. Under this approach cost-efficiency is not rewarded since any realized cost-savings do not accrue to the implementing agency. Moreover sustainability of systems suffers since funding is tied to design and construction and not to operations and maintenance. NTP has faced cost overruns, delayed construction times, and limited or non-existent funding for sanitation, demonstrating that objectives between principal and agent have not always been aligned. Some of the characteristics of the NTP that increase the likelihood of principal agent problems are the following:

(i) high cost of information – monitoring data on household access to hygienic sanitation is costly to collect, requires specialized training and human resources, and quality/accuracy of data has been shown to be low[9]

(ii) lack of technological innovation – lack of skills for generating demand for piped water and sanitation and changing behavior may lead to sub-optimal outcomes; capacity of provincial government to design and manage water supply schemes

The PforR seeks to align the incentive structure by making monetary disbursement of funds conditional on demonstration of pre-defined outputs. Furthermore, it improves the quality of

6 Examples: output-based-aid (OBA), results-based financing (RBF), pay-for-performance (P4P), and conditional cash transfers (CCT)

7 MARD, Standing Office for NTP, VIHEMA, MoH

8 In the case of the PforR the World Bank also acts as a principal, with the Government of Vietnam the agent. The PforR-IE will solely focus on the relationship between central government and provincial implementing agencies, while recognizing that the presence of multiple principals introduces further complexities into the prevailing incentive structures.

9 Baseline Verification Report for the Program-for-results Based Rural Water Supply and Sanitation Under the National Target Program in Vietnam (2013). Report available upon request.

information available to both principal (central government agencies) and agent (provincial implementing agencies), through independent verification of targets. If agents feel incentivized to produce more accurate reporting (e.g. to limit reputational risk from inaccurate reporting identified through independent verification) monitoring systems may improve. The PforR may also lead to innovation in implementation since the agent will be able to capture the time and cost-savings of any improvements in efficiency. The risk of the PforR approach and an increased focus on monitoring of results including (i) increased incentive to focus on the output indicators being measured at the expense of those that are not; (ii) misreporting of results, whether intentionally (in an effort to outsmart the system) or unintentionally (poor monitoring and reporting systems); (iii) crowding in of good quality implementers and/or high capacity project sites.

Budgetary support and continued program financing are the sole financial 'rewards' for provincial implementing agencies under the PforR approach in Vietnam – there are no performance based grants or other monetary incentives at the sub-national level. At project design, the task team anticipated that MARD would set up internal mechanisms to reward performance. To date there is no evidence that performance incentives are in place. The implicit incentive for provinces are the cost savings, which can be reinvested in further works. Thus, the agent in this case is assumed to act based on self-interest, reputation and status reasons. The key assumptions then underlying the PforR are that provincial implementing agencies in Vietnam are (i) motivated by an intrinsic desire to achieve a particular development outcome and that (ii) they have the capacity, both technological and implementation, and financial resources to deliver on the outputs in the timeframe expected.

The results-based approach seeks to address the weaknesses identified in the NTP by shifting the incentive structure of the program from one based on inputs (financial resources) and activities (design and construction of water schemes) to one based on outputs (water connections, toilets constructed) and outcomes (coverage and use of clean water / hygienic sanitation).

II. Background of the Program-for-Results in Vietnam

Stakeholders, institutional and implementation arrangements

The PforR is implemented at the provincial level, with provincial authorities holding primary responsibility for planning, procuring, managing, monitoring and reporting on Program results, while central government agencies are responsible for steering, developing and issuing guidelines and regulations, requesting disbursement of funds, and overall reporting to the World Bank.

Central government agencies that are involved in the project include:[10]

(a) The Ministry of Agriculture and Rural Development (MARD) is the lead agency of the Program. MARD, through the General Department of Water Resources/Standing Office of the RWSS National Target Program performs monitoring, evaluation and follow-up of the PforR implementation progress, supervises overall Program implementation, and is responsible for leading the coordination with other agencies. In addition MARD supports the eight provinces to plan, deliver and monitor the Program and prepares the Comprehensive Results Reports for submission to the Bank and requests for disbursement;

(b) The National Centre for Rural Water Supply and Sanitation (NCERWASS) under MARD is responsible for supervision and follow-up of the PforR implementation progress, consolidation of results of DLIs implementation, and providing technical support to the Program;

(c) The Ministry of Health (MoH) coordinates sanitation activities including investments for which it is directly responsible and disseminates information to support sanitation and hygiene promotion. The agency is charged with leading the organization of Information, Education and Communication (IEC) activities. MoH also has the mandate for defining and checking drinking water and domestic water use quality standards. Vietnam Health Environment Management Agency (VIHEMA), an agency under MOH is responsible for rural household sanitation;

(d) The Ministry of Education and Training (MoET) monitors the implementation of school sanitation and leads elements of IEC delivered through schools;

(e) The Ministry of Planning and Investment (MPI) is responsible for final budget allocations to Program components;

(f) The Ministry of Finance (MoF), through State Bank of Vietnam (SBV), receives the funds disbursed by the World Bank and channels them to the Program Provinces.

In addition to the above agencies, the State Audit of Vietnam (SAV) assumes the role of an Independent Verification Agent (IVA). The agency provides independent verification and confirmation of the results, namely the Disbursement Linked Indicators, reported by the provinces through MARD, using verification protocols agreed with the World Bank. SAV contracts national or international expertise as needed to assist with and undertake the verification work in accordance with the agreed methodology. Based on the verification, SAV prepares an Annual Results Verification Report, which is shared with MARD and the World Bank to guide disbursement.

At the provincial level, the Department of Agriculture and Rural Development (DARD) acts as the lead agency. An NTP provincial Program Steering Committee (PSC) is also established in each participating province, which is headed by a deputy or head of the Provincial People's Committee (PPC). Members of the provincial PSC are representatives from the Department of Agriculture and

[10] World Bank, Operational Manual For Results-Based Rural Water Supply And Sanitation Under National Target Program (2013-2017), February 28, 2015.

Rural Development (DARD), Department of Education and Traning (DOET), Department of Health (DoH), and the Provincial Center for Rural Water Supply and Sanitation (PCERWASS). The PPC provides overall oversight on resources management, the establishment of any institutional structures required to deliver the Program, annual Provincial Plan, effective results monitoring and reporting and coordination with other NTPs and other sectoral investment programs.

In addition, the Department of Finance (DoF) and Department of Planning and Investment (DPI) are involved in the provincial planning process and disbursement of fund. These agencies hold responsibility for appraising the annual program plan and the budget allocation before it is submitted to the PPC for approval.

Key Elements of the PforR – How the PforR works in practice

Provincial Action Plan (PAP) and Operational Manual (OM)

The Program Action Plan (PAP) and Operational Manual (OM) are the primary mechanisms used to manage program risks in the daily operation of the PforR. Endorsed by the Prime Minister, the PAP is developed following the risk assessments undertaken for PforR to contain important actions that will be taken in the implementation of the program. Critical social and environmental commitments are included in the PAP to augment the key practices under NTP, and cover areas such as financial management, procurement, addressing corruption risks, strengthening financial and results audits, dealing with land acquisition and engaging with ethnic minority program beneficiaries. PAP actions are implemented through the OM, which complements existing NTP manuals. The OM sets out Vietnamese regulations and laws related to the various aspects of the Program, as well as additional provisions necessary to address gaps identified in the PAP.

Disbursement-Liked Indicators (DLIs)

Disbursements under the PforR are dependent on the achievement of results, referred to as Disbursement-Linked Indicators (DLIs) usually measured at regular intervals within a project timeline. The PforR of RWSS in the Red River Delta comprises three core DLIs, as follows:

1. DLI 1 relates to the delivery of infrastructure, namely piped water connections and improved household sanitary latrines. In the first year DLI 1.2 consists of improved household sanitary latrines; for years 2-5, it consists of two inter-linked sub-indicators: (a) DLI 1.1 working water supply connections; and (b) DLI 1.2 improved household sanitary latrines. The inter-linkage between the two sub-indicators is designed to incentivize the achievement of the targets, particularly for sanitation. A disbursement is therefore triggered only when at least some progress in both water supply and sanitation is achieved.

2. DLI 2 relates to the achievement of outcomes and for Years 1-3 consists of DLI 2.2 commune-wide sanitation; for Years 4-5, it consists of the two inter-linked sub-indicators of: (a) DLI 2.1 sustainable water supply systems; and (b) DLI 2.2 commune-wide sanitation.[11] As in the case of DLI 1, the inter-linkage between the two sub-indicators is designed to incentivize the achievement of both targets.

[11] Full definitions of sustainable water supply and commune-wide sanitation are in Annex 2 of the PAD which lays out the Results Framework in full.

3. DLI 3 is a measure of effective oversight, management and transparency of the Program (including more responsive planning, monitoring and financing) at the provincial and national level. It consists of two sub-indicators: (a) a Provincial Annual Plan for each province; and (b) a set of nine Program Reports (one for each Participating Province and one consolidated Program Report from MARD), which will include information on Program implementation progress and will be disclosed to the public.[12] This DLI is not scalable and both (a) and (b) have to be achieved to trigger a disbursement.

Result verification, monitoring and transparency

The formal risk management arrangements for the PforR rely primarily on the specifications included in the PAP and the guidelines set out in the OM, which are covenanted in the loan agreement between the GoV and the World Bank. Supervision and monitoring is also a critical aspect of the risk management arrangements in place.

Progress under the Program is reported through DARD to MARD and consolidated into program reports and the CRR. The IVA, in this case State Audit of Vietnam (SAV), verifies achievement of the reported results through desk review and physical inspection of the three core DLIs in compliance with the verification protocol. Once the verification report is accepted by MARD and the World Bank, funds are disbursed to the GoV.

Technical Assistance

A technical assistance (TA) package grant of USD 8 million was provided by the Australian Government to support the PforR and is intended to provide technical support for many aspects of the Program such as improving transparency, procurement, land acquisition and working with ethnic minorities.[13] The PAD clearly states that the TA is 'one of the conditions for the PforR operation effectiveness'.

[12] Full definitions of the Provincial Annual Plans and the Program Reports are included in Annex 2 of the PAD.

[13] The TA has six components aiming at supporting capacity building at the provincial level in the areas of (i) Planning, Monitoring and Evaluation, (ii) Water Supply Systems, (iii) Sanitation Services, (iv)Improved Governance, (v) Verification, and (vi) Information Sharing and Communication. See World Bank, PAD (2012), p. 56

III. Main Findings: Program Targets and Results

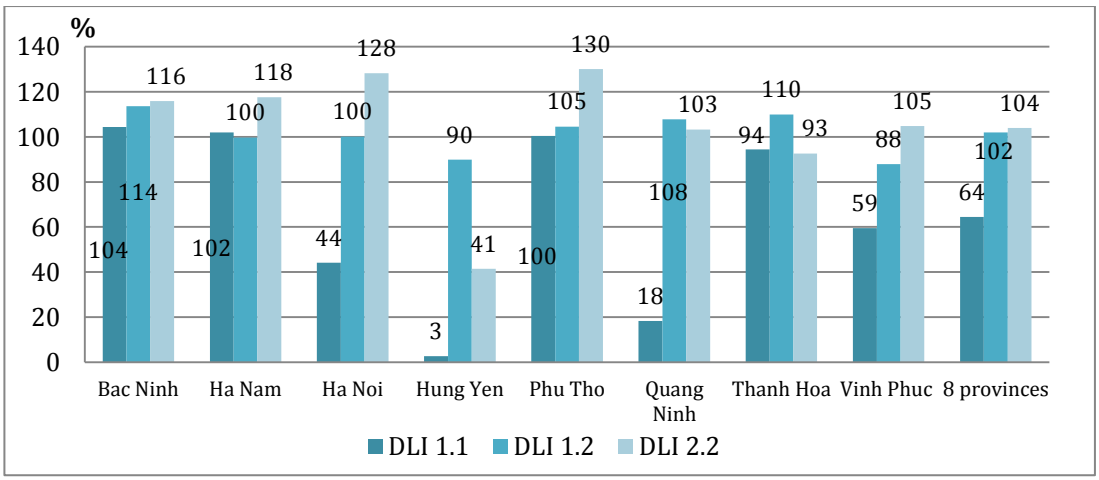
In the first 2 years of program implementation the program targeted the following results:

- DLI 1.1: 80,000 New Functioning Water Supply Connections
- DLI 1.2: 30,000 Newly constructed Improved Household Sanitary Latrines
- DLI 2.2: 500,000 People with access to Commune-Wide Sanitation.
- Approval of provincial annual plans and public disclosure of program reports

Figure 2 below presents progress against targets in the first two years of implementation for all eight provinces. At the mid-term review, program-wide results are positive, but there is wide variation in achievement among the eight provinces, particularly for water connections. Overall, 64% of the annual targets for DLI 1.1 on new functioning water supply connections have been met, but only three provinces, Bac Ninh, Ha Nam and Phu Tho achieved the targets set at the provincial level. Bac Ninh province achieved 104 percent of the target number of connections for DLI 1.1, while Hung Yen achieved only 3 percent.

In general, progress against sanitation related DLIs has been better than water DLIs. For all provinces except Hung Yen and Vinh Phuc (DLI 1.2) the sanitation targets were exceeded. DLI 3 on Provincial Annual Plans and Program Reports was uniformly achieved.

Figure 2: Overall Progress on Delivery of DLIs (2013 – 2014)



Investments under the PforR represent a sizeable increase in overall program financing to the Red River Delta region, providing a significant boost to implementation of NTP3, but make it challenging to compare results in PforR areas to those in comparison areas.

One of the challenges faced by the evaluation was to be able to compare the effectiveness of the PforR in achieving NTP3 results with that of a 'non-results-based' approach in comparison provinces, when financing under PforR is so much greater than that received under the regular NTP. Clearly, financial resources concentrated in PforR provinces were a significant boost to implementation of NTP3. It's not clear whether the achievements are replicable with lower funding allocation.

For the 2015 implementing year PforR financing provided a further 684 billion VND (30 million USD) of budget support to the NTP3 in the 8 provinces, while total NTP3 budget allocation in 2015, excluding PforR financing, was 761 billion VND (34 million USD), spread across 63 provinces in Vietnam. If these funds had been divided equally, each of the 63 provinces would be allocated 12 billion VND (approximately 500,000 USD).

In other words, PforR funding for the 8 provinces was a little less than the entire NTP3 budget allocation for the entire country. In 2012 before the PforR began, the NTP allocated just 101 billion VND (5 million USD)[14] to the same 8 provinces, meaning that PforR funding for the 8 provinces is almost 7 times the allocation prior to the commencement of the Program.

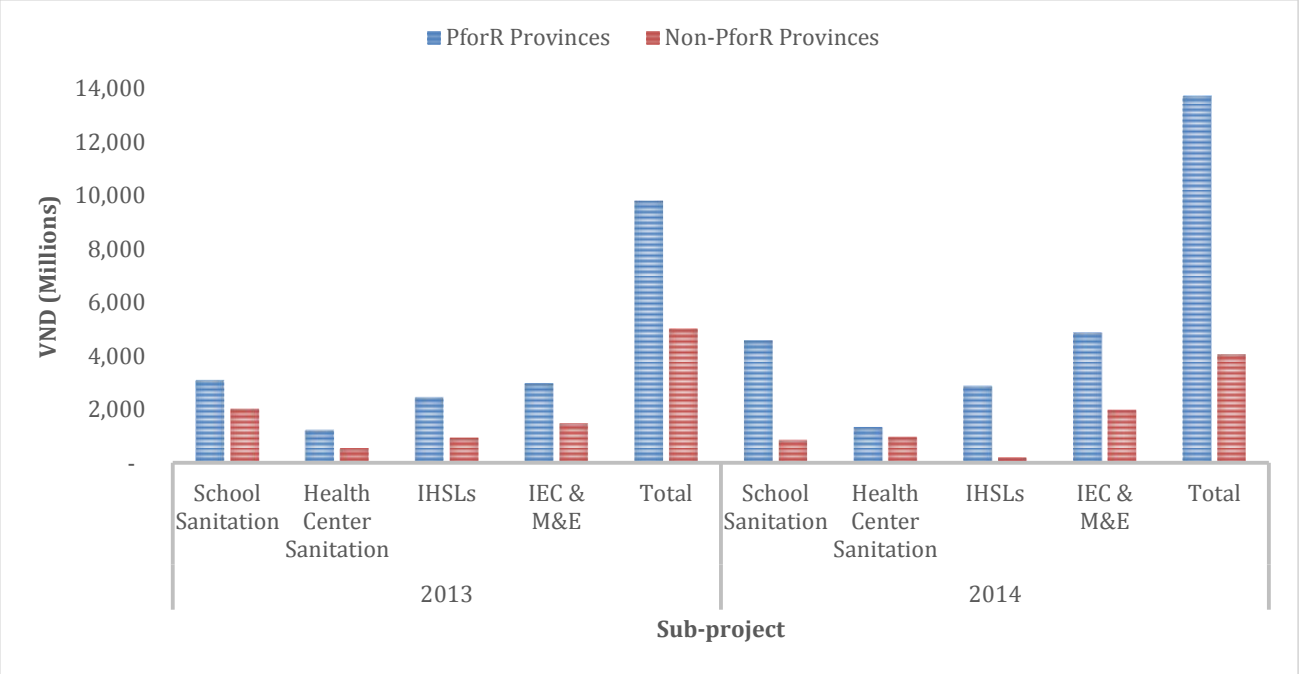
Achieving Results on Sanitation

Higher levels of funding have benefited sanitation, with the budget for these activities double or triple that in non-PforR comparison provinces.

The NTP3 has been criticized for not giving adequate attention to sanitation and budget allocations reflect this. In 2014 for example, the budget allocated for sanitation in non-PforR provinces was just 30 percent of the provincial planning estimates, while the gap in PforR provinces was much smaller –actual allocations were 75 percent of the estimate. Figure 3 shows budget allocations to the various sanitation related activities for PforR and non-PforR provinces for 2013 and 2014.

Figure 3: Sanitation budget allocation for PforR and non-PforR provinces in 2013 and 2014[15]

[14] Data retrieved from Official letter No 8640/BNN-KH of Ministry of Agriculture and Rural Development on budget allocation for implementation of National Target Programme on Rural Water Supply and Sanitation in 2015 and from Decision No 54 of Ministry of Planning and Investment on budget allocation for National Target Programme on Rural Water Supply and Sanitation in 2012.
[15] Data from Official letter No 8640/BNN-KH of Ministry of Agriculture and Rural Development on budget allocation for implementation of National Target Programme on Rural Water Supply and Sanitation in 2015, provided by SO. In 2015, 8 provinces still receive budget allocation from the state budget for NTP besides PforR funding. However, this table provides only data of budget from PforR.



Since the financial burden of improving sanitation and connecting to the piped water supply scheme falls primarily on households, promotional activities (Information, Education and Communication or IEC) are used to raise the rural population's awareness of the benefits of piped water supply and hygienic sanitation and to generate household demand. These activities may include:

1) training courses on communication for provincial, district and commune staff;
2) training on construction and repair of hygienic latrines for construction workers;
3) group IEC sessions with households;
4) face-to-face IEC visits with households;
5) IEC via loudspeakers;
6) use of marketing materials such as flyers and banners in public places

The additional resources, two to three times those in non-PforR provinces, helped to strengthen sanitation activities, increasing financial support for the construction of demonstration latrines on the one hand, and reportedly increasing the frequency and coverage of communication activities. Table 21 presents data from the Comprehensive Results Reports (CRR) of 2013 and 2014[16], showing households that received support for building demonstration latrines in the first two years of the program. Around 30 percent of households constructing new sanitary latrines received support: 29.3 percent in 2013 and 37.1 percent in 2014.

Table 4: Households receiving support for building latrines in 2013 and 2014

Provinces	2013		2014	
	No	%	No	%
Bac Ninh	1043	32.8	1024	39.0

[16]The Comprehensive Result Report of PforR is developed by MARD at the end of each year. It provides consolidated results of the DLI matrix and provincial compliance with PAP of all 8 PforR provinces in the reported year. This report includes the list of all beneficiaries and forms the basis for AnnualVerification of Results by the State Audit of Vietnam.

Ha Nam	801	30.9	679	31.6
Hung Yen	768	36.4	877	44.1
Phu Tho	550	40.8	523	36.0
Quang Ninh	182	11.9	686	31.2
Thanh Hoa	1829	71.4	2156	83.8
Vinh Phuc	33	1.8	365	21.9
Hanoi				
Total	**5206**	**29.3**	**6310**	**37.1**

These figures are higher than reported by households surveyed for the evaluation (23.3 percent), despite the fact that the survey is a representative sample of program beneficiaries in the first 2 years of the program. Across the provinces, Thanh Hoa has the highest proportion of households receiving financial support (71.4% in 2013 and 83.8% in 2014), while Vinh Phuc has the lowest proportion, which is consistent with the CRR.

With increased funding and attention to sanitation (through the DLIs), did access to sanitation increase more rapidly in PforR provinces than in comparison areas? According to VIHEMA, the annual increase of household sanitation coverage under the PforR Program is much higher than under NTP, which averages 1-3 percent.[17] The evaluation looked at trends at the population level using data from the Vietnam Household Living Standard Surveys for the years 2010, 2012 and 2014 (Table 5). But given different levels of baseline coverage and different trajectories in sanitation coverage prior to the PforR (between 2010 and 2012) it is hard to attribute the changes between 2012 and 2014 to the PforR.

To begin with coverage in the 8 PforR provinces is higher than that of the comparison provinces for all years, even prior to the start of the PforR in 2013. In 2010 coverage of improved latrines is 68.5 percent in the 8 provinces, compared to 50.6 percent in comparison provinces.

For the period 2010-2012, before the start of the PforR coverage increased by 16.4% in the 8 provinces and 25.8% in the comparison provinces. The gains are large in both sets of provinces, suggesting that there is a broader trend towards improved sanitation in the country. Although coverage increased at a faster rate in PforR provinces than in the comparison provinces for the period 2012 – 2014 (8.8% in PforR provinces vs. 8.1% in comparison provinces) these figures should be interpreted with caution given the small number of observations (provinces) and other confounding factors.

Table 5: Proportion of population having a hygienic latrine (VNLSS 2010 – 2014)

	Proportion with hygienic latrine[18]					
	2010	2012	2014	Change 2010-2012	Change 2012-2014	% Change 2012-2014
	(1)	(2)	(3)	(2)-(1)=(4)	(3)-(2)=(5)	(5)/(2)

[17] Interview with a VIHEMA staff.

[18] The VHLSS studies eight types of latrines: (1) septic tank/semi-septic tank latrine, (2) sulabh latrine, (3) ventilated improved pit latrines, (4) double-vault latrines, (5) buckets, (6) hanging latrines, (7) open defecation, and (8) other. Based on this, we categorized them into two groups:

*Hygienic latrines include (1) septic tank/semi-septic tank latrine, (2) sulabh latrine, (3) ventilated improved pit latrines, and (4) double-vault latrines;

**Non-hygienic latrines include (5) buckets, (6) hanging latrines, (7) open defecation, and (8) others.

PforR Provinces	Hanoi	95.52	95.45	98.89	-0.07	3.44	3.6%
	Quang Ninh	75.15	88.88	89.99	13.73	1.11	1.2%
	Phu Tho	34.86	80.43	88.25	45.58	7.81	9.7%
	Vinh Phuc	55.92	80.72	96.01	24.80	15.29	18.9%
	Bac Ninh	83.61	91.74	98.51	8.13	6.77	7.4%
	Hung Yen	88.44	90.32	97.91	1.88	7.59	8.4%
	Ha Nam	71.26	81.06	89.50	9.80	8.44	10.4%
	Thanh Hoa	42.88	69.72	79.23	26.84	9.51	13.6%
	Average	**68.45**	**84.79**	**92.29**	**16.34**	**7.49**	**8.8%**
Non-PforR Provinces[19]	Hoa Binh	39.03	48.51	57.93	9.47	9.42	19.4%
	Thai Nguyen	27.72	74.12	80.93	46.40	6.81	9.2%
	Hai Duong	73.25	98.73	99.48	25.48	0.75	0.8%
	Nam Dinh	76.63	87.27	95.27	10.64	8.00	9.2%
	Nghe An	36.22	73.42	79.24	37.20	5.82	7.9%
	Average	**50.57**	**76.41**	**82.57**	**25.84**	**6.16**	**8.1%**

Notwithstanding achievement of the sanitation targets, the project recognized from the beginning that these targets were easier to achieve than water connection targets. In fact, the targets in years 1 and 2 of the program (15,000 IHSLs) are below expected natural levels of increase (based on population of the PforR program area of approximately 15 million people, with 51 percent coverage of hygienic sanitation, 15,000 latrines represent a 0.2 percent increase in coverage per year), suggesting that even without doing anything coverage would increase at this rate. One of the main challenges faced by the Vietnam Bank for Social Policy is the ability to keep up with demand for subsidized toilet loans.

Importantly, as the program matures sanitation targets get more ambitious. By Year 3 the target for DLI I.2 doubles to 30,000 IHSLs, 40,000 in Year 4 and 30,000 in Year 5. These targets will become harder to achieve as those without access tend to live in more remote areas, have lower income levels and lower awareness and demand for hygienic latrines.

Achieving the target for commune wide sanitation under DLI 2.2 will also become harder to achieve. Whereas the incentive in the first years of the program has been to maximize the cost-efficiency of implementation by targeting 'low-hanging fruit', that is, communes with coverage of latrines near the target of 70 percent, but with a need for investments in institutional sanitation and water facilities. Over time the number of communes with coverage levels approaching this threshold declines, which should force the provinces to reach further into the rural areas where services are lacking.

Achieving Results on Water Supply Connections

Financial and operational indicators were collected from 23 water schemes in the PforR provinces, and 19 schemes in non-PforR comparison provinces. Table 6 shows the type of schemes surveyed.

[19] Non-PforR provinces include the provinces in the red-river delta and a number of northern provinces that share similarity of geographic conditions with Thanh Hoa and Phu Tho.

Table 6: Design characteristics of surveyed water schemes

	PforR		Non-PforR	
	Surface water	Groundwater	Surface water	Groundwater
Pump	12	4	13	4
Gravity	7	0	2	0

Of the 23 schemes visited in PforR provinces, 15 had submitted targets for DLI 1.1 in 2014, with the remaining schemes expected to submit targets for the 2015 verification cycle.[20]

On major indicators such as capacity and number of households supplied, water schemes constructed under PforR are larger compared to those constructed in non-PforR areas, but are also more costly in terms of cost per connection.

Data from water schemes constructed under the PforR showed they were designed to be larger and to serve more households than schemes in the comparison provinces constructed under traditional NTP (Table 7). Once operational the differences in capacity and number of households supplied remained higher in PforR schemes, but were only borderline statistically significant. The average cost per connection was significantly higher in the PforR schemes (36.5 million VND vs. 14.6 million VND; p=0.001) once they were in operation, and well over the cost per connection intended by the program (12 million VND). This is largely due to the low connection ratios observed in the first year that DLI 1.1 was measured.

Table 7: Key characteristics of water schemes by design and under operation[21]

	PforR		Non-PforR		P-value
	No.	Mean	No.	Mean	
Design					
Capacity (m3/day)	23	3260.0	19	1319.4	0.017
Number of households supplied	23	4502.3	19	1893.9	0.032
Total investment (VND million)	16	60,372	19	19,544	0.001
Average cost per connection (VND million)	16	19.4	19	11.8	0.002
Actual operation					
Capacity (m3/day)	23	1624.0	19	866.6	0.107
Number of households supplied	23	2449.2	19	1718.5	0.322
Total investment (VND million)	16	56,869	19	18,799	0.002
Average cost per connection (VND million)	16	36.5	19	14.6	0.001

[20] Data collection for water schemes was conducted in August 2015 so some schemes had just started operation and not all data were available

[21] Four of the PforR schemes were not able to provide investment costs at the time of the survey. Missing data was imputed using average values, separately for PforR and non-PforR schemes

Provinces have faced many challenges achieving the targets for water supply, stemming from system over-design, high unit costs and a low procurement bid savings rate, suggesting that not all provinces are capturing the intended cost savings.

The Government identified system inefficiencies as a major challenge to effective delivery of services under the NTP3. Funding shortages are pervasive, with provinces tending to start numerous schemes without certainty of availability of funds, resulting in many small-scale, low capacity schemes, being started but not completed. These water schemes are typically designed to serve a single commune and sometimes even a single village. Average construction periods under NTP are double the engineers' estimates. In some extreme cases, the construction of schemes may take as long as 10 years to be completed.[22] During this time the schemes incur additional costs for maintenance and repair, further lengthening the time needed for completion.

In addition to linking disbursement to working household connections to eliminate these system inefficiencies, the Program's technical assessment identified a series of actions for the design of Water Supply Schemes to help ensure cost efficiency in design, while also maintaining Government of Vietnam water quality standards. These included: reducing the residual head in piped schemes; reducing the peaking factors for the smaller rural water supplies; reduction of water consumption estimates; and the need to have more conservative estimates of future population growth. In addition, technical assistance packages were prepared for design and procurement of larger, more efficient schemes, with a low cost per connection so that any cost savings could be used to finance additional investments.

Design issues identified in the technical assessment have persisted, leading to high investment costs for Water Supply Schemes in the early stages of the Program, and creating budget constraints for meeting the remaining Program targets.

The midterm review documented several issues that together have led to low levels of cost-efficiency in the first two years of the Program. First, a comparison of final design documents with the detailed designs included in the feasibility study found the latter estimated unrealistic costs and targets. Some provinces excluded these schemes and identified alternatives that could be constructed under the program at lower cost. Others went ahead with the schemes identified by the feasibility study, ending up with costs between 86 percent and 192 percent of the estimated cost. Out of the 16 schemes originally included in the feasibility study that went ahead under the Program, 12 of them (75%) exceeded the cost estimates.

In addition to the limitations discovered in the feasibility study, the technical designs developed for schemes under the Program used unrealistic standards for consumption estimates. Rather than conduct survey assessments of household water consumption needs and usage, technical consultants based design calculations on set government standards that were unrealistic for rural areas. According to the NCERWASS, consumption for rural communities in the Red River delta is between 60-80 liters per person per day, while the standards used in the design of schemes under the Program are 100-120 liters per person per day. To make matters worse, provinces opted for the upper limit of these standards, citing long-term development planning needs. According to the household survey conducted for the evaluation some households are consuming sizeable quantities of water, but on average household piped water consumption in the month before the survey was 9 cubic meters (m3) or approximately 68 liters per person per day. The majority of households consumed between 1 and 10 m3 in the previous month.

[22] Interview with a NCERWASS official

As a result of these decisions schemes were designed to be larger than local requirements dictate and the available capacity has outpaced demand in some of the targeted areas, contributing to lower connection ratios than anticipated. Construction costs have escalated sharply due to the excessive time horizon required to complete the schemes, leaving fewer available funds for future schemes.

To see this in perspective, the feasibility study estimated unit costs of USD 140 per person (VND 3,038,000), or approximately VND 12 million per connection,[23] while in practice unit costs of PforR water schemes in the 8 provinces range from VND 4.5 million per connection in Phu Tho, to VND 82.2 million in Bac Ninh.[24] Besides the over-design issue and low connection ratios, several additional factors are reported to contribute to these higher unit costs, including low population density (e.g. Phu Tho and Quang Ninh), distance to suitable sources of surface water (e.g. Thanh Hoa), and other geographic conditions (see Box 1).

Box 1: Rural Hydrographic Conditions: Thanh Hoa

A number of challenges are faced in achieving water connection targets. In Thanh Hoa, due to the high level of salinity intrusion in target communes, the water source selected for the construction of new water supply schemes had to be located far from the location of the treatment structure and the intended beneficiaries. The expense to transport source water to the scheme has had significant added construction costs. The water scheme in Hau Loc has had to transport source water 11.8 km to reach the system. The high expense of the piping and other materials made up 25% of the total investment of the scheme.

In Hoang Hoa commune, in addition to the distance of the water source (8.5 km), raw water is taken from the Hoang Khanh pumping station to save capital expenses The Hoang Khanh pumping station is a part of an irrigation system that operates on an independent schedule according to the farming season and may restrict water to the water supply scheme to ensure water provided for agriculture production is maximized. As the restrictions may last up to 10 days it was necessary to construct a water reservoir at the water supply scheme to ensure a stable water source of raw water for the scheme.

Early indicators suggest the water supply schemes constructed under the PforR are on the right track for improved sustainability than comparison schemes in non-PforR areas.

The PforR was designed to address poor financial sustainability of water supply schemes constructed under NTP3. Schemes face revenue problems due to low household connection ratios stemming from availability of alternative safe water sources and low willingness to pay for water. The incentives to improve financial sustainability of schemes was institutionalized through the inclusion of a DLI on people served by connections to Sustainable Water Systems (DLI 2.1). The Program Operational Manual (OM) defines a Sustainable Water System as one which: (i) provides clean water; (ii) operates under a recognized management model; (iii) 85% of the number of planned connections are working, and with bills issued and paid; (iv) recovers operation and maintenance costs; and (v) non-revenue water is less than 25%.

[23] In our interview with NTP SO staff, this estimate is generally described as "remarkably low"

[24] In Phu Tho a scheme of VND 50,000 million investment with 11,000 connections; in Bac Ninh province one scheme with investment of VND 41,107 million had only constructed 500 connections. Both are new schemes.

While it is too early to assess sustainability of PforR water supply schemes, indicators such as operating under a sustainable management model and meeting water quality standards are generally positive. All water schemes had undergone water quality testing prior to delivery of water to comply with water quality standards, although some households expressed concern in focus group discussions about the quality of piped water, recalling quality issues that were experienced in the past with NTP schemes and noting that water quality certificates were not accessible. Moreover, only 25 percent of respondents at the time of the survey believed that piped water was safe for drinking *directly* from the source, but this did not affect the volume of water used in the past month.

Schemes constructed under the PforR are operating under either a (i) self-financing and non-profit administration management model via PCERWASS (Vinh Phuc, Hung Yen, Quang Ninh, Bac Ninh, and Thanh Hoa) or (ii) Enterprise model (Hanoi, Ha Nam, Bac Ninh, and Phu Tho) (Table 8).

Table 8: The management model of PforR and non-PforR schemes

Management model	PforR		Non-PforR	
	No.	%	No.	%
PCERWASS	15	65.2	6	31.6
Enterprise	8	34.8	4	21.1
Commune People's Committee	0	0	5	26.3
Cooperative	0	0	2	10.5
District People's Committee	0	0	1	5.3
Urban water supply and sanitation one member limited Liability Company	0	0	1	5.3
Total	23	100	19	100
P-value	0.008			

Given the small scale of traditional NTP3 water schemes the Commune People's Committee (CPC) often takes over management and operation of scheme, but lacks the required technical and managerial capacity. A PCERWASS model is used where the operation of stand-alone single scheme may not be financially sustainable due to low living standards or the availability of other water sources so cross-subsidization is needed. Both the PCERWASS and Enterprise management models help ensure operations and maintenance cost recovery as well as debt repayment (30% of capital investment is borrowed from central government, while 10% is in the form of beneficiary contribution).

There is evidence that some households are not paying to connect to the piped water supply systems.

In addition to the water tariff, beneficiaries are required to make a contribution to the capital cost of the water scheme, as well as pay for a water meter and any other materials or labor to install the connection. According to focus group respondents, these expenses are relatively acceptable to households, but some participants complained about the additional water connection fee (installation of the water meter) after a contribution to the capital cost of the system had already been made. Focus group respondents expressed concern that these installation costs may deter poor and near poor households from connecting to the system.

Twenty percent of households that were able to recall costs associated with installation of the water connection reported that they did not pay a connection fee, implying that the beneficiary contribution may have been waived or subsidized for some households. The average expenditure was VND 1.3 million for households who paid to connect.

Financial sustainability of the schemes may be jeopardized by low-connection ratios and continued reluctance to charge tariffs that achieve cost-recovery.

A major determinant of sustainability of schemes will be the extent to which they are able to cover operations and maintenance costs, by reaching target connection ratios (85 percent of planned connections), beneficiary contribution to capital investment costs, and payment of tariffs. Lack of financial sustainability has been a pervasive issue in NTP3 and many schemes have fallen into disrepair due to lack of funds stemming from low connection ratios, low tariff collection rates, mismanagement, and low technical capacity.

The PforR included TA to design information, education and communication activities specifically targeted to increase demand for the use of piped water to prevent health related risks of using other unsafe sources for drinking and cooking. The quality of alternative sources of water influences usage patterns across the provinces according to the survey conducted for the evaluation. In Thanh Hoa for instance, where water contamination is prevalent, usage of piped water is generally higher than other provinces, whereas households in Bac Ninh, Ha Nam and Hung Yen maintain a habit of using rainwater for cooking. In Phu Tho, groundwater is perceived to be of good quality and households continue to use water from private tube wells. Alternative sources of water, such as rainwater, boreholes and protected wells, are still used by a significant proportion of households for drinking and cooking. Piped water has become the most common water source for 65 percent of households surveyed, but water usage patterns show the continued use of multiple water sources for domestic use

This IEC was also intended to result in more rapid connection to water schemes in order to achieve the targets. However, there appears to be limited emphasis on using IEC to increase the speed of connection. Most households surveyed for this evaluation reported they were told about piped water through community meetings, which are usually conducted prior to or during the planning phase of the scheme to solicit the 10 percent capital cost contribution from beneficiaries. Other households recalled messages about piped water through household visits and loudspeaker announcements. The evaluation did not assess the effectiveness of these methods.

The PforR does not explicitly address water pricing, but encourages appropriate tariffs to allow for quality operations, maintenance and sustainability. Connection fees and tariffs are set annually by the Provincial People's Council, with little scope for deviation at the local level. Table 9 shows the monthly water tariff per m3 of water consumed.

Table 9: Provincial Water Tariff (2015)

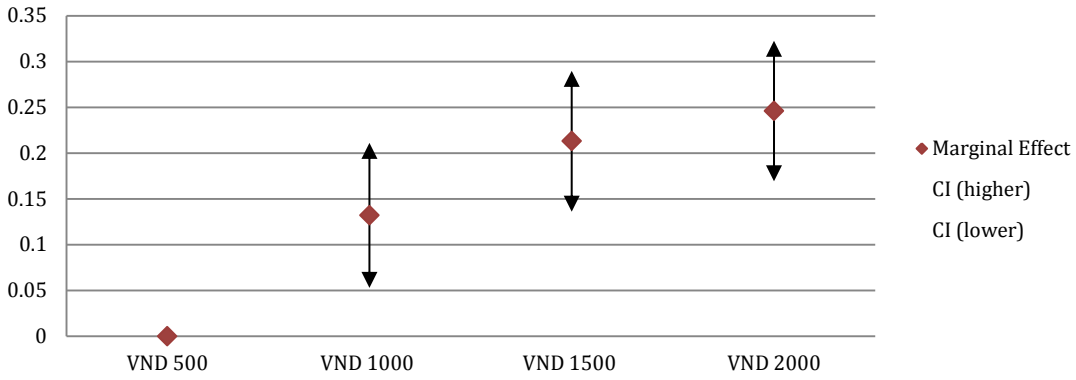
Province	*Monthly water tariff per m^3 (VND)*
Bac Ninh	4,500
Ha Noi	5,100
Ha Nam	5,700
Hung Yen	6,800
Phu Tho	6,400
Qung Ninh	5,000
Thanh Hoa	5,300
Vinh Phuc	5,000

In the water schemes surveyed for the evaluation tariffs reportedly ranged from 4,500 to 7,000 VND with an average tariff of VND 6,173 per m^3 in non-PforR schemes and VND 5,734 in PforR schemes (p=0.149).

To understand household willingness to pay for piped water and determinants of piped water demand a complementary study to the evaluation was designed, which used random assignment of price subsidies on household connection fees and tariffs. Experimental methods were not possible for the evaluation. Instead, households were told a random tariff increase between 500 – 2000 VND per m3, and asked how their consumption would change at that price increase. Just under half of households told a price increase of 500 VND said they would reduce consumption, while 65 percent of households said they would reduce consumption of the tariff increased by 2,000 VND per cubic meter.

A hypothetical small increase in the water tariff has a significant effect on household water consumption behaviour. While a 500 VND increase does not influence stated water consumption, households are 13.2% more likely to reduce the volume of water used when the tariff increases by 1,000 VND (US$ 0.045) based on a probit regression, and conditional on the current water tariff, satisfaction with current water tariff, perception of the correspondence between service and cost, household size, household poverty category and demographic characteristics of household head (Figure 4). Households who express dissatisfaction with the current water tariff and who perceive low correspondence between service and cost are more likely to reduce water consumption due to a price increase, as are households designated poor or near-poor (Table 10).

Figure 4: Estimated marginal impact of a water tariff increase on water consumption



Note: Excludes province fixed effects

Table 10: Probability of a decrease in piped water consumption due to water tariff increase (Probit)

Variables	Reduce water consumption (Include province variable)	Reduce water consumption (No province variable)
Water tariff increase		
VND500 (=0)		
VND1000	0.308	0.404*
VND1500	0.655**	0.655***
VND2000	0.764***	0.763***
Province		
Ha Noi (=0)		
BacNinh	-0.459	
QuangNinh	-0.485	
Ha Nam	0.347	
Hung Yen	-0.369	
VinhPhuc	-0.0999	
PhuTho	0.614	
ThanhHoa	0.936*	
HH Size	0.0897	0.0868
Age of household head	0.00243	0.00149
HH head is female	-0.567**	-0.604***
Level of satisfied with the currently water tariff		
Satisfy (=0)		
Normal	0.190	0.341
Unsatisfied	0.473*	0.693***
Level of commensurate between service and cost		
Better (=0)		
Corresponding	0.729**	0.472*

Worse	1.076***	0.707*
Water tariff currently	-0.000348*	-4.88e-05
Water quality		
Clean (=0)		
Not clean	0.231	0.298
Education of the household head		
Primary and lower (=0)		
Secondary	0.0835	-0.106
High school and higher	-0.330	-0.483
Type of household		
Neither (=0)		
Poor and near poor	0.857**	1.192***
Constant	0.193	-1.085
Observations	257	257
Log Likelihood	-137.4	-145.1
Pseudo R-squared	0.217	0.173

Note: *** p<0.01, ** p<0.05, * p<0.1

IV. Main Findings: Institutional Strengthening

A second key objective of the Program-for-Results is to build capacity and strengthen country institutions. The PforR of RWSS aimed to strengthen governance, fiduciary, and monitoring and evaluation systems at all levels of government. Results midway through the program suggest that this objective has not fully been met, with some institutions still struggling to adapt to the PforR approach. At the same time the reliance on government systems has highlighted some of the institutional bottlenecks and capacity limitations that have constrained the NTP in the past.

Not all stakeholders are fully on board with the change in the investment approach to results-based budget support and continue to operate in an investment project mentality.

While implementation of the Program is fully embedded within the NTP government structure, in practice a separate funding stream effectively earmarks PforR funding for PforR activities and bars NTP funds from financing these activities, creating an artificial separation between NTP3 and PforR. As a result, the Program is operating less as a budget support and more as a results-based investment project, leading to confusion among some stakeholders who are familiar with the traditional World Bank IPF and hindering the provinces' ability to develop Program-wide plans.

At lower levels of the program structure the shift to a results-based approach is even less evident. Annual budget allocations are based on a combination of the 5-year investment plan for each province and the annual disbursement amount according to the financing agreement, with minor adjustment based on the annual plan. In other words, there is no evidence that transfers to the provinces are reconciled against achievement of targets in the previous cycle. Therefore, from the perspective of the province there is little difference in practice between the results-based approach and the investment project approach.

For the most part, only PforR funds are reaching the PforR provinces, despite counterpart funding commitments at the program design stage that are necessary to achieve the targets.

Total program budget for NTP3 in the Red River Delta is 260 million USD, of which 60 million USD has been earmarked as counterpart funds. According to the PAD counterpart funds are split between central, provincial and beneficiary contributions, shown in Table 11, where beneficiary contributions are made through water connection fees, payment of water tariffs and repayment of Vietnam Bank for Social Policy (VBSP) loans.

Table 11: Counterpart funding Sources According to the PAD

Counterpart Funding source	Amount (USD)	Percent (%)
Central Government	20 million	33
Concessional Credit[25]	15 million	25
Provinces	10 million	17
Users	15 million	25
Total	**60 million**	**100%**

To date however there has been limited financial contribution to the Program from these other sources. According to Program audits[26] for the first two annual cycles of the Program, only 500,000

[25] Vietnam Bank for Social Policy household credit for sanitation. SAV has no way to audit these credits.

US$ of the 15 million US$ in counterpart funds from beneficiary households has been collected for Program implementation, and just 7 percent of the overall counterpart funding envisioned has been made available.[27]

The VBSP is one source of counterpart funding, which provides a concessional credit of up to 60 percent of the capital cost of a latrine to households to finance investments in domestic sanitation. According to the household survey just over a quarter (26.5%) of households borrowed from a bank to finance construction of the toilet. Of households that took a loan 43 percent borrowed from the VBSP and 38 percent from the Agribank. The majority of households (78.8%) financed investments in domestic sanitation using current income or savings, while 46 percent reported borrowing from friends or family.

Scarcity of counterpart funds has led to lower overall program funding and affected the ability of provinces to pre-finance large capital investment requirements of water schemes, resulting in delays.

Heavy reliance on PforR financing coupled with disbursement of funds only in the second half of the calendar year after results are verified, some provinces have had to seek out alternative sources of funding from local budgets or from private sector. Budget constraints also reportedly result in provinces prioritizing infrastructure investments, displacing funding for vital IEC activities. During the first two years of the Program the Provincial Health Centres and other stakeholders have mobilized funds from other government programs such as the National Target Program or Nutrition Programs to finance IEC, but with the understanding that they would be required to reimburse the funds once PforR disbursements were made.

A number of provinces have tried to pass the pre-financing risk onto contractors, requiring private firms to shoulder the entire pre-financing burden. In extreme cases, it was reported that some contracts stipulated that payment would be made only once the work was completed, the results verified, and the Bank disbursed the funds. Indeed, an in-depth review of two awarded contracts in Quang Ninh province that was prepared for the mid-term review shows that in one case 70 percent of the works had been completed, but only 33 percent of the contract value had been paid, while in the other case 90 percent of the works had been completed and just 47 percent had been paid. Such practices restrict the pool of potential contractors to those willing to shoulder the financial risk of delayed payments, in some cases by borrowing at commercial rates to anticipate the investment, resulting in higher costs.

After two annual planning and implementation cycles, unrealistic planning continues to persist.

Long term capital investment planning to meet pre-specified program targets represents a fundamental shift in how implementing agencies plan for water and sanitation investments, thus one of the overarching objectives of the PforR mechanism is to strengthen planning capacity at subnational and national levels.

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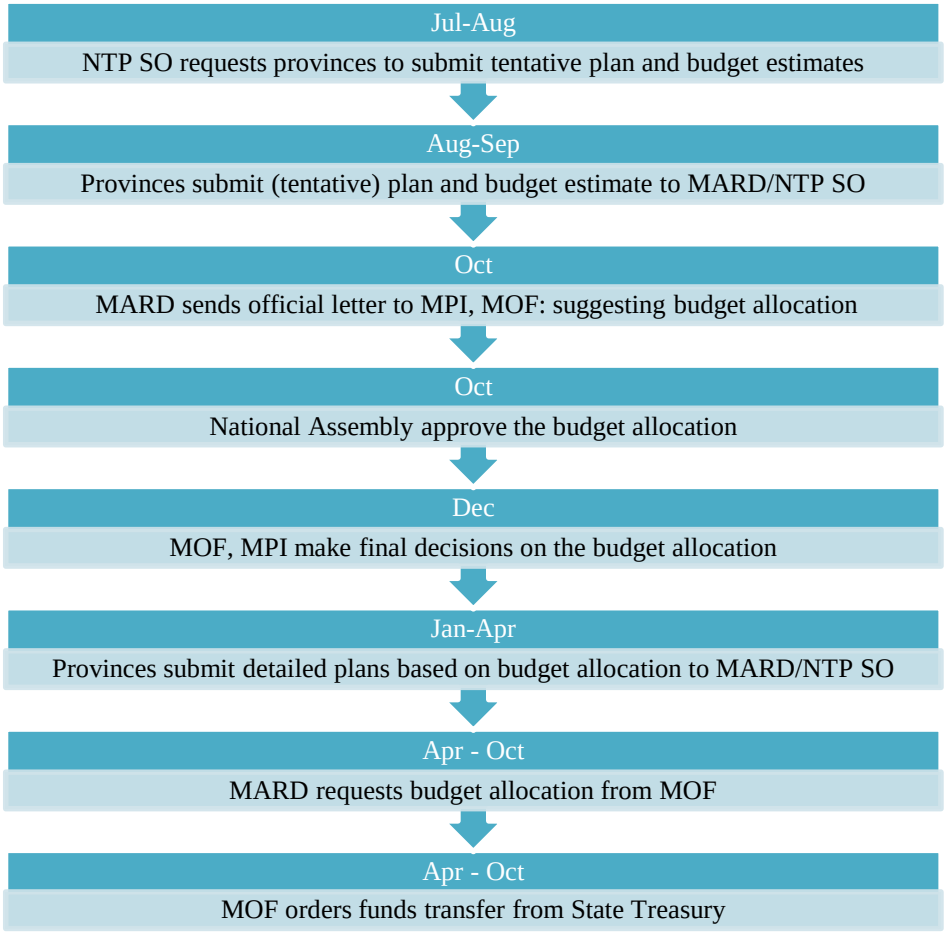
[26] SAV holds responsibility for program audits. To date SAV has audited all World Bank, Central and provincial government expenses in the 8 PforR provinces. Private and other ODA expenses, including government counterpart funds to ODA projects, have not been audited, but will be going forward.

[27] Of the 30 million USD in non-concessional credit counterpart funds earmarked from central and provincial government sources, approximately 2 million USD has been made available for Program implementation, and of this amount only 100,000 USD has come from the central government.

Under the NTP, provinces prepare an annual plan that includes budget estimates for the coming year for endorsement by year for endorsement by PPC. Once endorsement is received at the provincial level each province submits its proposal to submits its proposal to NTP SO for consolidation and submission to MPI (development budget) and MoF (recurrent budget) MoF (recurrent budget) for review before final submission to the National Assembly for approval.

Figure 5 shows the overall timeline for the planning and budgeting process for NTP.

Figure 5: NTP Planning Process and Financial flow



Under the traditional NTP process provincial budget requests often exceed the resources that provinces ultimately receive. As a result, provinces are accustomed to requesting more funds than they can reasonably expect will be made available by the central level and compensating for lesser availability of funds by shifting outputs to subsequent years. Furthermore, there is little transparency in the decision-making process for these final budget allocations and there is no opportunity for provinces to provide feedback once MARD consolidates and submits the initial budget request.

In contrast, the PforR outlines set targets to be achieved over the project duration, which in theory should facilitate project planning and budgeting. With the full program scope known in advance, budget requests can be tied to the outputs anticipated for each year. However, as will be discussed in further detail below, the targets were allocated uniformly across the provinces without regard to heterogeneity in costs or conditions, so for some provinces the expectations were unreasonable given the budget envelope. Budget requests under PforR continue to exceed available resources,

either because provinces are accustomed to requesting more than they expect to receive, or because costs are indeed higher in those provinces.

Data on budget allocation for the first 2 years of the program reveals a significant gap between the budget amount proposed by the provinces and the allocation actually received.

In most cases actual allocations are less than half the budget request of the provinces (Table 12). The significant reduction to the proposed provincial budget suggests that provinces are still relying on old habits of requesting more than they need, under the expectation that less will be allocated. At the same time, it demonstrates a lack of technical oversight on the part of MARD and NTP SO, who hold equal responsibility for ensuring the provinces submit realistic annual plans and budget requests.

Table 12: Data on budget proposed and allocated in 2014 and 2015[28]

Province	2014			2015		
	Proposed (million VND)	Allocated (million VND)	% proposed	Proposed (million VND)	Allocated (million VND)	% proposed
Bac Ninh	325,564	152,000	46.7%	330,132	95,400	28.9%
Ha Nam	252,992	127,500	50.4%	233,142	85,050	36.5%
Ha Noi	373,034	92,000	24.7%	336,480	91,380	27.2%
Hung Yen	345,170	84,000	24.3%	232,528	85,750	36.9%
Phu Tho	99,600	89,950	90.3%	200,277	60,900	30.4%
Quang Ninh	262,761	70,700	26.9%	NA	85,800	NA
Thanh Hoa	269,070	106,000	39.4%	276,100	104,910	38.0%
Vinh Phuc	174,336	97,500	55.9%	159,143	75,190	47.2%

The designated coordinating bodies of the PforR, NTP SO and PCERWASS, have limited capacity, but also limited authority, for planning and coordination of the Program.

The multiple stakeholders involved in the PforR at central and local levels necessitate a central authority to ensure effective coordination. This capacity was assigned to the Standing Office for the NTP (NTP SO), responsible for overall coordination of the NTP3 under PforR with a mandate to reinforce Program objectives and ensure Program-wide targets are met. This coordinating role is mirrored at the provincial level through PCERWASSs. However, both NTP SO and the PCERWASSs have no direct decision making authority – MARD retains most of the decision making power as the central ministry responsible for the NTP3, leaving NTP SO and the PCERWASSs weak and powerless to coordinate the Program effectively.

At the provincial level the three key implementing agencies of the PforR are the PCERWASS, Center for Preventive Medicine (PCM) and DOET, each working under the direction of the PPC, while at the same time responsible to central line ministries: MARD (PCERWASS), MoH and VIHEMA (PCM) and MOET (DOET). An NTP provincial Program Steering Committee (PSC) was established in each participating province, headed by a deputy head (or even head) of the

[28] Consolidated from Official letter No 3524/BNN-TCTL dated 3 Oct 2013 of Ministry of Agricultural and Rural Development on 2014 allocation plan of the World Bank for implementation for PforR, Official letter No 8640/BNN-KH dated 27 Oct 2014 of Ministry of Agricultural and Rural Development on allocation of budget for implementation of National Target Programme on Rural Water Supply and Sanitation in 2015, and the NTP provincial plans of 2014 and 2015 of 8 provinces.

Provincial People's Committee (PPC). Members of the provincial PSC are representatives from the Department of Agriculture and Rural Development (DARD), Department of Education and Traning (DOET), Department of Health (DoH), and the Provincial Center for Rural Water Supply and Sanitation (PCERWASS). The PPC provides overall oversight on resources management, the establishment of any institutional structures required to deliver the Program, annual Provincial Plan, effective results monitoring and reporting and coordination with other NTPs and other sectoral investment programs. In addition, DoF and DPI are involved in the provincial planning and disbursement of funds and hold responsibility for appraising the annual program plan and the budget allocation before submitting to the PPC for approval. Thus, critical decisions regarding finance, planning and procurement remain in the domain of the relevant ministries, their provincial counterparts, and the PPC who have their own priorities and do not report to the NTP SO.

In some provinces where there is strong support for implementation of rural water supply and sanitation activities, the Provincial People's Committee has advocated on behalf of the PCERWASS and provided the necessary decision making authority in relations with the line ministries. However where there is less interest or enthusiasm for the program the PCERWASS lacks the authority to effectively coordinate the program. The PforR's reliance on the administrative structure of the NTP has exposed some of the major bottlenecks to effective implementation of NTP3.

The trickle down of performance incentives is hindered by the reluctance of MARD to reallocate targets from "poor" performers to "good" performers.

The PforR as designed for this project disburses on the basis of program wide targets, without regard to achievement at the provincial level. At the project design stage MARD and the NTP SO uniformly assigned the program-wide targets and a corresponding budget envelope for DLI 1.1 to each of the 8 provinces. This decision failed to take into account distinctive characteristics, capacity, or locally adjusted unit costs of each province (see Box 2). Some provinces with higher capacity or favourable local conditions have outperformed the others, but provided a set envelope and targets that are capped, there is little incentive for provinces to *over*-perform. At the midpoint in the project, some high capacity provinces have requested more funds to complete more connections. Yet, MARD has been reluctant to reallocate targets to these high performers unless there is clear evidence that other provinces will not meet the targets agreed at the beginning of the program.

To ensure these provinces, which have struggled to extend connections within budget until now, will achieve the pre-defined targets, the NTP SO intends to cross-subsidise these provinces with the good performers who have realized cost savings. As a result, the implicit incentive that the PforR intended: i.e. cost savings can be reinvested in further works, could eventually dry up. On the other hand, reallocation of targets is not without its challenges, as it risks crowding in good performing provinces and unnecessarily penalizing provinces who lack capacity or favourable local conditions.

Box 2: Rapid Urbanization in Quang Ninh and 'shrinking' program areas

Some provinces have faced a dilemma of 'shrinking' Program-eligible areas, highlighting the necessity of flexibility and adaptive ability in order to keep pace with an ever changing context. The issue has become particularly prominent in Quang Ninh province, which currently faces an unanticipated high rate of urbanization. Communes slotted for extension of water schemes have surpassed population levels and density to qualify as rural areas under NTP3. As these communes are officially upgraded to the administrative level of townships they can no longer receive program funding. As a result, PCERWASS in Quanh Ninh has encountered difficulties finding "qualified" areas with suitable conditions for program implementation and has sought to lobby for

a solution that would quality these newly recognized townships for NTP3 funding.

Bureaucratic hurdles, largely outside the span of control of the NTP SO and PCERWASSs illustrate the vulnerability of the Program to local policy whims and conditions.

An environment of fiscal austerity imposed by the central authority has placed restrictions on public investment, culminating in the Vietnam Law on Public Procurement, which took effect in 2015. This law states that at least 30% of the budget must be committed in order for a project to proceed with approval. However, the law has been interpreted differently in different provinces. As the PforR disburses only on achievement of verified results both Hanoi and Vinh Phuc PPCs have interpreted this to mean PforR funds are not guaranteed and did not approve budget for construction of new Water Supply Schemes, opting instead to prioritize existing schemes so as not to risk going further into debt. Other provinces have received a waiver, allowing them to begin construction on necessary schemes. The issue highlights again the lack of pre-financing capital and the problems this leads to, as well as the need for ongoing dialogue between the NTP SO and the PPCs to surmount these policy hurdles.

A second salient policy barrier voiced by program implementers is Joint Circular 04[29], which limits public spending on compensation for additional work or tasks completed for project collaborators. The Circular limits the number of local collaborators, places a cap on compensation (100,000 – 120,000 VND (4-6 USD) per month), and does not provide for expenses and incidentals of collaborators.

These financial regulations have reportedly affected resources available for monitoring as well as Information, Education and Communication (IEC) activities, especially for sanitation. To effectively reach households and achieve the targets a large number of commune collaborators are needed. On average, to encourage one household to adopt a hygienic household latrine requires a collaborator to visit the household up to eight times. This does not take into account the day to day work a collaborator has to do. Such regulations limit the pool of potential collaborators, which could vary across project areas and is not sustainable.

Collaborative efforts between separate agencies on monitoring program results has increased the efficiency and quality of reporting, but has not translated into improvements in NTP monitoring.

NTP monitoring is a cumbersome, costly and arduous process. On an annual basis village heads, health workers or representatives of local unions gather and report on 8 core indicators for NTP[30]. Monitoring may require household visits or in some provinces village level data is reported using the health monitoring information system. Collaborators at the commune and district level summarize the data and submit it to PCERWASS, where it is digitized and transmitted to NCERWASS at the central level.

The process is fraught with data quality issues stemming from insufficient funding, lack of training, and limited supervision and oversight. The process relies on a full census of households, making it

[29]Joint Circular No 04/2013/TTLT-BNNPTNT-BTC-BKHĐT between Ministry of Agricultural and Rural Development (MARD), MOF and Ministry of Planning and Investment (MPI) dated on 16 January 2013.

[30] In NTP program, the M&E system includes a set of 8 main indicators and 20 sub-indicators for Monitoring and Evaluation on Rural Water Supply and Sanitation.

impractical to conduct frequent monitoring. There is also a tendency for local staff to report higher results, influenced by the 'formalistic achievement issue'[31] which is prevalent in the reporting system in Vietnam.

Box 3: Over-reporting comes back to haunt

A baseline verification of commune coverage of commune-wide sanitation was conducted in January 2013 at the start of the program. The purpose of the baseline verification was to provide information on the reliability of NTP monitoring data as a reflection of true coverage of hygienic latrines and to assess the level of effort required for communes to achieve the requirements for DLI 2.2.

In four of the eight PforR provinces the baseline verification did not find statistically significant differences between NTP monitoring data and coverage established through the baseline. For the other four provinces, reported coverage of hygienic latrines in the NTP system was statistically significantly greater than the coverage established in the baseline verification.

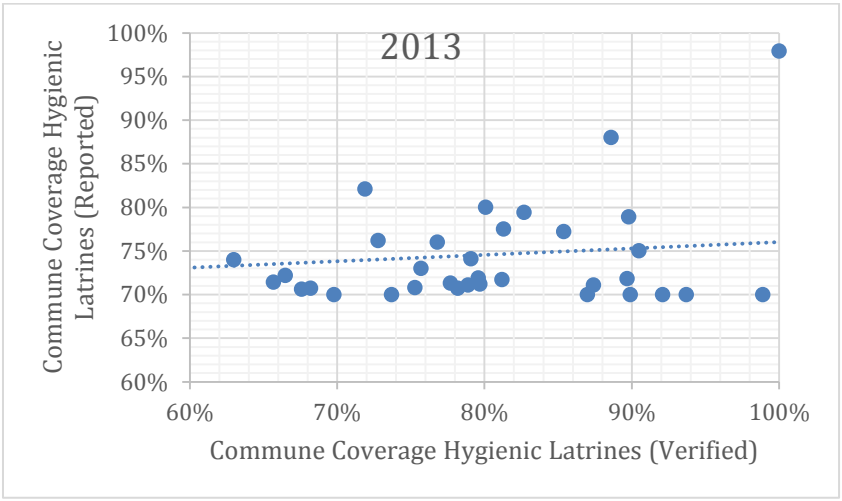
Because it was not possible to estimate with precision the degree of over-reporting in the NTP monitoring data, communes reported to have coverage greater than 70% were categorically excluded from eligibility under the program. Some provinces later lobbied MARD to re-verify eligibility of 29 communes they claimed to have lower coverage.

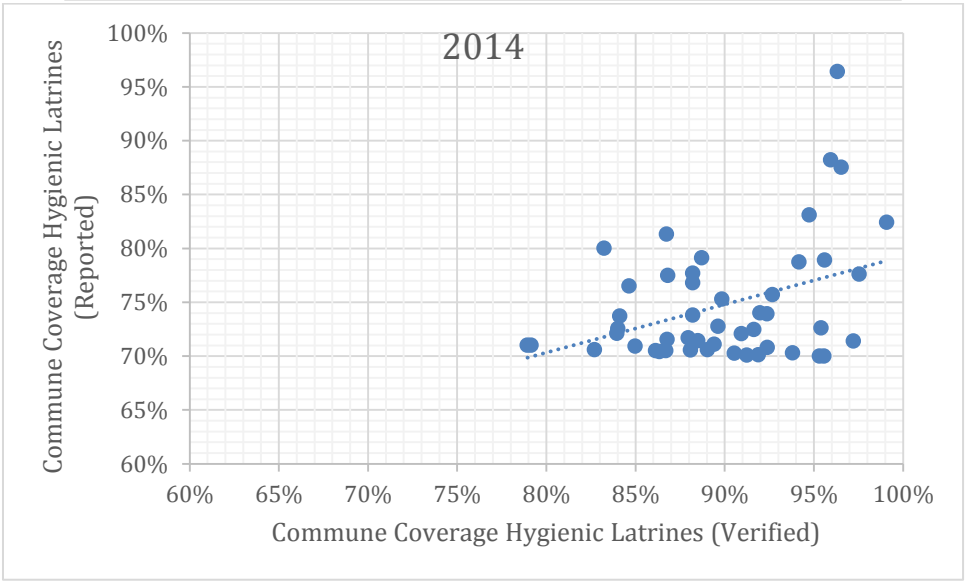
Given the limitations of NTP monitoring a main objective of the PforR is to improve sector monitoring systems and processes. There are already indications that monitoring and reporting capacity has increased and quality of data has improved substantially. But there is little evidence of spillovers of these improvements to NTP monitoring – monitoring for NTP is still proceeding in parallel.

Figure 6 illustrates the relationship between the percentages of reported coverage of hygienic latrines and verified coverage in each commune that claimed eligibility for commune wide sanitation (DLI 2.2). The correlation between reported and verified coverage is lower in the first year of verification, but increases in the second year suggesting that provinces may be conducting more rigorous quality checks prior to reporting final results.

Figure 6: Relationship between reported and verified commune coverage of hygienic latrines for annual verification cycles 2013 and 2014

[31] This refers to the practice where the results are often over-reported in hoping of receiving recognition or other benefits.





Under PforR a collaborative approach is taken to monitoring and reporting results. The agency holding front-line responsibility for the DLI is in charge of monitoring and reporting on it, with the results collated across agencies at the provincial level and reported by the PCERWASS to the central level. For example, DLI 1.1 is monitored by PCERWASS and is based on reporting from contractors and supervision consultants of installed household water connections. DLIs on sanitation (1.2 and 2.2) are monitored and reported by provincial PMC using the existing health system reporting network, which relies on village health workers/collaborators to PHC. The DoET monitors investment progress of latrines in schools as part of DLI 2.2.

Several differences in definitions and indicators between the PforR and NTP3 have made it difficult to harmonize the two systems. Household water connections, sustainability of water supply schemes, and Commune-wide sanitation are not tracked by NTP3, and the definition of hygienic sanitation under PforR uses the more stringent MoH definition. There is also a slight, but meaningful difference in the definition of 'household'. Under NTP3 a household is a single unit in the *registration system* while under PforR a household as a group of people living under the same roof where all the family members live in regardless of the number of households registered.[32] The

[32] A family living under the same roof is registered as two households often to receive benefit from electricity tariff which is based on a progressive pricing system.

distinction is relevant for commune wide sanitation, which specifies the benchmark of 70 percent coverage of hygienic sanitation.

V. Factors Associated with Achievement of Results

Concentration of resources among a set of pre-identified targets has contributed to success.
In a departure from the traditional NTP approach, the PforR in the 8 RRD provinces has concentrated funding across a limited number of water schemes and communes in order to achieve the DLIs. Spreading resources too thin was identified as a main weakness of the NTP, since funds were rarely adequate to achieve target connections. The relative reliability and ring-fenced budget, together with the pressure to achieve results, has helped to focus program plans on achievable results and meet the targets.

Linking of targets on water and sanitation proved less influential for increasing focus on sanitation than simply having a dedicated DLI
One of the key design elements of the PforR was to include dedicated DLIs for sanitation to ensure a balanced focus between water supply and sanitation activities. However, rather than assign a larger monetary value to sanitation DLIs, which were not commensurate with the cost associated with these activities, the project design linked disbursement for water targets to those of sanitation, under the assumption that the monetary value assigned to the sanitation DLIs may not be a sufficient incentive. The lower of the target achieved for water or sanitation DLIs would determine the disbursement of the DLI.

Linking the targets has proved cumbersome and there was insufficient evidence that this incentivized sanitation: achievement of sanitation DLIs has been strong in the first 2 years of implementation, and it is not clear that linking the sanitation and water targets was any more effective than simply having a dedicated DLI for sanitation. As part of the restructuring at mid-term review these targets were de-linked to ease cash flow constraints, and a new DLI on sustainable school sanitation was developed. It remains to be seen whether these changes will influence the attention given to sanitation under the program.

Endorsement of program targets and objectives by provincial leaders is associated with achievement of targets.
The provincial steering committee, led by the Deputy Chairman or Head of the Provincial People's Committee (PPC), plays a critical role on managing and coordinating the implementation activities among relevant actors, especially in light of the limited decision making power and authority of the NTP SO. Working closely with staff at all levels, providing clear directions and interacting with local residents have created the pressure incentive for better performance and more pro-active attitudes by lower staff, smoother inter-agency cooperation and better awareness of local residents.

There are indications that where TA activities were carried out, they benefited program results.
Effective coordination was still a major issue in the first year of the program, but improved significantly in the second year with the support of the TA consultant. The TA packages for sanitation are believed to have contributed to the significant improvement in sanitation results between 2013 and 2014.[33] The consultant was contracted in 2014 and provided strong planning and coordination support to the provinces at the commune level. In 2013 just one province (Bac Ninh) achieved the provincial level sanitation target, while in 2014 all except Hung Yen exceeded the target.

[33] According to an official of VIHEMA, there are four technical packages for sanitation[1] that focused on capacity building for the health staff on communication skill, planning and report writing, and development of supply chain management for sanitation in rural area

Results verification has improved outcomes. Independent results verification is a key element of the PforR and there is strong evidence that verification has been an incentive to improve results over time. For program staff at the central level verification helps safeguard the accuracy of reported results especially given the recognized weaknesses of NTP monitoring. Stakeholders from provincial to village level report that independent verification of results by SAV has created high pressure for performance. Guaranteeing the reliability and integrity of the verification process has been a critical task for the World Bank and Client team in designing an effective PforR.

The accuracy and reliability of monitoring under the PforR is further enhanced through intense supervision activities.

Village health collaborators frequently visit households to guide the latrine construction process and ensure the latrines meet the hygienic criteria outlined under the DLI. This is mandatory for households receiving a subsidy or 'demonstration' latrine. According to the household survey conducted for this evaluation, 57 percent of households reported that they were visited by a local agent for evaluation and acceptance of the latrines after construction. Among them, 39.7 percent had received a subsidy.

In addition, provincial staff supervise the construction of water schemes, connections, and household latrines to get updated data on implementation progress and quality of work. From the central level NCERWASS staff likewise conduct monthly supervision to the provinces to monitor implementation progress and construction of water schemes. Prior to submission of the final comprehensive results NCERWASS performs site-checks to verify the accuracy of the results reported by the provinces and provides recommendations before the final CRR of the provinces is sent to NTP SO. Finally, the World Bank has conducted various supervision visits to monitor outputs and quality. These extra levels of supervision have led to better data and helped to improve the cost-efficiency of verification.

VI. Recommendations for Program Design Variations

A key objective of the evaluation was to identify program design modifications, which could be rigorously tested through impact evaluation during later stages of the program or future phases of the NTP, and that could ease some of the barriers to achieving program objectives, results and strengthening institutions. Based on the evaluation findings four main design variations are proposed below. Some of these directly address the weaknesses identified in the NTP that the PforR was not able to fully resolve in the first 2 years of implementation (see Table 13 below).

(1) Experiment with innovative targeting mechanisms to align NTP with poverty reduction goals

The PforR of NTP in the Red River Delta was designed to be poor inclusive, but its main objectives were to improve the cost-efficiency and sustainability of the NTP. Over the life of the program a greater alignment between resource needs and community selection can be achieved, simply through saturation of water and sanitation services in the region: those who remain without access are more likely to be poor, marginalized and remote populations. Going forward, and in particular as the rural Development NTP penetrates deeper into the Northern Mountains and Central Highlands regions where the majority of poor, ethnic minority population live, it will become more important to find ways to shift public resources towards those most in need. The design of future PforRs should experiment with incorporating special provisions for poor communities, such as requiring that a certain percentage of targets are achieved through service delivery to these segments, or assigning higher monetary value to DLIs which target the poor.

(2) Understand and address barriers to take-up of piped water connections

An understanding of household willingness and ability to pay for both connection fees, and other connection expenditures, as well as for water usage will be critical – the evaluation confirms that price is a major constraint to take up and use of piped water, especially in parts of the Red River Delta where households are accustomed to abundant sources of free rain or groundwater. A complementary experimental study on willingness to pay for piped water connections and tariffs is underway with An Thinh utility in Bac Ninh province. Besides experimentally testing different price subsidies, the study will correlate willingness to pay for piped connections (through Becker-Degroot-Marschak method) with household characteristics, and combine this with data from the Vietnam Living Standards Survey to predict willingness to pay for piped connections in the 21 provinces of the NM-CH PforR. The evidence from this study could inform whether targeted subsidies to the poor are needed, especially as both PforRs penetrate more deeply into poorer areas.

Besides further understanding price incentives for adoption and usage of piped water, greater innovation in IEC activities may be needed to meet the targets going forward. IEC activities currently draw on outdated, didactic campaign approaches, which fail to address the rapidly changing context in Vietnam (desire for convenience and modernity). If one of the main barriers to adoption of piped water connections is availability of alternative, free sources, campaigns may need to focus on the health consequences of these other sources (pollution in rainwater, unpredictable rainfall patterns, arsenic or other contaminants in groundwater), or highlight the convenience and prestige attributes of piped water.

(3) Experiment with sub-national performance incentives

The overarching issue faced by the program at the midterm review are the high unit costs stemming from system overdesign, uniform allocation of program targets across provinces with different

underlying geographic conditions and cost structures, and low procurement savings. Provinces that have successfully achieved the targets within the allocated budget are not able to benefit from their good performance since MARD and NTP SO are unwilling to reallocate targets (and corresponding budget). There is a risk that the implicit incentive for provinces to realize cost savings to reinvest in further works could eventually dry up if good performing provinces are not rewarded.

The program could experiment with performance-based incentive grants at sub-national level, i.e. to the PCERWASS, to demonstrate whether targeted funds for additional investment are an effective and cost-effective approach to achieve better results. This could also incentivize provinces with higher underlying costs to find innovative ways to reduce cost.

(4) Introduce innovations in results monitoring and verification to streamline the process and reduce costs

The use of mobile phones to monitor program outputs and conduct results verification has massively reduced the cost and increased the transparency of monitoring and verification. However, the cost of these activities is still high (approximately US$ 500,000 annually), and could be a barrier to scaling up the PforR approach more broadly. For instance, verification of results of the Results Based Scaling Up Rural Sanitation and Water Supply Program in 21 provinces located in the Northern Mountains and Central Highlands regions is a major undertaking. If the same approach as was used in the Red River Delta is used for this program the cost is over US$ 1 million per year in verification costs alone.

Closer linkages between monitoring and verification could reduce the human resource requirements of verification. For example, a GPS stamp of the location of a toilet collected by a monitoring agent can be tracked by a verification agent to certify it is the same toilet. Sensor technology could also be deployed at different points of the water system, and even at the household level, to monitor quality and quantity of water supplied.

Table 13: Recommended program design variation based on NTP weaknesses

No	NTP identified weakness	Details	PforR solution	Assessment	Recommended Design Variation
1	Insufficient attention to household and institutional sanitation	Sector investments focus on water supply at the expense of sanitation and there is a need to incentivize investments in sanitation.	DLI mechanism that ties water and sanitation disbursements. A delay in either water or sanitation will reduce the disbursements.	Achieved	N/A
2	Lack of financial sustainability of water supply systems	Systems face revenue problems due to (a) low household connection ratios due to availability of other water sources and low awareness of arsenic pollution in the RRD and (b) low willingness to pay and willingness to charge for piped water connection fees and tariffs.	DLI on sustainability of water schemes, requiring operational and maintenance cost-recovery and benchmarks for non-revenue water. IEC to increase demand for the use of piped water	Partially Achieved	Understanding of willingness to pay and effective use of targeted subsidies Innovative IEC activities which may focus on the health consequences of other water sources (pollution in rainwater, unpredictable rainfall patterns, arsenic or other contaminants in groundwater), or highlight the convenience and prestige attributes of piped water
3	Weaknesses in the expenditure framework	Budget requests included in provincial plans far exceed the resources that provinces ultimately receive or are able to mobilize and investments are biased toward water supply.	DLI mechanism that ties water and sanitation disbursements. Technical assistance to improve cost-efficiency of designs and the contracting process of water supply systems	Partially Achieved	Experiment with performance grant incentives to provincial implementing agencies to encourage cost savings and link budget requests to targets achieved in the previous cycle.
4	Spreading investment resources thin	Provinces start numerous schemes without certainty that funds will be available to complete them in the planned period. Funding shortages prevent timely contract payment and contractors slow work to match payments.	The focus on achieving results (e.g., working water connections) is designed to overcome the problem of excessively long construction times. Where works are completed more quickly, funds will be disbursed more rapidly.	Partially Achieved	
5	System inefficiencies	There are few incentives to promote cost-efficiency in design and construction. Funding to provinces flows on the basis of receipt of invoices from contractors, and there is little incentive to promote cost savings.	Disbursement amounts are fixed so any cost-savings achieved during the design and construction process will represent additional funding which can be used to finance further investments.	Not Achieved	
6	Governance weaknesses	NTP suffers from weaknesses in terms of fiduciary, social,	DLI on improving transparency and strengthening overall management of	Achieved	N/A

		and environmental management. For example, civil society has inadequate access to information on community selection, procurement, and contract management, and the grievance resolution mechanism is inadequate.	NTP. Independent verification of results. Technical assistance to build capacity to deliver improvements in environmental, social and fiduciary systems		

VII. Conclusion

The PforR of RWSS under the NTP3 in the Red River Delta is the first PforR in the East Asia and Pacific Region, and the first in the Water and Sanitation sector. The GoV chose to pursue a PforR to significantly improve the sustainability of water systems and the quality of the water produced, as well as push the sanitation agenda and make institutional changes to enhance delivery of rural water and sanitation services.

On the results front, the program has faced challenges, but program-wide targets are considered acceptable. In 2013 96 percent of DLI 1 was met and 70 percent of DLI 2 was met. The targets for sanitation were met or exceeded in 2014, while targets for water supply connections were partially achieved (65%). In both years the targets for DLI 3 were fully achieved.

Overall program financing to the 8 provinces is almost a seven-fold increase from NTP allocation to the same 8 provinces prior to commencement of the Program, and for the 2015 implementing year PforR financing is just under the entire NTP3 budget allocation for the same year, excluding PforR funds. Given the large disparities in funding it is difficult to compare results in PforR areas to those in comparison areas and attribute any differences to the results-based approach. It also raises the question of whether the approach in the Red River Delta PforR is scalable and replicable. The new PforR on Results Based Scaling up Rural Sanitation and Water Supply in the Northern Mountains and Central Highlands (NM-CH) will allocate a credit of 200 million USD with anticipated co-financing of 25.5 million USD from the Vietnam government over 21 provinces with much greater need and lower capacity. Taking water supply connections as an example, the Red River Delta PforR allocated the amount of 128 million USD towards 340,000 new functioning water connections (US$ 376 per connection), while in the NM-CH PforR 73 million USD will be disbursed upon achievement of 255,000 new or rehabilitated water supply connections (US$ 286 per connection), despite higher unit costs in the region.

The success of the PforR in strengthening institutions is less evident. Poor program planning and budgeting continue to persist, largely due to budget allocation procedures that undermine the results-based approach and lack appropriate incentives for good performance. The shift to a results-based approach is even less evident at lower level institutions where program implementation actually takes place. From the perspective of the province there is little difference in practice between the results-based approach and the investment project approach. Additionally, the program has struggled to operate under the budget support mentality, and only a fraction of the anticipated co-financing has reached the program.

Capacity for program monitoring and verification is a notable exception and the evidence suggests that increased attention to program results, increased rigor of monitoring and reporting, and independent verification have improved the accuracy of reporting systems, and led to better results.

Going forward, and in particular as the rural Development NTP penetrates deeper into the Northern Mountains and Central Highlands regions where the majority of poor, ethnic minority population live, the PforR will have to adapt the approach to serve a less populous population with fewer resources. Strengthened capacity of the central coordination body on aspects of planning, financial management and procurement, and designated this central body with the authority to make program will be critical for effective program implementation. Finally, it will be critical to understand whether performance-based grants at the sub-national level are an effective incentive for achieving results.

Annex A: Household Survey Results

The table below presents descriptive statistics of the surveyed households. As households were selected at random from the full universe of submitted results for DLI 1.1 and DLI 1.2 the characteristics shown in Table 14 are representative of the population benefiting from the program.

Table 14: Demographic characteristics of surveyed households

	Water connection	Sanitation	Total
Gender of respondent (%)			
Male	47.0	53.5	50.2
Female	53.0	46.5	49.8
Gender of household head (%)			
Male	73.5	80.0	76.8
Female	26.5	20.0	23.3
Age of household head**(Mean, sd)**	52.4 ± 12.9	55.4 ± 14.6	53.9± 13.9
HH Category[34](%)			
Poor	4.3	11.0	7.6
Near poor	8.8	9.5	9.1
Non-poor	87	79.5	83.3
Ethnic group of the household head (%)			
Kinh	99.0	98.3	98.6
Other	1.0	1.7	1.4
Education of the household head (%)			
No school	8.8	12.4	10.6
Primary	10.6	14.7	12.7
Secondary	42.5	42.5	42.5
High school	29.8	22.9	26.4
College/ University	7.8	7.0	7.4
Post graduate	0.5	0.5	0.5
Household size **(Mean, sd)**	4.4 ± 1.6	4.5 ± 1.8	4.4 ± 1.7
Number of female member (Mean, sd)	2.3 ± 1.1	2.3 ± 1.2	2.3 ± 1.2
Number of male member (Mean, sd)	2.1 ± 1.0	2.2 ± 1.1	2.2 ± 1.1
Number of children at school age (Mean, sd)	0.7 ± 0.9	0.8 ± 1.1	0.8 ± 1.0
Number of children under 5 age (Mean, sd)	0.5 ± 0.8	0.5 ± 0.7	0.5 ± 0.7

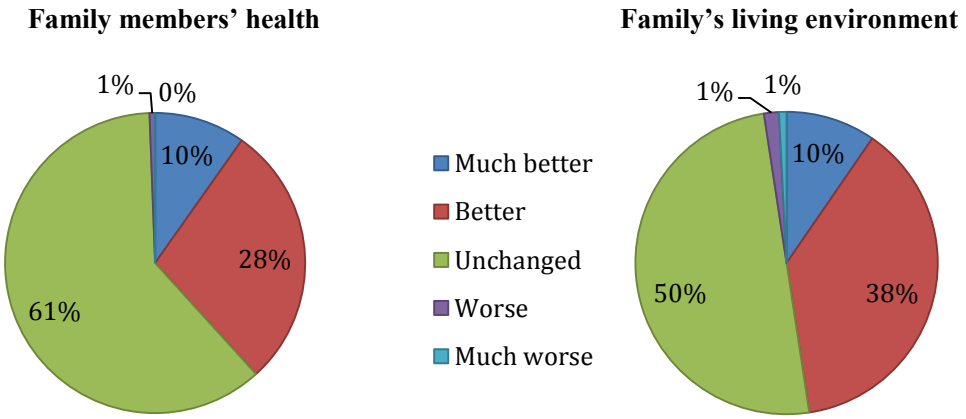
Households benefiting from the program are most often headed by males who are 54 years of age on average, from the Kinh ethnic group and with secondary or high school education. The average number of people living in the household is 4.4 and most households are categorized as non-poor,[35] although 11% of the households benefiting from the program on sanitation are categorized as poor.

[34]According to the Decision No.9/2011/QD-TTG issuing the standards of poor and near-poor households applied for the period 2011-2015, a poor householdin rural areas is a household with income from VND 400,000 (USD18.27)/people/month and lower, a near-poor household has income from VND 401,000 to VND 520,000/people/month (USD18.3 – USD23.75).For comparison purpose, in this report, households that are neither poor households or near-poor households are generalized as non-poor households.

[35] This is consistent with the national level of poverty rate, which is 9.8% in 2013 (General Statistics Office, Statiscal Handbook of Vietnam 2014), especially taking into account the fact that PforR are not targeting the poor areas.

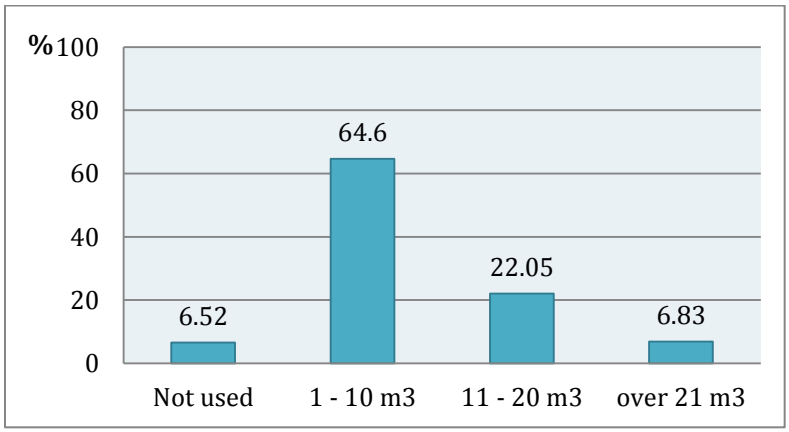
Beneficiaries noted improvements in family member's health and living environment due to piped water service, and this was reflected in feedback from focus group respondents. While the majority of respondents indicated no change in family members' health or living environment, 38% said the family's health had improved and 48% noted improvement in the family's living environment (Figure 7).

Figure 7: Overall, how has your household's quality of life changed after connecting to piped water?



Households are consuming sizeable quantities of water on average, approximating the standards for which the schemes were designed. The average household piped water consumption was 9 cubic meters (m3) in the month before the survey. Only 6.5% of respondents reported not having used piped water. Reported volume of water consumption is highest in Hung Yen (12.8 m3) and lowest in Quang Ninh (6.2 m3). In total households reporting consuming between 0 and 65 m3 of piped water in the past month, but the majority of households consumed between 1 and 10 m3 (Figure 8). Water consumption is significantly lower among poor and near poor: 6.8 liter versus 10.1 liter.

Figure 8: What was the volume of water used in the past month? (June-2015)



Quality of alternative sources of water influences usage patterns and variation is seen across the provinces. In Thanh Hoa, where water contamination is prevalent, usage of piped water is generally higher than other provinces, whereas households in Bac Ninh, Ha Nam and Hung Yen maintain a habit of using rainwater for cooking. In Phu Tho, groundwater is perceived to be of good quality and households continue to use water from private tube wells (Table 15).

Table 15: Water sources used for domestic activities, by provinces (%)

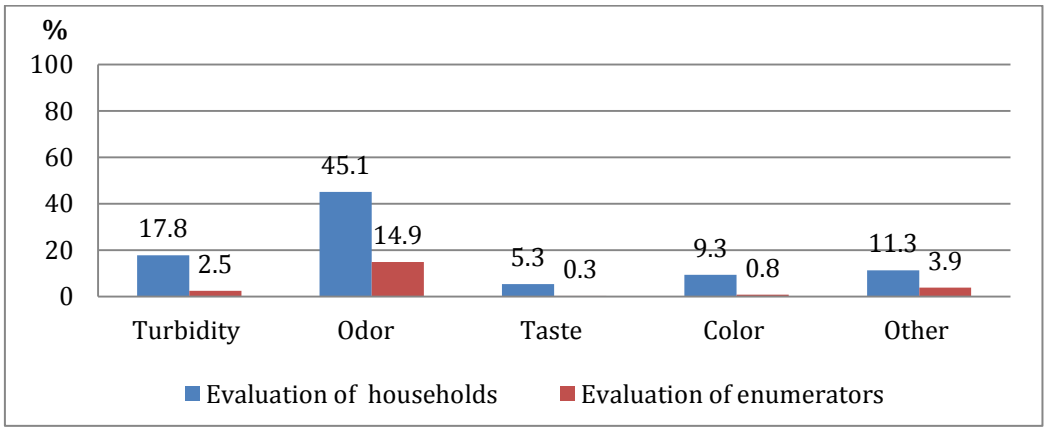
Water sources	Ha Noi	Bac Ninh	Quang Ninh	Ha Nam	Hung Yen	Vinh Phuc	PhuTho	Thanh Hoa
Drinking/cooking								
Piped water into facility or yard/plot	**94**	48	34	**60**	40	56	**94**	**90**
Tube well or borehole	14	2	14	0	0	50	8	50
Protected well	4	24	40	0	4	0	40	2
Unprotected well	0	0	2	0	0	0	0	0
Rainwater	0	**80**	**58**	**84**	**84**	4	2	34
Bottled water	2	20	32	12	2	2	0	14
Other	0	0	2	0	0	0	2	0
Washing/bathing								
Piped water into facility or yard/plot	**78**	**62**	**60**	**96**	**100**	30	**68**	46
Tube well or borehole	46	8	34	10	10	**70**	10	**68**
Protected well	10	34	40	2	2	2	**70**	2
Unprotected well	0	2	2	0	0	0	2	0
Rainwater	0	32	20	28	4	0	0	12
Spring water	0	0	0	2	0	0	0	0
Bottled water	0	0	0	0	0	0	0	2

Some households expressed concern about the quality of piped water in focus group discussions, noting that water quality certificates were not accessible and quality issues were experienced previously with NTP schemes.

Only 25 percent of respondents at the time of the survey believed that piped water was safe for drinking directly from the source, but this did not affect the volume of water used in the past month. Perceived safety of the water was related to water quality issues reported by the households.

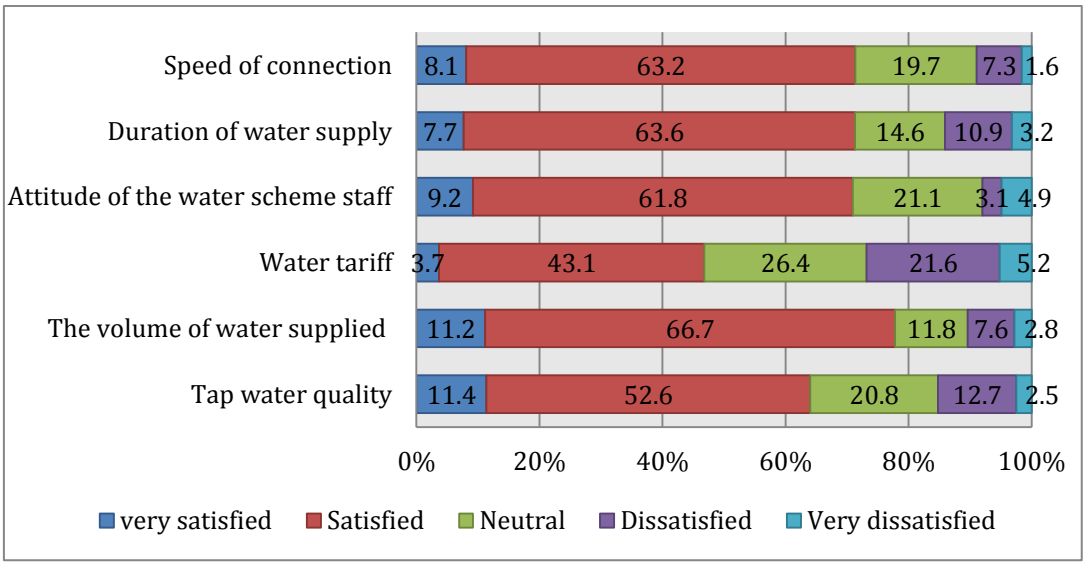
Despite overall satisfaction, many respondents reported some issues with the water, such as odor, turbidity, taste and color. Of those reported on water quality issues (**Error! Reference source not found.**), a large proportion (45.1%) reported odor (chlorine), even though most households acknowledged the presence of this odor as a characteristic of piped water. Turbidity was also reported by 17.8% of households. Strange taste (salty, musty taste, etc.) and color (muddy white, yellow, green, etc.) were reported by a small number of respondents.

Figure 9: Do you ever observe issues in the water supply such as turbidity, odor, taste?



Surveyed households are generally satisfied with the water supply services and the vast majority of respondents have a positive evaluation on the appropriateness of the water supply service with its cost.

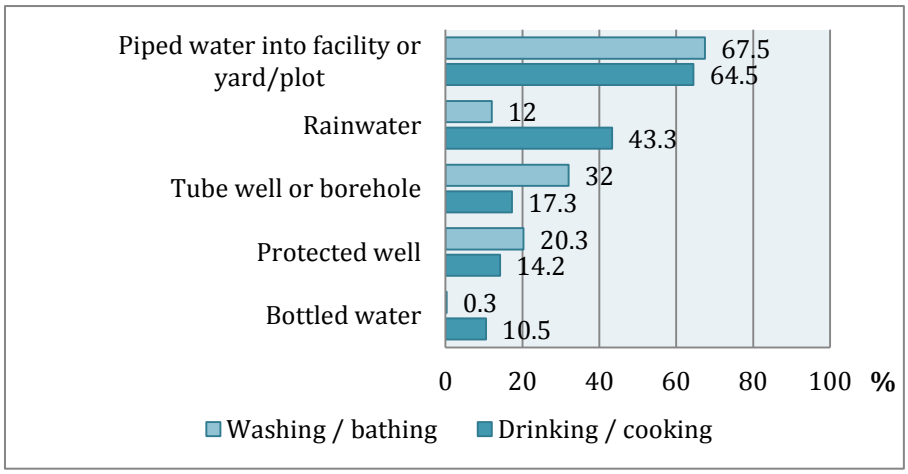
Figure 10: Households' satisfaction with water supply services



Survey respondents report stable and continuous water service delivery. Only 17.5% of respondents reported the water had been unavailable at some point since installation. The number of times water was unavailable was 5.5 times, but households reported these cases mostly occurred during testing or during the first days of operation so did not seriously impact household satisfaction.

Alternative sources of water, such as rainwater, boreholes and protected wells, are still used by a significant proportion of households for drinking and cooking. Piped water has become the most common water source for 65 percent of households surveyed, but water usage patterns show the continued use of multiple water sources for domestic use (Figure 11). Especially in provinces of Bac Ninh, Ha Nam and Hung Yen, most households still used rainwater for drinking and cooking. At the time of the survey only around one-fifth of households exclusively use piped water for domestic activities.

Figure 11: What sources of water does your household use?



The cost-efficiency and sustainability of water schemes constructed under the PforR depends greatly on household usage of piped water. Several factors may affect people's demand for piped water including income, people's awareness of benefits of clean water, and availability of other alternative clean water sources.

At the time of the survey, water tariffs ranged from VND 4,000– VND 6,000 (USD 0.18 – USD 0.27) and some provinces also apply quantity-based price discrimination (block tariff schedule), charging higher price per cubic meter at higher quantities of water consumed.

A typical beneficiary household reported paying an average of VND 59,000[36] (USD 2.7) for piped water in the month prior to the survey (Table 16). On average households in Hanoi pay the largest amount due to the larger volume of water consumed, up to VND 100,412 (USD 4.6). In contrast, households in Quang Ninh paid the lowest amount VND 35,222 (USD 1.6) on average. None of the households in Thanh Hoa had paid for water since installation.

Table 16: How much did your household pay for piped water last month (VND)?

Province	Mean	Sd	Min	Max
Ha Noi	100,412	124,413	6,000	625,380
BacNinh	59,040	30,636	10,000	120,000
QuangNinh	35,222	32,120	5,000	130,000
Ha Nam	62,425	41,251	12,000	262,000
Hung Yen	76,075	44,223	5,000	190,000
VinhPhuc	60,708	76,147	0	325,000
PhuTho	50,867	56,118	0	350,000
ThanhHoa	0	0	0	0
Total	59,419	65,494	0	625,380

In addition to the water tariff, beneficiaries are required to make a contribution to the capital cost of

[36] These data are calculated among households that have used water (the volume of water consumed > 0).

the water scheme, as well as pay for a water meter and any other materials or labor to install the connection. According to focus group respondents, these expenses are relatively acceptable to households. However, some participants complained about the high cost of installation of the water connection (water meter), especially after the capital cost contribution had already been made.

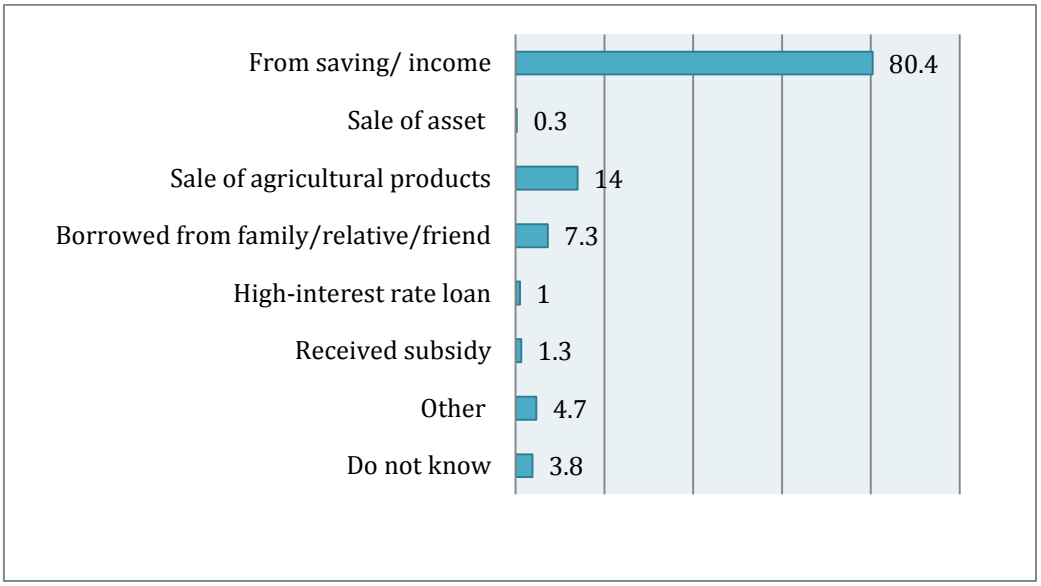
Eighty-five percent of respondents recalled costs associated with installation of the water connection, which captures any costs such as a connection fee, water meter, material costs, and labor for installation. Of these, 20 percent reported paying nothing, while the remainder paid an average of VND 1.3 million. Households that reported paying nothing were predominately non-poor (84%) and reported costs for poor and near-poor households were on average higher than non-poor households (VND 1.5 million vs. VND 1.3 million) (Table 17). Focus group respondents expressed concern that the installation costs may deter poor and near poor households from connecting to the system.

Table 17: How much did your household pay to connect to the water system?

	Total cost
% reporting cost	84.5%
% no expenditure	19.8%
% cost >0	80.2%
Mean (Cost >0)	
Poor & Near poor	1,505,824
Non-poor	1,317,143
p value	0.3710
Total	1,340,815

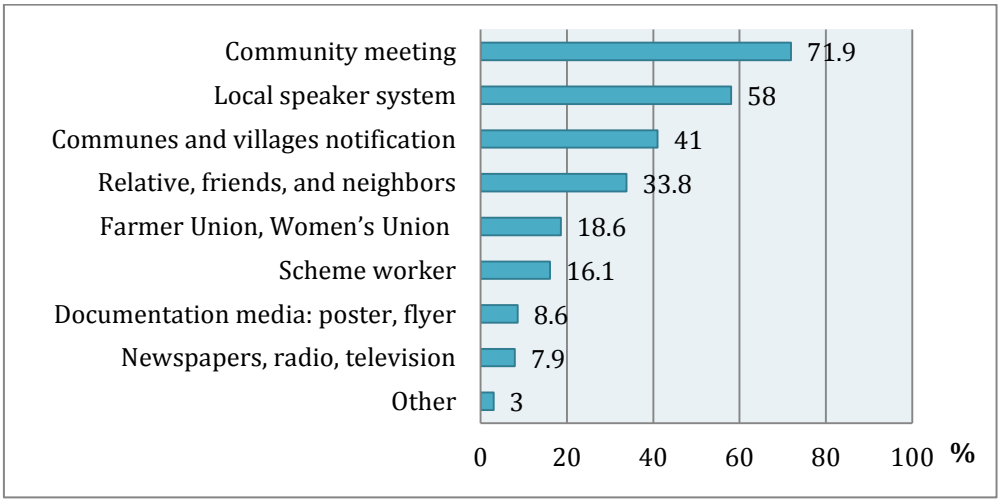
The majority of households (80 percent) used current income or savings to pay for the costs of installation (Figure 12). Others sold agricultural products (14 percent) or borrowed from family. Less than 2 percent of households had to sell off assets or take out interest bearing loans. Almost no households reported receiving a subsidy for the connection. Out of the total sample of 40 poor and near-poor households, one household reported receiving a subsidy.

Figure 12: Where did you obtain the money to pay for these costs? [37]



Information about piped water supply is reaching households through the traditional channels of community meetings and loudspeaker announcements. While a community meeting is usually conducted prior to or during the planning phase of the scheme to solicit the 10 percent capital cost contribution from beneficiaries, only 39 percent of respondents reported being informed about the plan to build a water scheme. Community meetings are reported as the most common way for households to receive information about piped water supply services, with 72 percent of households being informed through this method (Figure 13). Loudspeaker announcements, public notice boards, and personal communication through friends and relatives are other common sources of information.

Figure 13: How do you get information about piped water connection?

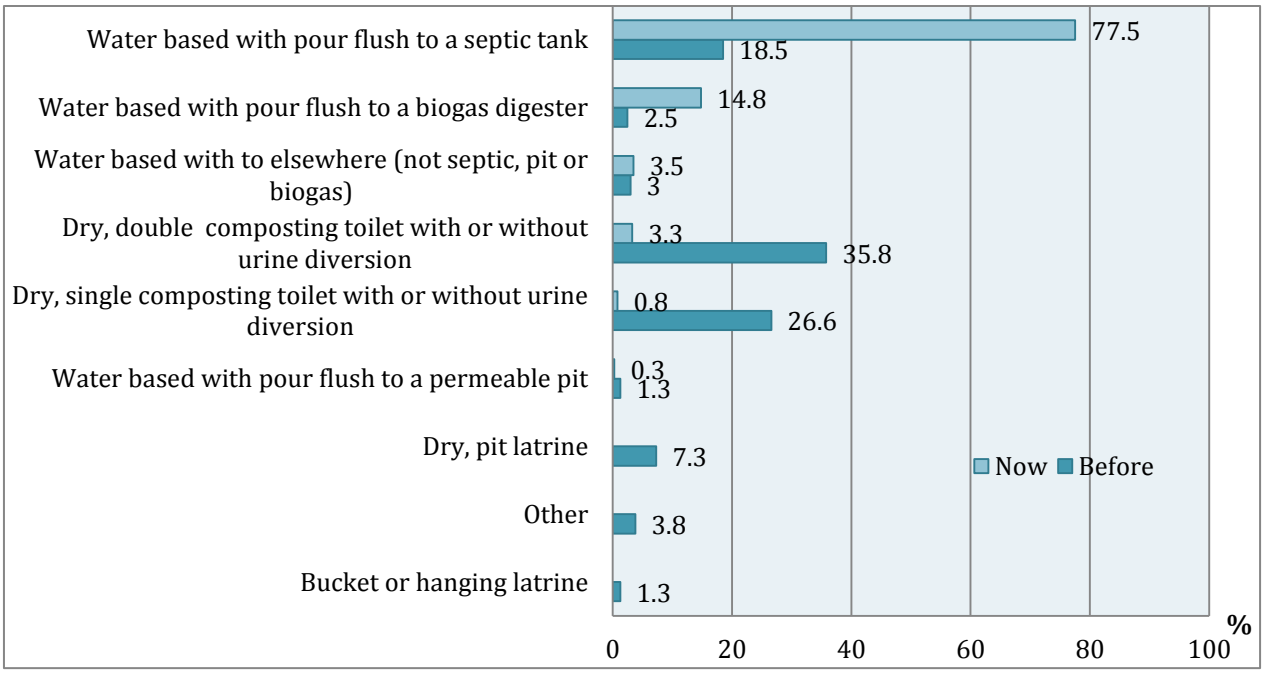


The program results in a high level of service for rural households. Prior to the intervention dry double and single pit latrines were the most common type of toilet, while only 18.5 percent of

[37] These figures are calculated on the number of households that reported installation costs > 0.

households used a septic tank latrine. After the program 77.5 percent are using pour flush to septic tank or pour flush to biogas digester latrines (Figure 14).

Figure 14: Comparison of type of facility used by households before and after being constructed/renovated



Households prefer to build bathrooms when investing in new toilet facilities, leading to large expenditures on average. Due to farming and animal husbandry practices in the Red River Delta, households often have separate rooms for latrines and for bathing, with the latrine often constructed near the animal pens. When upgrading their latrine they prefer to wait to build the toilet as part of a larger construction unit (i.e. bathroom). For beneficiaries in the PforR provinces, 85 percent built the latrine along with a bathroom, resulting in very high costs compared to other rural sanitation projects in Vietnam and the region.

On average, the amount spent on construction of a latrine alone is VND 15.7 million (USD 717.22), of which materials account for the majority (64.7%) and labor for over a quarter (29.1%). For those who build a bathroom expenditure was around VND 43.5 million (USD 1,987.2)[38].

In general, the poor and near poor household have costs lower than the non-poor households. The detailed cost of construction is shown in Table 18.

Table 18: Construction cost for latrine alone and for latrine along with bathroom (VND)

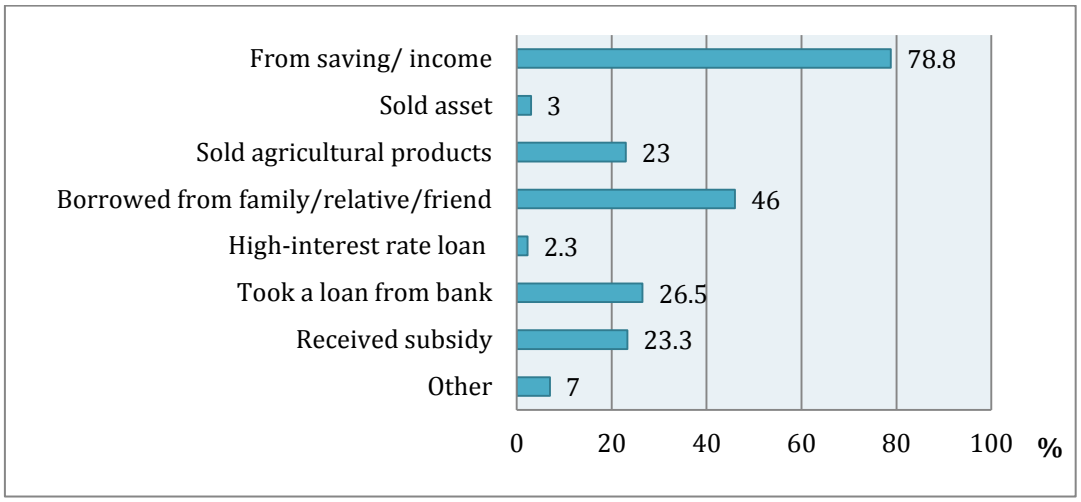
HH type	Total cost		Material cost		Labor cost		Other cost	
	Latrine	Latrine and bathroom	Latrine	Latrine and bathroom	Latrine	Latrine and bathroom	Latrine	Latrine and bathroom

38 Several households reported very high expenditures. For example one household reported spending VND 600 million (approximately US$ 27K) and 2 households reported expenditure of VND 400 million

	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean
Poor	23	10,000,000	20	26,700,000	19	6,468,421	1	10,000,000	20	4,620,000	2	1,499,956	3	833,333	1	2,000,000
Near-poor	22	14,909,091	27	44,740,741	17	9,429,412	3	20,666,667	17	5,476,465	5	4,199,965	3	7,200.00		
Non-poor	132	16,808,333	201	44,950,746	95	11,005,263	32	21,515,625	102	4,391,754	46	8,648,904	27	3,688,889	7	4,928,571
P - value		0.007		0.3884		0.0205		0.8975		0.7094		0.3961		0.0933		0.4922
Total	177	15,687,571	248	43,456,048	131	10,142,748	36	21,125,000	139	4,557,258	53	7,959,421	33	3,748,485	8	4,562,500

Figure 15 presents the different financial sources mobilized by households to build latrines. Majority of households (78.8%) used current income or savings to finance the facility, while 46 percent reported borrowing from friends or family.

Figure 15: Financial sources for construction / renovation of latrines



The Vietnam Bank for Social Policies (VBSP), is one source of support for investments in domestic sanitation through a lending facility that covers up to 60 percent of the capital cost of a latrine, allowing households to spread the cost of improvements over five years. Interest rates are fixed below current market rates, delivering a modest subsidy to borrowers. Just over a quarter (26.5%) of households borrowed from a bank to finance construction of the toilet. Of households that took a loan 43 percent borrowed from the VBSP and 38 percent from the Agribank. Reported loan amounts from VBSP was VND 17.8 million, while from Agribank it was VND 54.9 million.

A larger proportion of poor and near-poor households borrowed for construction of the hygienic latrine facility (37.8% vs. 23.6%) with average size of the loan the same across these groups for VBSP borrowers, while loan size from Agribank for non-poor households was almost double that of poor and non-poor households.

Construction of a hygienic sanitation facility is a substantial investment for rural households. The average annual household income in the program area ranges from VND 20 million (USD 913.66) to VND 30 million (USD 1,370.5), while construction costs of new hygienic latrines range from VND 15 million (USD 685.24) for latrines up to VND 50 million (USD 2,284.15) for bathrooms.

There is a strong preference for water based latrines with septic tank, even among the lower income groups, while this model generally costs more than other hygienic latrine options.

Table 19: Average construction cost for a number of popular types of latrines

Type of latrine	No	Total construction cost
Water based with pour flush to a septic tank	129	17,000,000
Water based with pour flush to a biogas digester	29	15,700,000
Dry, double composting toilet with or without urine	9	3,011,111

Among 400 surveyed households with newly constructed latrines, 23.3% received a subsidy for the investment ranging from VND 1 million to VND 7 million (USD 319.78) (Table 20). On average, a household received VND 3.1 million (USD 141.62) for construction of the latrine, accounting for around 20% of cost for the average latrine. According to current regulations, latrine subsidies cannot exceed 70% of the construction cost of the hygienic latrine for poor households and policy-favoured households and 35% for near-poor households.[39]

Table 20: Average amount received as a subsidy for latrine construction

Group	% receiving subsidy	Mean	Std. Dev.	Min	Max
Poor	70.5	3,248,387	1,430,354	2,000,000	7,000,000
Near poor	50.0	1,910,526	1,137,197	1,000,000	5,000,000
Non-poor[40]	13.5	3,555,814	1,252,484	1,100,000	7,000,000
P - value	*0.000*	*0.0001*			
Total	23.3	3,117,204	1,425,743	1,000,000	7,000,000

Table 21 presents data from the Comprehensive Results Reports (CRR) of 2013 and 2014[41], showing households that received support for building demonstration latrines in the first two years of the program. On average, around 30 percent of the households receive support for construction of latrines, according to the CRR: 29.3 percent in 2013 and 37.1 percent in 2014. These figures are higher than reported by households in the survey (23.3 percent), despite the fact that the survey is a representative sample of program beneficiaries in the first 2 years of the program. Across the provinces, Thanh Hoa has the highest proportion of households receiving financial support (71.4% in 2013 and 83.8% in 2014), while Vinh Phuc has the lowest proportion.

Table 21: Data on households receiving support for building latrines in 2013 and 2014

Provinces	2013		2014	
	No	%	No	%
Bac Ninh	1043	32.8	1024	39.0
Ha Nam	801	30.9	679	31.6

[39] Joint-circular No 04/2013/TTLT-BNNPTNT-BTC-BKHĐT between Ministry of Agricultural and Rural Development (MARD), MOF and Ministry of Planning and Investment (MPI) guiding management and use of state budget for National Target Program on Rural Water Supply and Sanitation for the period 2012-2015.

[40] A number of non-poor households, which are categorized as policy-favored households, are eligible for subsidy.

[41] The Comprehensive Result Report of PforR is developed by MARD at the end of each year. It provides consolidated results of the DLI matrix and provincial compliance with PAP of all 8 PforR provinces in the reported year. This report includes the list of all beneficiaries and forms the basis for AnnualVerification of Results by the State Audit of Vietnam.

Hung Yen	768	36.4	877	44.1
Phu Tho	550	40.8	523	36.0
Quang Ninh	182	11.9	686	31.2
Thanh Hoa	1829	71.4	2156	83.8
Vinh Phuc	33	1.8	365	21.9
Hanoi				
Total	**5206**	**29.3**	**6310**	**37.1**

Annex B: Key Informant Interview Guiding Questions

Key-Informant Interviews and Focus Group Discussion Guiding Questions	
Overall	1. What do you think the PforR does really well? 2. What do you think the PforR does not so well? 3. What would you do to improve the PforR? 4. What is the main challenge you have faced in meeting the targets? 5. What solution have you come up to address this challenge? OR What solution do you think could address this challenge?
i. Implementing agency Roles & responsibilities Cooperation Communication Stakeholder involvement	6. What are the key elements of the PforR that you are responsible for? 7. What is your agency's role in achieving the results of the PforR? 8. What is your (individual) role in achieving the results of the PforR? 9. To what extent have they performed the tasks/role expected from them? 10. What has been the main limiting factor to performing these tasks / role? 11. What other factors have limited ability to perform these tasks / role? 12. What has been instrumental (most helpful) to performing these tasks / role? 13. How well do you think different implementing agencies cooperate to achieve the results of the PforR? 14. How often do different implementing agencies communicate about the PforR? 15. Do different implementing agencies share data regarding targets? 16. Do different implementing agencies share strategy for achieving targets?
ii. Targets (DLIs 1.1, 1.2, 2.2) Accountability Suitability Achievability Financing	17. To what extent was your agency involved in the definition of the DLIs? 18. Do you feel there was adequate consultation of stakeholders in definition of the DLIs? 19. How do you think the process for defining the DLIs could have been improved? 20. Do you think the amount of financing attached to each target adequately reflects the level of effort to achieve the targets? 21. What is the main challenge you face in meeting the targets (specific for DLI 1.1, 1.2, 2.1 and 2.2) 22. What is the main challenge you face in meeting the targets (DLIs) 23. How could the targets be modified/adjusted?
iii. Program Planning Decisionmaking Stakeholder involvement	24. Please describe the program planning process under the program 25. How are communes selected for implementation (specifically for DLI 1.2 and 2.2)? 26. How are villages selected for implementation (specifically for DLI 1.1)? 27. What factors influence the selection of communes / villages? 28. Who makes decisions on selection? 29. Which stakeholders are consulted? 30. Do the targets influence the program planning? If so, how? 31. What are the main challenges faced in planning for the program? 32. How does the process for program planning differ from what you have done in the past?
iv. Procurement and Contract management	33. Please describe how contracts are managed under the program 34. Who is responsible for managing construction contracts?

	35. What difficulties have you faced in contract management? 36. Is there any monitoring mechanism from the investors during the construction of the sub-projects? 37. Have you ever been asked by the investors to fix any components of the sub-projects that do not met the technical standards required?
v. Delivery mechanism	38. Since the start of the program in 2013 have you had to adapt your approach in order to meet the targets? 39. Please describe how you adapted your approach to meet the targets 40. What initiative or solutions have you adopted in order to meet the targets? 41. Do you feel you have flexibility to modify your approach in order to meet the targets? 42. At what level are the problems you encounter resolved (e.g. do you have to go to province level or can these problems be resolved at lower levels)?
vi. Financing / disbursement Financial Resources Human Resources	43. Do you think the program has adequate financial resources to deliver on the targets? 44. How does financing of this program compare to other programs you have worked in the past? 45. Do you experience any issues with cash flow? 46. Do you receive funds on time to implement the program? 47. Did you ever have to borrow / mobilize resources from other project funds in order to meet the targets? 48. Do you feel that sufficient quantity of staff are in place to deliver on the targets? 49. Do you feel that staff are of sufficient quality to deliver on the targets? 50. Are there additional costs associated with funds disbursement that you have not encountered in previous programs? What are they?
vii. Monitoring and reporting of results	51. How does the program monitor progress towards the targets? 52. Who is responsible for compiling data/information required for reporting? 53. Approximately how much effort is involved in compiling data for reporting on the targets? Can you describe the resources (staff and time) required? 54. How does the monitoring / reporting under the PforR differ from previous programs? 55. What are some of the challenges faced in compiling data for reporting on the targets? 56. Do you feel that the reporting process gives you a better understanding of progress in meeting program targets? 57. Have you ever used results from monitoring / reporting on the program to make changes to the program implementation? 58. Are there additional costs associated with monitoring and reporting on the results that you have not encountered in previous programs? What are they?
viii. Verification	59. Do you trust the annual verification process? 60. ? 61. ? 62. Do you think annual verification is too frequent / not frequent enough / just right? 63. Have you faced any issues with the verification process?
ix. Technical standards hygienic latrine definition	64. Are technical standards for hygienic latrines *as defined by the project* achievable? 65. Are technical standards for clean water *as defined by the project*

clean water definition sustainable water supply definition	achievable? 66. Are technical standards for <u>water supply systems</u> *as defined by the project* achievable? 67. What are the main <u>technical challenges</u> to achieving the targets?
x. Technical assistance activities	68. Have you received sufficient quantity and quality of technical assistance from the World Bank project to be able to perform your role in the PforR / deliver on the targets? 69. What sort of technical assistance would be most useful for you to perform your role in the PforR / deliver on the targets?
xi. IEC for latrines and water connections	70. Please describe IEC activities that have taken place in your area for latrine construction (DLI 1.2 and 2.2) 71. Where do you obtain funds for IEC activites? 72. Are IEC activities adequately financed? 73. How effective do you think the IEC activities have been? 74. Do you think more IEC would help meet the targets?
xii. Gender	75. Do you think that women's views / needs are adequately represented in the design of the program? 76. To what extent are women involved in decision-making regarding the program? 77. Do you think the program benefits men and women equally? 78. To what extent are women involved in planning / design / implementation of the program?
xiii. Performance Incentives	79. What motivates you <u>personally</u> to deliver on the targets? 80. What motivates your <u>collective agency</u> to deliver on the targets? 81. Do <u>you personally</u> receive any financial / monetary incentives for delivering on the targets? 82. Does <u>your agency</u> receive any financial / monetary incentives for delivering on the targets? 83. Do you think there are adequate incentives to deliver on the targets? 84. What do you think would motivate <u>you personally</u> to deliver on the targets? 85. What do you think would motivate <u>your agency</u> to deliver on the targets? 86. What would the success of the program mean for <u>you personally</u>? 87. What would the success of the program mean for <u>your agency</u>?
xiv. Risks	88. Who bears the risk if program targets are not delivered?
xv. Targets	89. What motivates you to deliver on the targets? 90. Do you think DLIs receive more attention and resources than they would have otherwise? (e.g. sanitation) 91. Do you think that targets that are not monitored under the program receive less attention?

Key-Informant Interviews Guiding Questions For Commune leader/Health worker and Women union	
Overall	1. Basic data of commune • Population (number of people, number of households – as registered and actual as same roof) • Percentage of poor, near poor and ethnic minority households • Coverage of hygienic sanitation (for poor and near-poor

	households) • Coverage of piped water (for poor and near-poor households) • Average income per capita of commune. 2. Do you know about P4R? If YES, what are advantages of the Program to your community (infrastructural, social, economic and environment impacts)? What are disadvantages of the Program to your community? 3. What should do to remove disadvantages?
Water supply	4. How many (percentage) households connected to piped water are there in your commune? Ratio? Why is it high/low? Do they want/like to have piped water? 5. What are the effects of schemes to the socio-economic development of your local? What are the positives and negatives of the schemes? 6. Your roles on process of design and building the water scheme? 7. What are the difficulty to land acquisition, compensation and resettlement when building the schemes? Are there any complaints and denunciations? How does it resolved? 8. How affordable are connection fees and monthly water tariffs in relation to household income, for different income groups? 9. Ratio of the poor and ethnic minorities access to piped water? How many/ratio of connections to the poor and ethnic minorities? 10. Are there any support/favor for them to use piped water construction? 11. Your roles on monitoring and report the water system in commune (water scheme – if have, pipe system, connections to households) and model latrines? 12. How is quality of piped water? How frequent did water system break/stop working? 13. Are there any complaints on the quality of piped water? Who should the household contact if they have any complaint regarding to water supply? What is the mechanism to deal with this issue? 14. Your opinions to maintain and improve tap water system in your commune?
Latrines	15. How many new latrines were built in your commune (2013 – 2014)? Number/Ratio classified by budget sources: Social Bank, P4R, and Individual? Criteria to select households got P4R budget for latrines? Who decided? Difference among latrines built by budget of Social Bank, P4R, Individual? Why? 16. What are financing mechanism that households use to gain access to household sanitation and how affordable? Do they experience any difficulties in accessing these sources? Are there any activities to inform them of the available financial assistance (via Policy bank, etc.)? 17. Are there any support/favor for them to newly construct or improve latrines? 18. Your roles on monitoring and report the model latrines?
Public facilities	19. How many new public latrines did your commune have? How long did they construct on average? How do they look like now? How do you think about them (good/bad, useful/useless, satisfied/unsatisfied)? 20. Who play the role of monitoring the quality of public facilities? Who report to? 21. Are there any complaints on the quality of public facilities?
IEC	22. Who is in charge/involves in the IEC for latrines and water connections? 23. Do you receive information on sanitation and water connection? If so, how? How those information change people's perception and usage habit of water and sanitation? 24. Do you notice any communication activities (stage performance, campaign, etc.) on sanitation and water connection in your neighborhood? How often do you participate in these activities? Do these

	activities receive welcome of the people?
Impacts/Effect	25. What are advantages and disadvantages of using piped water? (Impact of piped water on people's habit and health) 26. Change of perception/behavior/practice of water quality 27. Satisfaction with sanitation

Focus Group Discussion Guiding Questions For Village head/Villager	
Overall	1. Basic data of village • Population (number of people, number of households – as registered and as same roof) • Percentage of poor, near poor and ethnic minority households • Coverage of hygienic sanitation (for poor and near-poor households) • Coverage of piped water (for poor and near-poor households) • Average income per capita of village 2. What are advantages and disadvantages of using tap water? (Impact of tap water on people's habit and health) 3. What is inhabitants' water use habit in your community (rain water, water in river/pond/well, tap water, etc.)? 4. When did people start using tap water? 5. Local demand for piped water and latrines? Demand of the poor and ethnic minorities for piped water and latrines? 6. Are there any complaints on the quality of piped water? Who should the household contact if they have any complaint regarding to water supply? What is the mechanism to deal with this issue?
a. IEC for latrines and water connections	7. Who is in charge/involves in the IEC for latrines and water connections?
	8. Do you receive information on sanitation and water connection? If so, how? Does this information change your perception and usage habit of water and sanitation?
	9. Do you notice any communication activities (stage performance, campaign, etc.) on sanitation and water connection in your neighborhood? How often do you participate in these activities? Do these activities receive welcome of the people?
b. Constraints	10. Are there any financial assistance sources available for people to access to build hygienic latrines or connect the tap water? How affordable are connection fees and monthly water tariffs in relation to household income, for different income groups?
	11. Do you notice/suspect any coercion / bribery acts of other households to connect to the water system? Other unusual arrangements?
	12. Are there any difficult in pay the loan and monthly water charges?
c. Impacts	13. Are there any changes in health of your family since the use of clean water and hygienic sanitation?
	14. Are there changes in water usage pattern within your household? Do you notice any change in your neighborhood?
	15. Are there any changes in your perception of water quality? How do such changes impact your water usage habit?
	16. Are you satisfied with the sanitation conditions of your household, the neighborhood, and the public places (CPC office, health center, school)?
	17. Did you loss your land for constructions of water scheme? Impact of water scheme on community environment and society.

Annex C: Household Survey Questionnaire

HOUSEHOLD SURVEY
THE PROGRAM – FOR – RESULTS (PforR) OF RURAL WATER SUPPLY AND SANITATION IN RED RIVER DELTA

INTRODUCTION: Hello. My name is _____. We are conducting the Evaluation of the Program-for-Results (PforR) of Rural Water Supply and Sanitation in Red River Delta. This survey will help us evaluate the effectiveness of the Project as well as provide lessons learnt for the next period of the Project. Your participation is voluntary. All of your responses will be confidential and only used for evaluation purposes. Do you agree to participate in this survey?

Commune code	Village code	Household ID

	Name	Code
Province		
District		
Commune		
Village		
Respondent		
Gender	1. ☐ Male 2. ☐ Female	
Is your household designated poor or near poor?	1. Poor 2. Near poor 3. Neither	
Mobile number		

Interviewer	
Date of interview	
Supervisor	

PROVINCE	CODE	PROVINCE	CODE
HÀ NỘI	**HN01**	HƯNG YÊN	**HY05**
BẮC NINH	**BN02**	THANH HÓA	**TH06**
HÀ NAM	**HN03**	VĨNH PHÚC	**VP07**
QUẢNG NINH	**QN04**	PHÚ THỌ	**PT08**

A. HOUSEHOLD GENERAL INFORMATION

A1. Name of the head of household: .....

A2. Gender of the head of household: 1. Male 2. Female

A3. Age of head of household: .....

A4. What is the ethnic group of the household's head?

1. Kinh
2. Tay
3. Thai
4. Hoa
5. Khmer
6. Muong
7. Nung
8. Hmong
9. Dao
10. Other (specify).....

A5. Highest level of <u>completed</u> education of the household's head?

1. No school / did not complete primary school
2. Primary
3. Secondary
4. High school
5. College/ University
6. Post graduate

A6. Number of member of household?:

Number of female member: .....

Number of male member: .....

Number of children at school age: .....

Number of children under 5: .....

A7. What is the source of water that your household uses for drinking and cooking?

Source water	**Drinking/Cooking** *(1. Yes 2. No)*	**Bathing/Washing** *(1. Yes 2. No)*
1. Piped water into facility or yard/plot		
2. Tube well or borehole		
3. Protected well		
4. Unprotected well		
5. Rainwater		
6. Spring water		
7. Bottled water		
96. Other (specify).....		

A8. Does your household have a sanitation facility?

1. Yes
2. No (use another household's facility) *=> Skip to A11*
3. No (open defecation) *=> Skip to A11*

A9. What type is your household's main sanitation facility?

1. Dry, single composting latrine
2. Dry, double composting latrine
3. Dry, pit latrine
4. Water based with pour flush to a septic tank
5. Water based with pour flush to a permeable pit
6. Water based with pour flush to a biogas digester
7. Water based with to elsewhere (not septic, pit or biogas)

8. Bucket or hanging latrine
9. Other (specify): .....
-99. Could not observe

A10. **Take 2 photos of sanitation** (INSIDE and OUTSIDE)

A11. Classified surveys: 1. Water supply 2. Sanitation.

B. WATER SUPPLY CONNECTION

B1. When was the water supply connection meter installed? month …… year 20…..

B2. Did you have tap water right after the water meter was installed?

1. Yes (skip to B4) 2. No

B3. If not, how long did you have to wait to use pipe water after the connection meter was installed?

____(days)

B4. Please provide us with information about the use of pipe water of your household <u>last month</u>

B4.1 Volume used:	.....m^3
B4.2 Was it more or less than the previous month?	1. More 2. The same 3. Less -99. Do not know -90. Not applicabl
B4.3 How much water do you expect to use next month?	1. More 2. The same 3. Less -99. Do not know -90. Not applicable
B4.4 Payment for pipe water last month	.....(VND)
B4.5. Since water connection and delivery, how long did you *access tap water free of charge?*	.....(months)

B5. Do you ever observe issues in the water supply such as turbidity, odor, taste, etc.?

1. No
2. Yes – turbidity:……..
3. Yes – odor:……
4. Yes – taste:……
5. Yes – color:……
6. Yes – other: ……
-99. Do not know
-90. Not applicable

B6. How much did your household pay to connect to the piped water system?

Total cost: ……(VND)

Total amount	---------- (VND)
a. Connection fee	_____(VND) *(If Free: 0 If don't know: -99)*
b. Materials (san cement...)	_____(VND) *(If Free /supported material: 0 If Used Own materials: -88 If don't know: -99)*
c. Pipes, taps, etc	_____(VND) *(If No other costs: 0 If don't know:- 99)*
d. Water meter	_____(VND)

	(If No other costs: 0 If don't know: -99)
e. Labor cost	_____(VND) *(If Free / supported labor: 0 If Used Own Labor: -88 If don't know:- 99)*
f. Other (specify)	_____(VND) *(If No other cost: 0 If don't know: -99)*

B7. Where did you obtain the money to pay for these costs? *(multi-choices)*

1. From saving/ income
2. Sale of asset
3. Sale of agricultural products
4. Borrowed from family/relatives/friends
5. High-interest rate loan
6. Took a loan from bank
7. Received subsidy

-96. Other (specify).....
-99. Don't know.

B8. If your household takes a loan from the bank, please provide some information

a. Which bank did you take the loan	1. Agricutural and Rural Development Bank 2. Other commercial bank 3. Vietnam Bank for Social Policy 4. Other (specify).....
b. How much was the loan?	_____ (VND)
c. How long did you have to wait between loan application and when the loan was disbursed?	1. One day 3. One – two weeks 2. Less than one week 4. More than two weeks
d. How are you satisfied with the loan?	1. Very satisfied 4. Unsatisfied 2. Satisfied 5. Very unsatisfied 3. Normal -99. Don't know
e. Have you repaid the loan yet?	1. Repaid partly 3. Not yet, but have plan to 2. Repaid all 4. Can't repay.

B9. Who in your household decides to connect to the piped water system?

1. Wife 2. Husband 3. Son 4. Daughter 5. Other ……..

B10. Does your household use any of the following type of storage to store pipe water? *(multi-choices)*

1. Underground concrete tank 2. Surface concrete tanks
3. Pottery / glass / plastic jar 4. Steel tanks
5. Other (.....) 6. No storage

B11. Do you think the pipe water is safe to drink directly?

1. Yes 2. No

B12. Do you treat water before drinking it? *(multi-choices)*

1. Do nothing, drink water direct from the sources
2. Boiled water before drink
3. Use water filter before drink
4. Solar / UV

5. Other (specify):.....

B13. Since installation has water ever been unavailable? (including water in the household's storage)

1. Yes
2. No (Skip to B13)

13.1 How often has water not been available *(including water in the household's storage)*

..... (times)

13.2 On average how many days does each time last?

..... (days)

B14. Does any of the following situations occur to your household?

a. The water pipe is broken, blocked, etc. (including the pipes from the main pipe system to our water meter)	*1. Many times 2. Occasionally 3. Once or twice 4. Never*
b. The water meter is broken or does not function correctly	*1. Many times 2. Occasionally 3. Once or twice 4. Never*
c. The connection device is broken	*1. Many times 2. Occasionally 3. Once or twice 4. Never*

B15. If one of the above situations occurs, how do you solve the problem?

(multi-choices)

1. Call the staff of the water scheme to fix the problem ***=> Ask B14.1***
2. Call the commune competent staff ***=> Skip to B15***
3. Fix the problem yourself
4. Hire a repairman 4.1. Cost:..... VND
5. Other (specify) ……

B15.1. How are you satisfied with the following factors?

1. Very satisfied 2. Satisfied 3.Normal 4.Dissatisfied 5.Very dissatisfied
-99. Don't know -90. Not applicable

a. Repair cost (price)	……..
b. Attitude of the staff	……..
c. Promptitude/Timeliness	……..

B16. How are you satisfied with the services of the water supplier?

1. Very satisfied 2. Satisfied 3.Normal 4.Dissatisfied 5.Very dissatisfied
-99. Don't know -90. Not applicable

a. Tap water quality	……..
b. The volume of water supplied	……..
c. Water tariff	……..
d. Attitude of the people in charge of water fee collection and water meter recording	……..
e. Duration of water supply	
f. Speed of connection	

B17. How do you compare the water supply services (including quality, tariff, etc.) you receive with the cost you pay?

1. The service is better than the cost
2. The service is corresponding to the cost
3. The service is worse than the cost
-99. Don't know
-90. Not applicable

B18. For enumerators: Turn on tap: Is water available? (observe)

1. Yes 2. No -90. Not applicable

B19. For enumerators: Is the water available, clear, odorless and with no taste? (Observe)

1. Yes
2. No – turbidity
3. No – odor (specify).....
4. No – taste (specify).....
5. No – color (specify).....
6. No – Other (specify).....
-90. Not applicable

B20. For enumerators: Meter reading (observe)

.....(m^3)

B21. How much is the water tariff at the moment? .....**(VND)**

B22. If the water tariff increases by ...../ m^3, would you decrease your volume of tap water consumed? *(randomly from VND 500 – 2.000)*

1. Yes 2. No -99. Don't know -90. Not applicable

B23. Does any following situation occur in your locality? *(multi-choices)*

1. Force household to connect to pipe water system
2. Give bribes for water connection
3. Community meeting to inform about water connection
4. Personal household visit for persuade household to connect

B24. How do you get information about tap water connection?

1. Relative, friends, and neighbors.
2. Farmer Union, Women's Union
3. Communication material: poster, flyer
4. Communes and villages notification
5. Local speaker system
6. Newspapers, radio, television
7. Community meeting
8. Scheme worker
9. Other (specify).....

B25. Were you (or anyone from your family) informed about the plan of building the water scheme?

1. Yes 2. No 3. Do not remember/ Do not know

B26. Did you (or anyone from your family) give comments for the construction of water scheme?

1. Yes 2. No 3. Do not remember/ Do not know

B27. Overall, how has the quality of life of your household changed after connecting to the tap water?

1. Much better 2. Better 3. Unchanged 4. Worse 5. Much worse

a. Family members' health: ……

b. Family's living environment: ……

C. SANITATION

C1. When was your sanitation facility built?

Month…… year 20……

C2. Is your latrine newly constructed/renovated?

1. Newly constructed 2. Renovated

C2.1. Did your family build your bathroom/shower along with your latrine?

1. Yes 2. No

C2.2. If yes, what is the total cost? …… (VND)

C3. What type was the old facility?

1. Dry, single composting latrine
2. Dry, double composting latrine
3. Dry, pit latrine
4. Water based with pour flush to a septic tank
5. Water based with pour flush to a permeable pit
6. Water based with pour flush to a biogas digester
7. Water based with to elsewhere (not septic, pit or biogas)
8. Bucket or hanging latrine
9. Other (specify): ……
-99. Could not observe

C4. How long did it take to build the latrine? (*day)*

1. Days: _____
-99. Don't know/don't remember.

C5. How much did it cost to build the latrine?

Total cost: ……(VND)

a. Material cost	_____(VND) *(If Free / Supported materials: 0 If don't know: -99)*
b. Labor cost	_____(VND) *(If Free / Supported labor: 0 If Used Own Labor: -88 If don't know: -99)*
c. Other costs	_____(VND) *(If No other costs: 0 If don't know: -99)*

C6. How did you pay for these costs? *(multi-choices)*

1. From saving/ income
2. Sold asset (specify: ……)
6. Took a loan from bank
7. Received subsidy

3. Sold agricultural products
4. Borrowed from family/relative/friend
-96. Other (specify).....
-99. Don't know.

C7. <u>If your household takes out a loan from the bank</u>, please provide information as below?

a. Which bank did you take out the loan	1. Agricutural and Rural Development Bank 2. Other commercial bank 3. Vietnam Bank for Social Policy 4. Other (specify).....	
b. How much was the loan?	_____ (VND)	
c. How long did you have to wait between loan application and when the loan was disbursed?	1. A day 2. Less than one week	3. One – two weeks 4. More than two weeks
d. How are you satisfied with the loan?	1. Very satisfied 2. Satisfied 3. Normal	4. Unsatisfied 5. Very unsatisfied -99. Don't know
e. Have you repaid the loan yet?	1. Repaid partly 2. Repaid all	3. Not yet, but have plan to 4. Can't repay.

C8. <u>If your household received a subsidy</u>, please provide information as below

6.1. When did you get the subsidy (reimbursement): .....(MM/YY)
6.2. How much was the subsidy? ……VND
6.3. How are you satisfied with the subsidy?
1. Very satisfied 2. Satisfied 3. Normal 4. Unsatisfied 5. Very unsatisfied

C9. Who made the decision to rehabilitate/construct your latrine?
1. Wife 2. Husband 3. Son 4. Daughter
5.Other .....

C10. Which source of information did you use to learn about options for types of facilities, materials and costs?
1. Mason/ local craftsman
2. Neighbors/ Family
3. Village head
4. Extension workers
5. Farmer Union, Women's Union
6. Radio/ Television
7. NGOs
8. Do not learn
9. Other (specify): _____

C11. How was your latrine designed?
1. Designed by the family
2. Model provided by the project (receive instruction)
3. Hire designer (the mason designed)
4. Follow friends, neighbors' models.
5. Other (specify).....

C12. After completing the latrine construction, is there any officer or agency come to inspect or check the quality?

1. Yes. 2. No

C13. For enumerators: Observe the latrine and record

a. Smell:	1. Bad smell smell	2. Slightly bad smell	3. Don't have bad
b. Flies:	1. Many flies flies	2. Some flies	3. Does not hav
c. Place to wash hand in the latrine	1. Yes	2. No	
d. Toilet paper	1. Yes	2. No	
e. Soap	1. Yes	2. No	
f. Water for use	1. Yes	2. No	
g. Latrine cover	1. Have	2. Don't have	
h. Floor	1. Flooding	2. Wet	2. Dry, clean
i. Dirty paper storage	1. Cover	2. Non-cover	3. Don't have
j. Privacy:	1. Privacy	2. No door or roof	3. No privacy

C14. What do you do when your toilet is full? (*multiple-choice)*

1. Septic tank latrine, no action needed
2. Bring the waste to another place
3. Cover the pit and dig a new one
4. Compost for plant fertilizing
5. Call septic tank – emptying service
-99. Do not know what to do
7. Others (specify): ……

C15. How are you satisfied with your latrine?

1 – very satisfied 2 – satisfied 3 – unsatisfied

C16. Is there anything you would like to do to improve the condition of your latrine at the moment?

1 – Repair / construct the exterior
2 – Repair / construct the interior
3 – Repair / install the septic tank
4 – Nothing
5 Other (specify)_____

C17. Please provide us with the following information

Do you have public latrine in the following locations? *1. Yes* *2. No* *3. Do not know*	**1. Use**					2. Do not use*(Choose one choice)* *1. No need* *2. Dirty* *3. Inconvenient* *4.Overload (long waiting time)* *5. Broken/ degraded* *6. User fee* *7. Others*
	a. Is it clean? *1. Yes* *2. No* *-99. Don't know /don'*	b. Does it have separate rooms for males and females? *1. Yes* *2. No* -99.	c. Does it have place to wash hand 1. Yes 2. No -99. Don't	d. Does it have water? *1. Yes* *2. No* *3. Sometimes* *-99. Don't know/do*	f. Does it have soap? *1. Yes* *2. No* *3. Sometimes* *-99. Don't know/do*	

	t reme mber	Don't know*/d on't rememb er*	know*/ don't remem ber*	*n't remembe r*	*n't remembe r*	
1. ☐School						
2. ☐Health station						
3. ☐Village cultural house						
4. ☐ Office of the Commune People's Committee						

C18. How are you satisfied with the public latrines in your community?

1. Very satisfied 2. Satisfied 3. Normal 4. Unsatisfied 5. Very unsatisfied

Annex D: Water Scheme Survey Questionnaire

WATER SCHEME QUESTIONNAIRE

Province	
District	
Name of respondent	
Position	
Phone number	
Email	

1. **Name of water scheme: _____**
2. **Timeline**

	DD/MM/YY
1. Date of approval	_____
2. Date of construction (contract)	_____
3. Date of construction (reality)	_____
4. Date of completion (contract)	_____
5. Date of completion (reality)	_____
6. Date of operation (first day of water delivery)	_____
7. First date of tariff payment collection	_____

3. **Water sources and delivery method?**

Water sources	☐ Surface water ☐ Ground water
Delivery method	☐ Pump system ☐ Gravity system (water tower/elevat reservoir)

4. **Model of management applied?**

☐ 1. Provincial Center for Rural Water Supply and Sanitation
☐ 2. Cooperative
☐ 3. Local community
☐ 4. Urban water supply and sanitation one member limited liability company
☐ 5. Enterprise
☐ 6. Private sector
☐ 7. Other (specify):……..

5. Operational data

	Design	Operation
1. Capacity (m3/day night)	……..	…….
2.Total number of people supplied by the scheme	……	…….
3. Total number of household supplied by the scheme	……	…….
4. Average number of hours a household being supplied with water	……	…….
5. Rate of water loss	……	…….
6. Total investment (unit: million VND)	……	……
7. Average investment per connection (unit: million VND)	……	……

6. Physical facilities

	Unit	
Total area of the scheme	ha	
Capacity of pool pre-filter	m^3	
Capacity of filter tank	m^3	
Capacity of Reservoir	m^3	
The total length of main piping	Km	
The number of (group) pump	No.	
Cover area of your scheme	_____Commune _____ Village	

7. Water tariff (unit: VND/m^3)

Present	2016 – 2017	2017 – 2018	2018 – 2019	2019 – 2020
_____	_____	_____	_____	_____

8. Method of collecting payment for water?

☐ 1. The scheme staff visits each household to collect
☐ 2. The households make the payment at the scheme
☐ 3. The households make the payment at the office of Commune's People Committee
☐ 4. The households make the payment to the competent people (those being contracted with collecting water payment)
☐ 5. Other (specify)

9. What are the challenges in collecting water payment?

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10. Since operation, how often do the following incidents take place in the scheme? How long did it take to recovery?

	Frequency	Recovery time
1. Many times 2. Occasionally 3. Once or twice 4. Never		(day)
d. The water pipe is broken, blocked, etc.	……	……
e. The water meter is broken or does not function correctly	……	……
f. The connection device is broken (valve)	……	……
g. Electricity cut	……	n/a
h. Water stealing	……	……

11. When did the latest water test take place?_____(MM/YY)
(Ask for the water test and take photo)

12. Have ever the result of water quality tests made publicly available to households?

1. ☐ No
2. ☐ Yes
   - ☐ Post notice at the scheme
   - ☐ Post notice at the commune office
   - ☐ Post notice in the village
   - ☐ Other (specify)_____

13. Since operation, what are the customers' complaints about?

- ☐ 1. Water tariff
- ☐ 2. Water quality
- ☐ 3. Pipe and equipment
- ☐ 4. Water meter do not function correctly/is broken
- ☐ 5. Water stealing
- ☐ 6. Other (specify)
- ☐ 7. No complaints

14. Financial information

	2013 (Million VND)	**2014 (Million VND)**
Revenue from water payment		
Operating and maintenance costs (electricity, chemicals, etc.)		

Labor cost/salary		
Depreciation costs of intangible and tangible fixed assets		
Financial costs (interest payment)		

15. Please evaluate the scheme's impacts to the community?

a. Noise	1.Yes	2. No	3. Do not know
b. Bad smell	1.Yes	2. No	3. Do not know
c. Destroying landscape	1.Yes	2. No	3. Do not know
d. Generating jobs for local people	1.Yes	2. No	3. Do not know
e. Creating opportunities for businesses and services	1.Yes	2. No	3. Do not know

16. Do you have any comment or proposal?

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