SOCIALIST REPUBLIC OF VIETNAM

Results-Based Rural Water Supply and Sanitation under the National Target Program

Technical Assessment

FINAL DRAFT

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PREPARED BY

THE WORLD BANK
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<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AusAID</td>
<td>Australian Agency for International Development</td>
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<tr>
<td>DANIDA</td>
<td>Danish International Development Agency</td>
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<td>DARD</td>
<td>Department of Agriculture and Rural Development</td>
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<tr>
<td>DFID</td>
<td>UK’s Department for International Development</td>
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<tr>
<td>DLI</td>
<td>Disbursement-linked Indicator</td>
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<tr>
<td>DoET</td>
<td>Department of Education and Training</td>
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<td>DoH</td>
<td>Department of Health</td>
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<td>FSR</td>
<td>Feasibility Study Report</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GoV</td>
<td>Government of Vietnam</td>
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<tr>
<td>IDA</td>
<td>International Development Association</td>
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<tr>
<td>IEC</td>
<td>Information, Education and Communication</td>
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<tr>
<td>IT</td>
<td>Information Technology</td>
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<tr>
<td>IVA</td>
<td>Independent Verification Agent</td>
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<tr>
<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
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<tr>
<td>MARD</td>
<td>Ministry of Agriculture and Rural Development</td>
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<tr>
<td>MDG</td>
<td>Millennium Development Goal</td>
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<tr>
<td>MoET</td>
<td>Ministry of Education and Training</td>
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<td>MoF</td>
<td>Ministry of Finance</td>
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<td>MoH</td>
<td>Ministry of Health</td>
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<tr>
<td>MoNRE</td>
<td>Ministry of Natural Resources and Environment</td>
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<tr>
<td>MPI</td>
<td>Ministry of Planning and Investment</td>
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<tr>
<td>NCERWASS</td>
<td>National Center for Rural Water Supply and Sanitation</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<tr>
<td>NTP/NTP2/NTP3</td>
<td>National Target Program/ National Target Program for Rural Water Supply and Sanitation / Phase 2 / Phase 3</td>
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<tr>
<td>O&amp;M</td>
<td>Operation and Maintenance</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>--------------</td>
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<tr>
<td>ODF</td>
<td>Open-Defecation-Free (Community)</td>
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<tr>
<td>PAD</td>
<td>Project Appraisal Document</td>
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<tr>
<td>PCERWASS</td>
<td>Provincial Center for Water Supply and Sanitation</td>
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<tr>
<td>PDO</td>
<td>Program/Project Development Objective</td>
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<tr>
<td>Pfor R</td>
<td>Program for Results</td>
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<td>PPC</td>
<td>Provincial People’s Committee</td>
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<td>PSC</td>
<td>Provincial Steering Committee</td>
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<tr>
<td>RF</td>
<td>Resettlement Framework</td>
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<td>RRD</td>
<td>Red River Delta</td>
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<td>RWSE</td>
<td>Rural Water Supply Enterprise</td>
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<td>RWSS</td>
<td>Rural Water Supply and Sanitation</td>
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<tr>
<td>SAV</td>
<td>State Audit of Vietnam</td>
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<td>SIL</td>
<td>Specific Investment Loan</td>
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<td>TA</td>
<td>Technical Assistance</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<td>VBSP</td>
<td>Vietnam Bank for Social Policies</td>
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<tr>
<td>VND</td>
<td>Vietnamese Dong</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<td>WSP</td>
<td>Water and Sanitation Program</td>
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Executive Summary

National Target Program for Rural Water Supply and Sanitation

1. The Government of Vietnam (GoV) gives high priority to rural development through the National Target Program (NTP) on New Rural Development for 2010-2020 and has also targeted investments to the very poor and to ethnic groups. Since 2001, rural water supply and sanitation has been financed through a dedicated National Target Program. The third round of funding (NTP3) is scheduled to run from 2012 to 2015. Nationally, the NTP3 aims to provide hygienic water to an additional 4.6 million people, clean water to an additional 5.1 million people, household latrines to an additional 1.7 million households, an additional 5,550 school sanitation facilities, 1,450 sanitation facilities in health clinics, 480,000 livestock pens and 420,000 new biogas installations.

2. The GoV wishes to test results-based operations in NTP3 in eight provinces of the Red River Delta (RRD) where there are particular water quality challenges (agricultural runoff and arsenic) but also relatively robust institutions and capacity. This makes them good candidates to implement a new, results-based approach to rural water supply and sanitation (RWSS) investments. In addition to public sanitation and hygiene education, the target in these eight provinces is to provide: safe water to an additional 340,000 households (1.7 million people); and household latrines to an additional 130,000 households (650,000 people).

Program Technical Soundness

3. **Water supply.** The most cost-effective water supply solutions in the Red River Delta, where the risk of groundwater contamination is high, are piped schemes serving several settlements and often more than one commune. A technical review of system designs for NTP3 suggests that the approach taken is broadly appropriate but more attention should be paid to assessing the quality of water sources and alternatives. Cost efficiencies could also be achieved through the use of more appropriate technical norms and standards (e.g., residual pressure and design populations). Implementation arrangements for rural water supply schemes could be strengthened with better investment planning and procurement to ensure cost-efficiencies.

4. **Sustainability (water supply).** Experience from NTP2 and the ongoing World-Bank supported RRD-RWSSP have resulted in the identification of several management models for piped water supply schemes involving delegated management. Provinces are able to select their preferred management options but appropriate cost-recovery tariffs are deemed essential to ensure adequate cash flow to support operational costs irrespective of the management.

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1 Access to **hygienic** water in rural areas as reported in the 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 Access to **clean** water in rural areas as of 2010, as reported in the National Target Program on Rural Water and Sanitation 2012-2015 document, approved by Prime Minister’s Decision 366. ‘Clean’ water, according to MoH definition, refers to specific water quality parameters defined in the standards QCVN 02/BY
arrangements. Provinces with relatively limited experience in establishing robust financially sustainable management arrangements will need support to roll out these approaches. In addition, support will be needed to ensure appropriate technical solutions in areas with risk of arsenic contamination in groundwater.

5. **Sanitation and hygiene.** Under NTP3, credit for domestic sanitation will be channeled directly to households through the Vietnam Bank for Social Policies (VBSP). The Government retains a critical role in promoting demand, supporting supply chains and monitoring the quality of sanitation provision. Ministry of Health (MoH) is responsible for sanitation in health clinics along with water quality monitoring and hygiene promotion and Ministry of Education and Training (MoET) is responsible for sanitation in schools.

6. The VBSP has a very good track record of disbursing credit for domestic sanitation and for ensuring repayment. Capacity for sanitation marketing and hygiene promotion is relatively weak at the local level and support will be needed to ensure the delivery of a coordinated and well-planned sanitation intervention in Program provinces.

7. **Sustainability (sanitation).** The main challenge in terms of sustainable sanitation is ensuring adequate public health benefits by achieving coverage across entire communities. In addition, in the longer term, improved management of septage and pit wastes and better drainage arrangements for domestic wastewater would be required to sustain these benefits. The Program addresses the first issue by creating incentives for provinces to plan for commune-wide sanitation with a focus on achieving 100 percent access to appropriate sanitation. Technical assistance will also be provided to support provinces to develop suitable long-term arrangements for treatment and disposal of wastewater.

**Institutional Arrangements**

8. The proposed Program requires a high degree of inter-agency coordination, particularly between the Ministry of Agriculture and Rural Development (MARD), MoH, the Ministry of Natural Resources and Environment (MoNRE) and MoET, as well as articulation between the central and the provincial levels of Government.

9. At the **national level**, MARD will play a strong role in planning, oversight and in supporting provinces in delivering the national NTP3 Program. MoH also has a strong role to play. A Standing Office will be established in MARD to coordinate the different Program inputs. Focal units for the Program will also be established in MoH, MoNRE and MoET. Funds for operation are taken from the annual recurrent budget of the NTP3.

10. At the **provincial level**, responsibility for the delivery of the Program rests with the Provincial’s People’s Committee. In most provinces, implementation will be coordinated through the Provincial Center for Water Supply and Sanitation (PCERWASS), which draws on expertise from all relevant departments. Staff of the Department of Agriculture and Rural Development (DARD), Department of Health (DoH) and the Department of Education and Training (DoET) will all be actively involved.
Technical Capacity Issues and Institutional Strengthening

11. Poor coordination among the NTP participating agencies was found to be a common denominator across the provinces, being that the Steering Committee was nonexistent or not properly functioning. As a consequence, responsibilities and roles among the participating agencies were not always clear. Also, understaffing, inadequate and unrealistic planning, poor data quality on monitoring and evaluation (M&E), and low technical capacity to prepare technical specifications and bidding documents are other frequent problems found in the provincial implementing agencies during the assessment.

12. In some provinces, PCERWASS is weak or non-existent and there will be a need to build capacity over the NTP3 period. In particular, capacity for sanitation promotion (usually termed Information, Education and Communication, or IEC in Vietnam) is weak and will need to be built up. DoH staff are in need of both training and access to modern tools and resources. An M&E system is in place and is being used at the provincial level to set and define NTP3 targets and plans. MARD will need continuing support to maintain and improve the M&E system still further.

13. The existing M&E system can still be improved, as the quality of the data is not yet fully adequate for planning and budgeting purposes. Many provinces face constraints related to data collection and have difficulties in using the new M&E platform. With the first set of data produced only last year, provinces have not yet given evidence that they systematically use collected data on program indicators to establish priorities, including targeting assistance to lagging areas.

14. **Internal financial controls.** There is a good system of internal financial controls but this is not always implemented as designed and there are some weaknesses. Notably, multiple and overlapping audits are carried out by different inspectorate and auditing agencies, and there is limited attention to achieving systemic improvements. Nonetheless, the overall system is relatively robust.

15. Institutional strengthening will be a key element of the Program supported through a parallel TA package supported by the Australian Agency for International Development (AusAID). Key elements of this will include further strengthening of planning and monitoring and the provision of flexible and demand-responsive technical assistance to provinces.

Borrower Commitment

16. The commitment of GoV to rural water supply has been amply demonstrated through the period of NTP1 and NTP2 implementation. Furthermore, MARD has been proactive in seeking improvements in implementation arrangements and has demonstrated a willingness to innovate and improve both technical and institutional approaches to the delivery of sustainable water supply and sanitation.
Program Expenditure Framework

17. **Budget.** Budget law in Vietnam is strong and within this the NTP budget process is well structured, but provinces face some uncertainty relating to the allocation and disbursement of funds. In the eight Program provinces, budget uncertainty is reduced to acceptable levels since outline investment plans have already been prepared down to the commune level and linked to results. For these eight provinces, the primary risk to realizing the planned outputs therefore shifts from budget to implementation risk – the ability to deliver the planned outputs as or more efficiently than implied by the underlying cost estimates.

18. **Financial sustainability.** The GoV has adjusted funding expectations for NTP3 nationally in response to the NTP2 experience, with much-reduced expectations from immediate user contributions but greater user contributions through preferential credit as shown in Table 1.

<table>
<thead>
<tr>
<th></th>
<th>Budget (VND million)</th>
<th>%</th>
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<tbody>
<tr>
<td>Central budget</td>
<td>4,100,000</td>
<td>14.9</td>
</tr>
<tr>
<td>Concessional credit</td>
<td>9,500,000</td>
<td>34.4</td>
</tr>
<tr>
<td>Provinces</td>
<td>3,100,000</td>
<td>11.2</td>
</tr>
<tr>
<td>Donors</td>
<td>8,200,000</td>
<td>29.7</td>
</tr>
<tr>
<td>Users</td>
<td>2,700,000</td>
<td>9.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>27,600,000</strong></td>
<td><strong>100.0</strong></td>
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19. A significant proportion of the expected donor funding has already been committed from Australia, Denmark and the UK, which along with the IDA credit reduces uncertainty in this line item. The expectations of user commitments and private investment present the most uncertainty within the NTP3 budget, but this is considered to be an acceptable level of risk.

20. In the eight provinces, the IDA Credit will finance a part of the expected NTP expenditures in those provinces. The remaining resources are those generated at the provincial, local, and household levels. Household contributions will be made through payment of water tariffs and repayment of VBSP loans. The track record of both tariff payment and repayment of sanitation loans is extremely good and these do not create an unacceptable level of uncertainty.

21. **Adherence to budgeted expenditures.** The NTP3, like NTP1 and NTP2, is decentralized in design and execution, with the province being the level of government with primary implementation responsibility. However, the central government has a clear view (supported by the donor community) of the appropriate mix of Program elements among water, sanitation, or hygiene promotion. The results-based structure of the Program and the Disbursement-linked Indicators (DLIs) have been selected to create incentives to maintain this appropriate mix of investments.

22. **Efficiencies.** Cost-efficiency is theoretically driven by the results-based approach, but technical assistance will be needed to support provinces to make cost-effective decisions about
technical designs and implementation arrangements. There are potential cost savings to be made and these will be promoted by MARD where necessary. Attention will also be paid to ensuring that activities that require recurrent funding such as hygiene promotion and sanitation marketing (IEC) are properly monitored and linked to results such as the achievement of commune-wide sanitation.

**Results Framework and DLIs**

23. The results framework places a strong emphasis on achieving the results which are necessary for public health gains to be made. These include provision of safe water for drinking and cooking and the achievement of commune-wide sanitation including elimination of open defecation and provision of public sanitation where needed. Cost-efficiency and good planning is promoted through the requirement for all investments to be placed within a comprehensive province-wider planning framework.

**Economic Analysis**

24. **Public oversight and private provision.** Safe water helps protect individual and community health, while improved access to safe water reduces costs that tend to be disproportionately borne by girls and women. Basic sanitation at the household level provides private benefits through convenience and enabling better hygiene and public health benefits to the community at large. While the Program promotes appropriate private service provision (through household payments for latrines and full cost recovery of water tariffs), public financing provides the long-term funding that allows construction of capital-intensive facilities. Public funding is also needed to support promotional activities (particularly for sanitation) and to subsidize the costs of credit for the poorest households. There is strong evidence that, in the absence of public financing, service access and levels would grow very slowly in Vietnam. The public financing delivered through the Program will strongly accelerate service access.

25. **Economic benefits.** The economic impact of the Program is expected to be positive because it draws on successful elements of NTP2 and the Bank-financed Red River Delta project (RRD-RWSSP) to ensure efficient investments meeting effective demand for reliable rural water supply by rural households. The social and utility benefits of this are demonstrated by household willingness to pay water tariffs. There will be a significant additional public health benefit through protection from the negative effects of arsenic exposure.

26. Private benefits of sanitation, such as privacy and dignity, will be enjoyed by households gaining improved latrines. Public benefits will be guaranteed through the focus on commune-wide sanitation. Where communes attain open-defecation-free status, all residents are protected from fecally-transmitted disease to which they are otherwise exposed while walking in the village. Children are particularly vulnerable. Analytical work in other countries has demonstrated a high return to attaining such status.

27. **Value added of World Bank support.** The World Bank support to this Program facilitates sharing of lessons learned from successful rural water and sanitation projects globally, while also building capacity for results-based planning and financing in the national Program. In particular, Bank support provides incentives for balanced, efficient investment in water supply on the one
hand and sanitation and hygiene on the other. It also provides incentives for improved governance and financial processes. In contrast to the delivery of Bank lending through a Specific Investment Loan (SIL), the Program for Results (PforR) delivery as part of the Government system avoids the label of improvements as special to the Bank, or no different from the special requirements that come with other external financiers.
PART A: Program Strategic Relevance and Technical Soundness

1 Program Strategic Relevance

1.1 National context

1. During the last 10 years, Vietnam has maintained a significant growth rate of 7.5 percent to 8 percent and attained middle-income country status. In line with the economic growth rate, there are positive changes in every aspect of social life and the poverty rate nationwide has decreased to 14.5 percent in 2008. However, poverty rates remain high and access to basic services extremely low in many rural provinces, and in mountainous, remote and Ethnic Minority areas. In these areas, achieving universal and sustainable access to hygienic water and sanitation facilities remains a major challenge.

2. The Government of Vietnam gives high priority to rural development. A commitment to targeted investment in rural areas is signaled by the National Target Program on New Rural Development for 2010-2020 (Resolution No. 26/NQ-TW dated August 5 2008). This program makes significant focused investments in rural areas to reduce inequity and promote growth. Alongside the NTP for New Rural Development the government also gives specific priority to rural water supply and sanitation (RWSS) development. RWSS has had its own National Target Program since 2001. The second RWSS NTP ran from 2006 to 2010. This Technical Assessment relates to the third national target program for rural water supply and sanitation (hereafter referred to as NTP3) which will run from 2012 to 2015, and in particular to its delivery in eight provinces of the Red River Delta region of Vietnam.

1.2 The National Target Program

3. Since 2000 the sector has been guided by the National Rural Clean Water Supply and Sanitation Strategy which places a strong emphasis on community participation, demand-responsive approaches and cost recovery.

4. NTP3 seeks to significantly improve the sustainability of water systems and the quality of the water produced. NTP3 will also emphasize local ownership of water supply systems under the national enterprise law, with full recovery of operations and maintenance (O&M) costs and a contribution to capital costs – a necessary condition for sustainability, and an approach successfully tested under the Bank-financed RRD-RWSSP. It will also further push the sanitation agenda and make institutional changes that will enhance delivery of software support for sanitation promotion and hygiene education. NTP3 is expected to provide safe water and improved sanitation services and promote healthier hygiene behaviors in rural areas through the following interventions:

a. *Rural domestic water supply and rural environment.* Two types of water supply interventions are supported: community solutions through piped networks and individual solutions for households outside of piped service areas. Household systems are financed by households themselves, supported by access to subsidized credit. Community water systems benefit from government funding through a combination of grants and concessional loans, which meet about 90 percent of capital financing needs. Beneficiaries cover the balance of the investment cost in the form of a connection fee and also finance loan repayment through tariffs. In addition to capital

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3 The 2008 Vietnam population and housing census, General Statistics Office.
cost repayment, the tariff covers operations and maintenance costs, as well as rehabilitation. NTP3 aims to achieve an 85 percent access rate to hygienic water for rural people by the end of 2015, with 45 percent access to ‘clean’ water, the higher MoH water quality standard. This component also includes interventions to improve the environmental conditions of the communes, through household hygienic livestock pens and biogas facilities that control animal feces.

b. Rural sanitation. The provision of public sanitation facilities and associated water supply in schools, clinics, and government offices, will be fully funded by NTP3. NTP3 also supports investment in domestic sanitation through a lending facility that covers up to 60 percent of the capital costs, allowing households to spread the cost of improvements over five years. Households thus bear the full investment cost, but financing makes it possible for low-income households to participate. Interest rates are fixed below current market rates, delivering a modest subsidy to borrowers. The national goal is that 65 percent of rural households will have a hygienic latrine by the end of 2015.

c. Capacity building, communication, supervision, monitoring and evaluation. This includes training and capacity building for the rural water supply and sanitation sector in different areas such as monitoring and evaluation, water quality control, and planning and sustainability of the water schemes. It also includes IEC activities designed to promote hygiene and behavior change, increase demand for sanitation and create the potential for commune-wide changes in sanitation outcomes.

5. Nationally, NTP3 aims to provide:
   - hygienic water to an additional 4.6 million people;
   - clean water to an additional 5.1 million people;
   - household latrines to an additional 1.7 million households;
   - 5,500 school latrines, 1,450 latrines in health clinics, 480,000 livestock pens and 420,000 biogas installations.

1.3 Rationale for Government Intervention

6. Concerns about the quality of groundwater mean that water supplies must often make use of surface water or deep groundwater and provide appropriate treatment for particular pollutants. The use of simple household or small community water supply systems is rarely the appropriate solution. The types of centralized community systems that are thus most appropriate are not well suited to very localized or voluntary management; they must be developed and managed by organizations with significant technical and managerial skills. Recognizing this, the Government of Vietnam has been promoting the ‘socialization’ of rural water supplies, making provision for commercial operation of schemes where this is likely to be appropriate. Government retains overall responsibility to ensure that appropriate and cost-effective services are available and to provide up-front financing for the large capital investments required.

7. In the area of public sanitation, there is clearly a strong rationale for government provision – the public benefits of sanitation are well documented and it is clear that the provision of sanitation in public service facilities such as schools and clinics remains a public responsibility. The rationale for government involvement in domestic sanitation is less clear. Sanitation is often regarded as a private good and the asset value of any new facility accrues to
the homeowner. However, the provision of adequate sanitation to households has a strong impact on public health and therefore is of concern to Government. While the bulk of the investment in domestic sanitation remains with the household under the NTP3, Government retains responsibility for closing the gap between demand and supply, and for promoting and regulating the use of appropriate sanitation technologies.

8. Finally, the potential for rapid growth of water supply and sanitation assets, which is created by this type of targeted investment program, places an additional responsibility on local government to develop a comprehensive province-wide approach to both the development and management of the resultant infrastructure. Provincial People’s Committees (PPCs) will play a critical role in prioritizing and sequencing investments to ensure that services are provided in a sustainable, affordable and appropriate manner and that the requisite management capacity (for oversight of water supply operations or management of environmental sanitation) is in place when required. Central government will have an important role in promoting the associated province-wide planning and supporting the development of appropriate capacity at the local level.

1.4 The PforR (The Program)

9. The Program – to be co-financed by the proposed IDA operation – will support NTP3 in eight geographically-clustered provinces. In these provinces 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 Program will therefore seek to progressively transform the NTP into a more focused and efficient system for delivering sustainable investments.

10. In order to help achieve this goal, the government will implement a program of Technical Assistance (TA) aimed at, in part, strengthening monitoring and evaluation capacity and learning lessons across NTP3 in the whole country. This TA will be financed through a client executed AusAID Trust Fund, administered by the World Bank.

11. The eight provinces were selected for the following reasons:

   a. dense population (the eight provinces are home to one-sixth of the national population);
   b. high rates of poverty and significant numbers of poor people, ensuring a poverty-reduction impact of investments;
   c. relatively strong capacity in the public sector at the local level– required to test the new results-based planning and management systems;
   d. the high presence of pollutants in groundwater, such as arsenic, which requires expansion of safe piped water through community water systems; and
   e. geographic proximity to each other in the RRD region and ability to build on the existing Bank project.
Design Principles / Value Added

12. The PforR is designed to improve the quality of NTP3 performance in these eight provinces by introducing results-based disbursements and addressing the following issues:

   a. **Balanced investments.** The Program will foster a more balanced approach of investment in water supply and sanitation. It will do so through the design of the disbursement-linked indicators mechanism, since a delay in either part of the Program (water or sanitation) would reduce the amount of funds which can be disbursed in a given period.

   b. **Efficiency.** 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. 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.

   c. **Water Supply Sustainability and Commune-Wide Sanitation.** The DLI framework contains specific incentives for the delivery of water supply services which are sustained over time. Some funds will be disbursed only when sustainability of the water supply schemes has been achieved. The Program also promotes the concept of commune-wide sanitation, seeking to achieve near universal coverage of household and institutional sanitation in a commune, which will maximize health impacts.

   d. **Governance.** Governance improvements will be supported through a specific TA to be financed by AusAID and implemented in parallel to the main Program. This TA will build capacity at the provincial and national levels for better planning, monitoring and evaluation practices, and results verification. It will also improve overall governance and management systems by strengthening community participation and information sharing, transparency and accountability mechanisms, reinforcing the technical capacity for the design and procurement of cost-efficient piped water supply systems, sustainability of water supply operations and scaling up access to sanitation.

Program Activities

13. The Program will focus on the same three areas covered under NTP3: (a) expanding water supply services; (b) expanding household and institutional sanitation; and (c) strengthening institutions, including improved planning, monitoring and evaluation.

   a. **Water Supply.** Piped community water supply systems, the majority of which will utilize surface water sources will be the principal type of systems supported by the Program. The objective is to provide sustained services, by connections to systems which are deemed to be financially sustainable (full operational cost recovery) and technically viable. For this purpose, based on the experience of the Bank-supported RRD-RWSSP, the Rural Water Supply Enterprise (RWSE) model will be promoted to operate, maintain and manage systems.

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4 Definition of sustainability of water systems is included in Annex 2
i. The government will finance 90 percent of the capital costs of water supply schemes through a combination of grant (60 percent) and concessional loan (30 percent). Beneficiaries will cover 10 percent of the investment cost in the form of a connection fee. Maintenance costs, future rehabilitation costs, and repayments of the concessional loan are to be recovered through tariffs.

ii. The Program will also support information, education and communication (IEC) activities to promote the importance of using clean piped water as a safer source to minimize health risks.

b. **Sanitation.** Under the Program both domestic and institutional sanitation will be supported. The objective is to achieve commune-wide sanitation, which will be measured in terms of full coverage of domestic sanitation and provision of sanitation in all schools, health clinics and other public buildings.

i. Increases in household access to sanitation will be achieved through supporting household investments in sanitation facilities. Households are expected to largely do this through the VBSP, which provides loans to individual households to cover up to VND 4 million (US$ 200) of capital costs and allowing them to spread the cost over five years.

ii. The provision of sanitation in schools, clinics and government offices will be financed 100 percent by the Program with operational costs to be covered by the relevant institution. The Program will also support IEC activities to close the gap between demand and supply for sanitation services and improve hygienic practices. These activities will be designed to achieve the Program target of commune-wide sanitation in the Program communes.

c. **Institutional Strengthening including Planning, Monitoring and Evaluation.** The Program will promote strategic planning of investments with a view to achieving rapid progress at scale. For this, sound monitoring and evaluation practices are also needed. Provinces are required to prepare rolling five-year provincial plans based on sound baseline information. These will be used for results forecasting and to determine annual investment requirements. The provinces will prepare an annual report including the updated annual plan and summarizing the results achieved. The Program will also require the preparation of an annual implementation progress report to be produced by MARD which will report on progress made in the Program and specifically on the Program Development Objective (PDO) and Intermediate Results Indicators in the Results Framework as well as the Program Action Plan. The reports prepared by MARD and the provinces will be disclosed.

### 1.5 The Scale of the Service Gap

14. The most recent data suggest that 75 percent of the rural population uses hygienic water but tested against more stringent water quality standards, this number falls. GoV estimates access to ‘clean’ water, defined by national potable water quality standards, to be around 35 percent. Nationally, access to rural sanitation which is hygienic and properly maintained is around 51 percent. In the Red River Delta sanitation coverage in the different provinces ranges from 35 to 94 percent (see Table 2).
Table 2: Access to Water and Sanitation in Target Provinces

<table>
<thead>
<tr>
<th>Province</th>
<th>Rural Population</th>
<th>Rural Households (HH)</th>
<th>% HH Clean with water (QC02)</th>
<th>% HH with latrines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phu Tho</td>
<td>1,111,300</td>
<td>284,949</td>
<td>15.30</td>
<td>41.60</td>
</tr>
<tr>
<td>Quang Ninh</td>
<td>556,500</td>
<td>142,692</td>
<td>25.00</td>
<td>67.00</td>
</tr>
<tr>
<td>Ha Noi</td>
<td>3,852,000</td>
<td>987,692</td>
<td>32.10</td>
<td>93.80</td>
</tr>
<tr>
<td>Hung Yen</td>
<td>992,800</td>
<td>254,564</td>
<td>47.13</td>
<td>52.00</td>
</tr>
<tr>
<td>Bac Ninh</td>
<td>787,500</td>
<td>201,923</td>
<td>33.00</td>
<td>69.00</td>
</tr>
<tr>
<td>Ha Nam</td>
<td>704,100</td>
<td>180,538</td>
<td>20.60</td>
<td>52.80</td>
</tr>
<tr>
<td>Vinh Phuc</td>
<td>776,900</td>
<td>199,205</td>
<td>45.14</td>
<td>50.40</td>
</tr>
<tr>
<td>Thanh Hoa</td>
<td>3,049,100</td>
<td>781,821</td>
<td>30.30</td>
<td>35.10</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>11,830,200</strong></td>
<td><strong>2,364,400</strong></td>
<td><strong>31.21</strong></td>
<td><strong>62.00</strong></td>
</tr>
</tbody>
</table>


15. While the scale of the service gap is large, well-targeted investments such as those proposed under the Program can go a long way to closing it (Table 3).
Table 3: Projected Impact of the Proposed Program on Access Levels in Target Provinces

<table>
<thead>
<tr>
<th>Province</th>
<th>% HH with Clean water (QC02)</th>
<th>Nr HH to gain sustained piped standardized*</th>
<th>% increase</th>
<th>Resultant coverage (%)</th>
<th>% HH with latrines</th>
<th>Latrines/toilets to be provided*</th>
<th>% increase</th>
<th>Resultant coverage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phu Tho</td>
<td>15.30</td>
<td>42,500</td>
<td>14.91</td>
<td>30.21</td>
<td>41.60</td>
<td>16,250</td>
<td>5.70</td>
<td>47.30</td>
</tr>
<tr>
<td>Quang Ninh</td>
<td>25.00</td>
<td>42,500</td>
<td>29.78</td>
<td>54.78</td>
<td>67.00</td>
<td>16,250</td>
<td>11.39</td>
<td>78.39</td>
</tr>
<tr>
<td>Ha Noi</td>
<td>32.10</td>
<td>42,500</td>
<td>4.30</td>
<td>36.40</td>
<td>93.80</td>
<td>16,250</td>
<td>1.65</td>
<td>95.45</td>
</tr>
<tr>
<td>Hung Yen</td>
<td>47.13</td>
<td>42,500</td>
<td>16.70</td>
<td>63.83</td>
<td>52.00</td>
<td>16,250</td>
<td>6.38</td>
<td>58.38</td>
</tr>
<tr>
<td>Bac Ninh</td>
<td>33.00</td>
<td>42,500</td>
<td>21.05</td>
<td>54.05</td>
<td>69.00</td>
<td>16,250</td>
<td>8.05</td>
<td>77.05</td>
</tr>
<tr>
<td>Ha Nam</td>
<td>20.60</td>
<td>42,500</td>
<td>23.54</td>
<td>44.14</td>
<td>52.80</td>
<td>16,250</td>
<td>9.00</td>
<td>61.80</td>
</tr>
<tr>
<td>Vinh Phuc</td>
<td>45.14</td>
<td>42,500</td>
<td>21.33</td>
<td>66.47</td>
<td>50.40</td>
<td>16,250</td>
<td>8.16</td>
<td>58.56</td>
</tr>
<tr>
<td>Thanh Hoa</td>
<td>30.30</td>
<td>42,500</td>
<td>5.44</td>
<td>35.74</td>
<td>35.10</td>
<td>16,250</td>
<td>2.08</td>
<td>37.18</td>
</tr>
<tr>
<td>TOTAL</td>
<td>31.21</td>
<td>340,000</td>
<td>11.21</td>
<td>42.42</td>
<td>62.00</td>
<td>130,000</td>
<td>4.29</td>
<td>66.29</td>
</tr>
</tbody>
</table>

*Number of connections and latrines per province do not necessarily need to be equally distributed

### 1.6 Financing and Program Costs

16. The budget for the NTP3 Program at the national level is VND 27,600 billion (US$1.3 billion). The main sources of funding are the central government (49 percent - directly or through the provision of concessional credit to users), provincial governments (11 percent), donors (30 percent) and users (10 percent).

17. In the eight provinces supported by the Program, the total scale of the financing is estimated to be US$260 Million (Table 4). Within this context, the GoV seeks an IDA Credit at an indicative funding level of US$200 million, or 15 percent of the overall NTP3 Program.
<table>
<thead>
<tr>
<th>Source</th>
<th>National Program</th>
<th>PforR in 8 Provinces</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Amount</td>
<td>%</td>
</tr>
<tr>
<td>Central Government</td>
<td>195</td>
<td>15</td>
</tr>
<tr>
<td>Concessional Credit</td>
<td>452</td>
<td>34</td>
</tr>
<tr>
<td>Provinces</td>
<td>148</td>
<td>11</td>
</tr>
<tr>
<td>Donors</td>
<td>390</td>
<td>30</td>
</tr>
<tr>
<td>o/w IBRD/IDA</td>
<td>[200]</td>
<td>[15]</td>
</tr>
<tr>
<td>Users</td>
<td>128</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total Program</strong></td>
<td><strong>1,313</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

2 Program Technical Soundness

2.1 Track Record

18. The GoV has considerable experience in the delivery of targeted national investment programs. In the rural water supply and sanitation sector, the NTP model has been the driver for considerable progress over the past ten years. NTP2 (2006 – 2010) supported the extension of safe water to an estimated 5.4 million rural people with an estimated total expenditure of VND 20,000 billion (US$1 billion). A complementary World Bank-supported project (RRD-RWSSP) has also been very positive. Covering the four provinces of Thai Binh, Nam Dinh, Ninh Binh and Hai Duong, the Project will serve an estimated 830,000 people by completion in 2013. This project has demonstrated the efficiency of choosing the most competitive available procurement options and successfully established enterprise management models for improved and more sustainable service through cost recovery from users. The project has also demonstrated the successful model of scaling up sanitation using on lending mechanisms.

2.2 Technical Aspects of Water Supply

19. The proposed Program will finance piped community water supply systems, the majority of which will utilize surface water sources. The objective is to provide sustained services and this will be measured in terms of connections to systems which are deemed to be financially sustainable (including full operational cost recovery) and technically viable.

20. The water supply component is typically the highest cost element of rural water supply and sanitation programs. Most shallow groundwater sources in the Red River Delta are not considered appropriate for development due to contamination with arsenic as well as nitrates, pesticides, and pathogens which also affect some surface water sources. The Program will put much emphasis on the design process, to ensure adequate source analysis and investigative efforts to avoid using raw water sources with arsenic concentrations above the potable water standard of 10 µg/l (microgram per liter). Surface water is likely to be the viable option in most cases, but in some cases drilling into deeper arsenic-free aquifer formations may be justified. For cost-efficiency, systems using surface water sources or deep groundwater must include large piped networks, usually covering several communes. (See paragraphs 48 to 51 for further details on arsenic issues).
21. Experience from NTP2 and the ongoing World Bank-supported Red River Delta rural water supply project have resulted in the identification of several management models for piped water supply schemes involving delegated management. Provinces are able to select their preferred management options but appropriate cost-recovery tariffs are deemed essential to ensure adequate cash flow to support operational costs irrespective of the management arrangements.

22. Table 5 summarizes the current status of water supply coverage and programs in the eight target provinces of the Program.

**Table 5: Population, NTP budget and PCERWASS Staff in Focus Provinces in FY 2011**

<table>
<thead>
<tr>
<th>Province</th>
<th>2010 Rural Population</th>
<th>Current Budget for RWS (US$)</th>
<th>Current “clean water” coverage (%)</th>
<th>Number of PCERWASS staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thanh Hoa</td>
<td>3,050,000</td>
<td>2,105,300</td>
<td>30.3</td>
<td>45</td>
</tr>
<tr>
<td>Ha Nan</td>
<td>709,000</td>
<td>9,947,400</td>
<td>20.6</td>
<td>25</td>
</tr>
<tr>
<td>Hung Yen</td>
<td>993,000</td>
<td>947,400</td>
<td>47.1</td>
<td>15</td>
</tr>
<tr>
<td>Ha Noi</td>
<td>3,813,000</td>
<td>31,578,900</td>
<td>32.1</td>
<td>28</td>
</tr>
<tr>
<td>Vinh Phuc</td>
<td>778,000</td>
<td>7,894,700</td>
<td>45.1</td>
<td>33</td>
</tr>
<tr>
<td>Phu Tho</td>
<td>1,107,000</td>
<td>6,736,800</td>
<td>15.3</td>
<td>33</td>
</tr>
<tr>
<td>Bac Ninh</td>
<td>784,000</td>
<td>15,789,500</td>
<td>33.0</td>
<td>32</td>
</tr>
<tr>
<td>Quang Ninh</td>
<td>570,000</td>
<td>8,421,100</td>
<td>25.0</td>
<td>9</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>11,804,000</strong></td>
<td><strong>83,421,100</strong></td>
<td><strong>31.2</strong></td>
<td><strong>220</strong></td>
</tr>
</tbody>
</table>

**Assessment**

23. There are a number of issues relating to the water supply component which would need to be addressed. These are discussed below.

24. **Investment preparation and contract bundling.** The approaches to investment preparation under the NTP are laid out in Decree 85/2009/ND-CP. These are reportedly very time-consuming and result in higher costs than would otherwise be the case, particularly for small rural water supply and sanitation works such as those funded under the Program.

25. In the past, small-scale works have tended to be grouped together into one contract to increase the financial incentive for bidders in the contract process. This may have negative impacts on the quality of the construction and the implementation timeframe as well as increasing the size of contributions required from users. A more flexible set of procedures, appropriate to the decentralized management models called for by the NTP, is needed.

26. Interestingly, cases are also reported where large contracts have been broken up into smaller packages to avoid more stringent procurement requirements.

27. In some cases the quality of the project investment reports, surveys and designs was less than optimal. Preparation work was sometimes of poor quality which impacted negatively on subsequent implementation.
28. In many cases the roles and functions of the units managing and operating water supply schemes were not well defined at the start of investment. Very few localities followed the regulation that investors should be in charge of operation and management of the constructed schemes. There have been some exceptional successes where enterprises or PCERWASS were designated to be investors and contractors as well as being responsible for the operation and management of piped water schemes.

29. The small scale of most investments in NTP appears to have resulted in a lack of competent contractors bidding for construction contracts. This may also have affected the quality of the works.

30. Finally, preparation for investment was generally slow. Often, project documents and technical designs were prepared only after budgets were allocated. In most cases construction work started very late, normally just before end of the year. This consequently caused delays in disbursements and slowed down completion.

31. Technical designs. For the eight priority provinces in the Red River Delta, MARD has prepared a Feasibility Study Report (FSR) where a series of priority schemes which they plan to finance in the first period of the new program have been identified. Of the proposed 240 project communes, 71 communes in the eight provinces have been selected as the priority investments, serving an estimated 541,000 beneficiaries in this first round of investments through 51 water supply schemes. The largest of the proposed schemes will serve 46,800 people while the smallest of the 51 schemes will serve 3,090 people. The FSR for these first 51 schemes have been prepared to a satisfactory level.

32. Of the first 51 schemes, it is proposed that 35 will utilize surface water as the proposed source while 16 will utilize groundwater as the source (Table 6). Given the fact that the groundwater in the Red River Delta has potentially high arsenic concentrations, considerable care must be taken when selecting the final water source and the possible treatment regimes required to remove elements such as iron, fluoride, nitrates, ammonium compounds, arsenic, etc. Review of the FSRs indicates that insufficient attention has been given to the critical issue of the risks of developing groundwater under the investments which have high concentrations of arsenic in the raw waters. Detailed designs of piped water systems should pay particular attention to the analysis of the water source.

| Table 6: Summary of Priority Water Supply Schemes (number of schemes) |
|---------------------------------|-----------------|-----------------|
| Source                          | Population <10,000 | Population >10,000 | Total |
| Surface Water                   | 18               | 17              | 35    |
| Groundwater                     | 14               | 2               | 16    |
| **Total**                       | **32**           | **19**          | **51** |

33. Another question relates to the cost-efficiency of the proposed preliminary designs. A review of the FSRs suggests a number of areas where cost savings could be achieved without compromising service quality. These include: reducing the residual head in piped schemes (the norms applied to these schemes are the same as those used in large urban systems and may be excessive); reducing the peaking factors for the smaller rural water supplies; reduction of water consumption estimates; and more conservative estimates of future population growth.
34. Under the NTP procedures, detailed engineering designs must also be carried out for all water supply systems before contracts can be tendered. Of concern is the issue of the fees paid to attract good professional consultant engineering services. These fees are dictated by the Ministry of Construction’s “cost norms”. The cost norms are generally on the low side (as percentages of the construction cost) of internationally and regionally accepted fees. The impacts of low fees for the detailed designs are clear: poor quality designs and inefficient use of financing at the very least.

35. In order to better support the Program, implementation agencies, and the consultants engaged in technical designs during program implementation, technical assistance will be provided under grant financing (see Section 4.2). This TA would help to build capacity within the planning and implementing units to address the areas listed above so that improvements in cost efficiency and the technical soundness of the detailed designs can be better ensured.

2.3 Sanitation

36. Access to household sanitation and the provision of sanitation in public places and institutions are an essential element to achieve health benefits associated with water and sanitation and the corresponding economic gains. According to MARD under NTP3 the term ‘environmental sanitation’ is used to describe several interventions with the following objectives (NTP Standing Office, Ministry of Agriculture and Rural Development, 2012):

- 65 percent of rural households have hygienic latrines;
- 45 percent of husbandry household have hygienic livestock pens; and
- almost all pre-schools, schools and health clinics have water and sanitation facilities which are properly managed.\(^5\)

37. Institutional responsibilities for sanitation in NTP3 are divided as follows:

- sanitation facilities in pre-schools and schools and the development of hygienic livestock pens falls under Component 1: Rural Domestic Water Supply and Rural Environment, which is managed by MARD;
- construction of hygienic household latrines and construction of sanitation facilities for clinics falls under Component 2: Rural Sanitation, which is managed by MoH; and
- behavior change interventions, clustered under the heading of IEC falls under Component 3: Capacity Building, IEC, Supervision and Monitoring, which is the managed by MARD.

38. The UK’s Department for International Development (DFID) is providing support to MoH for implementation of sanitation under NTP3. Other key development partners include AusAID, the Danish International Development Agency (DANIDA), UNICEF and the Water and Sanitation Program (WSP). WSP is supporting interventions to promote hand washing with soap. During 2011 and 2012 MoH has been developing a Rural Sanitation and Hygiene Implementation Plan which will lay out the strategies, human resources and financial requirements to scale up sanitation and hygiene activities. This plan is currently in draft form.

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\(^5\) The provision of sanitation in markets is also sometimes listed in the interventions of NTP3.
Assessment

39. Despite well-documented implementation issues, overall NTP has made significant progress in developing the policy framework for the RWSS sector and in increasing the access of rural populations to clean water. However, efforts to increase the coverage of hygienic sanitation have been less successful and fallen short of acceptable levels. Further, the Gender and Pro-Poor Targeting Report in RWSS-NTP draft report (August 2011) highlights shortcomings in poverty targeting and gender awareness issues affecting implementation of the RWSS-NTP2 (Donors’ review of NTP in 2002).

40. In a Joint Annual Review of the NTP, donors report inadequate attention paid to household sanitation and IEC and the often passive involvement of DoH and DOET in planning, budget allocation and implementation. DoH and DOET at provincial levels have not always actively participated in the planning and budgeting process and consequently have not been allocated adequate recurrent funding to carry out their required tasks. There have also been some concerns in relation to the financial management capacity of DoH, DOET and district authorities. Allocation of recurrent budget has not improved since 2009 and remained unsatisfactory in 2011. Of particular concern is the inadequate allocation of recurrent funding at the provincial level to DoH and DOET for sanitation IEC. In the case of DoH, three of the eight targeted provinces did not allocate any budget to the department for sanitation IEC in 2011, while the remaining five provinces allocated between 200 and 600 million VND (US$10,000 to 30,000).

41. The limited involvement of provincial DoH and DOET in NTP2 means that DoH and DOET staff will need to take on new roles with increased recurrent funding allocation for involvement in sanitation IEC in NTP3. At the same time, global best practice in sanitation and hygiene behavior change suggests an increasingly sophisticated approach is needed, making use of multiple communication channels and media. These approaches call for greater partnership working and more complex arrangements for delivery.

2.4 Sustainability of Services Delivery

Environmental Management of Sanitation

42. Interventions which increase the coverage of hygienic latrines always have some positive health impacts since they protect households from exposure to infected fecal matter in the immediate domestic environment. However, the overall impact on community health will be limited unless coverage rates are substantial (so that the pathogen load in the environment is substantially reduced), and waste is properly managed so that pathogens are permanently removed from the environment. For this reason two long-term dimensions of domestic sanitation provision are critical: first that long-term management requirements are progressively addressed as coverage rises; and secondly that coverage (rates of using hygienic latrines) reaches the level required to have significant health benefits in any given community.

43. Long-term management of domestic waste. While Vietnam is making rapid progress in domestic sanitation coverage in rural areas, little has so far been done to improve the long-term management of fecal septage and to protect the health of downstream populations. Because of the popularity of composting toilets and re-use of fecal matter in agriculture, management strategies are required to deal with both safe reuse and safe disposal of fecal wastes.
44. **Commune-wide sanitation.** Health benefits from sanitation depend on the prevention of direct contamination of people from fecal matter. This means that even where sanitation coverage is relatively high, health benefits may be limited if a small number of people continue to defecate in the open or if school children or users of public facilities such as markets or clinics are forced to do so. For this reason, GoV has included investments in provision of institutional sanitation such as at schools and clinics along with household sanitation. However, there is currently limited or no incentive to coordinate these investments with sanitation promotional activities (through IEC and the outreach activities of the VBSP) to achieve commune-wide sanitation impacts. This could significantly limit the extent to which health gains can be sustained at scale.

**Water Supply – Operation and Maintenance Issues**

45. Over the course of NTP2, awareness of O&M issues and the need to ensure sustainability of investments has been improving, at both central and provincial level. But in 2010 performance has been rated only as partially satisfactory (Targeted Program Budget Support donors, NTP appraisal, 2011). Data on operation and maintenance have been collected via a functionality survey conducted during 2010 as well as 2010 M&E results.

46. Detailed guidance on O&M of piped water schemes including management models has been distributed to all provinces. However, local agencies at the commune and district levels still lack capacity and have difficulties in identifying and applying appropriate models that are sustainable. In mountainous provinces, piped water schemes are built and transferred to communities in the absence of a regulatory framework stipulating ownership of the assets, responsibility for O&M, training and other guidance. A water tariff policy has been issued but has not been effectively enforced. The Ministry of Finance (MoF) is now undertaking a review of the enforcement of the water tariff circular and may consider revising the guidance to enable better implementation. In most schemes sufficient revenue is recovered to meet operational costs but there is no provision for depreciation or for the periodic replacement of major facilities.

47. Equitable access was considered a priority in RWSS programs but mechanisms to ensure this access were lacking. The present delivery approach has often resulted in marginalized groups such as the poor and Ethnic Minorities becoming passive. (SNV\(^6\), 2010)

**Water Resources Issues Including Arsenic**

48. Arsenic in groundwater is an increasingly-recognized challenge in Vietnam particularly in the deltas of the Mekong and Red Rivers. The World Health Organization (WHO) recommended limits for safe consumption of water is 10 micrograms arsenic per liter (µg/l); Vietnam has adopted this same limit.

49. Approximately 30 percent of the proposed first set of 51 water supply systems will draw upon groundwater as their raw water source under the existing preliminary designs. Four of the eight Program provinces have recorded arsenic levels which are above 50 µg/l whereas the recommended limit is 10 µg/l. Another three of the project provinces have arsenic levels which have been measured at between 10 µg/l and 50 µg/l. The final province, Quang Ninh, is the only of the eight provinces which has measured arsenic concentrations below 10 µg/l on average, but the individual proposed supplies need to take the arsenic level into account when selecting the water source.

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\(^6\) Dutch Volunteers Foundation
50. There is, therefore, a high probability that high concentrations of arsenic will be found in some sources in the area of the program. Until now, the design process has included inadequate investigative efforts which would be needed to establish the relative cost benefit of proposed and alternative sources when the costs of arsenic treatment processes are taken into account. Where surface water is not a viable option (without costly desalination) and there is reason to consider shallow groundwater a risk, drilling into deeper aquifer formations can be justified in order to obtain an arsenic-free source. In the Mekong Delta region, some of the provinces have borehole sources which are as deep as 350 meters, yielding an excellent quality of water supply. In these cases the pumps are typically set at less than 100 meters in depth as the pressure of the deep aquifer naturally raises the water level closer to the surface.

51. The alternative approach of providing appropriate treatment to remove arsenic in waters drawn from the shallower aquifers is not recommended as this would require specialized engineering and hydro-chemical expertise to identify and design the appropriate process.

3 Institutional Arrangements

3.1 Summary of the Program Implementation Arrangements

52. The proposed Program will be implemented at the provincial level. The central level is responsible for steering, developing and issuing guidelines and regulations, inspecting, supervising and evaluating, training for human resource development, developing IEC materials and promoting communication campaigns through mass media and disseminating lessons learnt. Provinces are responsible to deliver the Program; provincial administrations will have the central role in planning, coordination, procurement, implementation, management, monitoring and reporting on Program results.

53. Central level. At the central level, MARD is the lead agency. MARD, through the National Center for Rural Water Supply and Sanitation (NCERWASS), supervises overall Program implementation and is also responsible for leading coordination with other agencies. MARD will support the provinces to plan, deliver and monitor the Program and will prepare the consolidated Results reports and requests for disbursement.

54. Other agencies involved at the central level include:

   a. MoH – that will coordinate the sanitation investments for which it is directly responsible and will disseminate information to support sanitation and hygiene promotion as well as leading the organization of IEC activities. MoH also has the mandate for defining and checking drinking water and domestic water use quality standards;

   b. MoET -- that monitors the implementation of school sanitation and leads elements of IEC delivered through schools;

   c. MoNRE -- that will monitor and evaluating the environmental aspects of Program implementation; and

   d. Ministry of Planning and Investment (MPI) who will be responsible for final budget allocations to Program components.
55. The VBSP lends to households for constructing sanitation facilities. Mass organizations such as the Women’s Union and Farmer’s Union are paid by VBSP to assist them in mobilizing local interest in and understanding of the financing for sanitation and for identifying appropriate recipients for the loans to households.

56. **Provincial level.** The primary responsibility for Program delivery rests at the provincial level. Coordination between the various actors at this level is particularly important. An NTP provincial Program Steering Committee (PSC) is established in each participating province headed by a leader of the PPC. Membership is drawn from all the provincial departments and organizations involved in the Program. Typically, a Standing Office hosted by the DARD is created at the provincial level to assist the PSCs.

57. The chairman of the PPC provides overall oversight on resources management, the establishment of any institutional structures required to deliver the Program, annual Program planning, effective results monitoring and reporting and coordination with other NTPs and other sectoral investment programs. Given the proposed Program’s focus on systematic province-wide planning, the engagement of the Chairman of the PPC will be an important driver for success.

*Independent Verification Agent (IVA)*

58. The IVA role is to provide independent confirmation of the results reported by the provinces through MARD. State Audit of Vietnam (SAV) was selected to verify Program results using protocols agreed with the Bank. This choice is based on SAV’s role as a constitutional body with both the independence and the mandate to conduct NTP audits. They will contract national or international expertise as needed to assist with and undertake the verification work in accordance with the agreed methodology.

**Capacity Assessment**

59. Poor coordination among the NTP agencies was found to be a common problem across the provinces. In some of them, the Steering Committee does not exist or is just a formality without real coordination functions. As a consequence, responsibilities and roles among the implementing entities are not always clear.

60. Cooperation among the three main implementing agencies (MARD, MoH and MOET) has been traditionally weak. Again, the problem is particularly evident at the provincial level, where DoH and DOET considered the responsibility for program implementation to be that of the designated lead agency, i.e., DARD. Consequently, the involvement of DoH and DOET is limited during the whole process from the program developing exercise to planning, implementing and M&E. The division of functions and responsibilities between the sub-Department of Water Resources and the PCERWASSs is not always well defined and remained overlapping. At the central level, MoH had no funds allocated for designating full-time staff in charge of supervising the program implementation for the fulfillment of the program’s targets for sanitation, even though these targets were ambitious and difficult to achieve. The participation of health workers in the program at the provincial, district, and commune and village levels remained limited.

61. Provincial PCERWASSs, in charge of project implementation, have a variable number of staff. In some provinces, as in Phu Tho, there is no PCERWASS department *per se*, and staff in charge of NTP projects is not exclusively dedicated to implementation of the NTP program, but
are also responsible for irrigation and water resources management projects. Although the PCERWASS usually has units for Administration and Planning (includes accounting and M&E functions), Technical, and Construction Management, weak capacity has been reported mainly in M&E, sanitation promotion and behavior change (now under the responsibility of DoH), supervision of designs and construction, and fiduciary issues.

62. In general, the capacity of the implementation units to prepare technical specifications for bidding documents, to conduct technical assessments or to supervise works is low at the provincial level. This is due to a combination of factors with more or less relevance depending on the province, but mainly due to low technical skills and insufficient staff.

63. The RWSS planning process in many provinces was not updated fully and in a timely manner. The quality and management of planning remained to a large extent as constraints, were impractical, or did not fully meet the program requirements. The planning exercise, the aggregation of plans and the implementation of the planning procedures were driven by a top-down approach; there was no full participation of local people, who had a dual role, as implementers and beneficiaries of the program.

64. Part C, section 11 explains the M&E process as well as the challenges found in performing monitoring and evaluation-related activities. These can be summarized in low capacity at the local level to collect and process M&E data which is one of the causes for the lack of accurate data available to evaluate results and a subsequent disconnection between the planning and M&E processes. This is particularly evident for sanitation, where there is a considerable uncertainty in the progress made in the last years, not only in the extent of access increase but also in assessing the sustainability of the interventions.

65. Field visits conducted during the preparation of this assessment suggest that commitment to sanitation at the provincial PCERWASS is often limited and few provinces have a vision or strategy for coordinated investment in sanitation. The capacity for sanitation promotion appears to be particularly weak at lower administrative levels where health and mass organization staff are in need of training and support to strengthen sanitation-related knowledge and communication skills (Jensen, Nguyen, & Tran, 2011). Staff is also in need of tools to support their work. Although MoH has a mandate for sanitation and hygiene promotion there is little evidence that this translates to capacity or budget at the provincial DoH as yet. Some PCERWASSs and some DoH staff have carried out IEC activities but these are generally limited in scope and ineffective, using outmoded approaches and not drawing on the range of recent experiences with sanitation marketing and related methods. At the ministerial level, familiarity with sanitation promotion approaches is greater, but tends to be of a theoretical rather than practical nature.

66. By contrast, the health sector and the Women’s Union have the potential to take on the task of developing and implementing sanitation promotion activities with support. The VBSP loan program appears to be a major driver of increased access to domestic sanitation, with, on a general basis, demand far outstripping the supply of credit.

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7 A multitude of RWSS communication tools have been developed at national level, but few of these can be found at village level.
3.2 Internal Financial Controls

67. Official documents to guide the internal control of the NTP are issued by all levels, from Prime Minister, ministers of MARD, MPI and MoF, to the head of the investment owners/spending units, covering various areas of operation. The ultimate responsibility of ensuring the NTP funds are used for the intended purposes rest with investment owners/spending units, and primarily the PCERWASSs.

68. Expenditure verification is carried out by the provincial State Treasury on each payment from NTP funds. The State Treasury’s payment control is mainly documentation-based and the effectiveness of post review procedures is limited by the lack of regular audit and inspections.

69. Currently, the reconciliation between the State Treasury and spending units is performed in line with the Administrative Units’ accounting regime and the requirements of the State Budget accounting regime and State Treasury operations. At most State Treasuries, the reconciliation is performed adequately as required by the regulation, however in some provinces, the State Treasuries have not yet performed it adequately, and this can prevent timely identification and correction of accounting errors and can impact adversely on the quality of budget and expenditure reports.

70. Internal controls exist in PCERWASS, covering such critical areas as segregation of duties, work acceptance and payments, asset count, cash reconciliation and advance management. There is however no financial management manual issued for the investment owners/spending units as guidance for them to manage the funds. The conflict of interest issue is also not addressed anywhere in the NTP regulations/ internal control.

71. The State Budget Law stipulates that the MoF Inspectorate is to conduct compliance audits of budget spending and revenue units in terms of budget and public asset management. However, at present, inspection and audits are carried out by various agencies resulting in overlaps in audits.

72. Inspections are essentially input and compliance orientated with limited attention to identification of systemic improvements. Inspectorates do not produce statements or reports on the overall assessment of internal control systems, and the effectiveness of the inspection work seems limited. Inspectorates report that their functions are hampered by the lack of staff and resources together with lack of expertise in sound auditing practices. Moreover, due to the small number of staff (inspectors), the number of units that are inspected is low. The proportion of inspected units in Ha Nam is 5-7 percent annually and in the four years 2003-2006, the Financial Inspectorate conducted only 28 missions.

3.3 Borrower Commitment

73. The NTP for rural water and sanitation is a priority program in the Government Development Agenda, as it intends to make a considerable step towards fulfilling the 2020-RWSS strategy and achieving Millennium Development Goal seven (MDG7). MARD has played a strong role in coordinating the program showing leadership and commitment to sector sustainability, establishing clearly defined sector targets and monitoring indicators. This role has been evident during the preparation of Phase 3, where there has been extensive consultation with all sector partners. These have involved central government ministries and agencies, non-governmental organizations (NGOs), mass organizations and donors. MARD has incorporated
suggestions for improvement from budget support donors, based on previous NTP2 assessments and recommendations during NTP3 appraisal.

74. According to the NTP appraisal document prepared by the Targeted Program Budget Support (TPBS) donors, a strong commitment from beneficiaries is expected as the incentive environment exists for payments of tariffs. Field visits conducted during this assessment confirmed the high demand for sanitation in the target provinces, being lower in marginal and poor areas.

4 **Institutional Strengthening under PforR Operations**

75. Use of the results-based program instrument is relatively new for Vietnam. It places a strong emphasis on good planning and requires rigorous monitoring and evaluation. The use of the instrument is made possible in large part because of the excellent work done by GoV and donor partners, particularly AusAID, DANIDA and DFID, during NTP and NTP2, to strengthen budgeting and financial management under the NTP. However, further work could be done to strengthen the technical capacity of the key institutional partners in several areas including the design and procurement of cost-efficient piped water supply systems, improved planning and technical M&E, water supply operations and sanitation. There is also potential to achieve continuous improvements in procurement and financial management practices, particularly at the provincial level. Institutional strengthening activities will be carried out through an AusAID-financed Technical Assistance program to help achieving program results. Activities contained in this package include:

a. Component 1: Planning, Monitoring and Evaluation;

b. Component 2: Water Supply Systems;

c. Component 3: Increased Capacity to Promote and Provide Sustainable Sanitation Services;

d. Component 4: Improved Governance;

e. Component 5: Verification of Program Results; and

PART B: Program Expenditure Framework

5 Introduction

76. The Expenditure Framework focuses “on those government budget and expenditure management issues that may put at risk the capacity of the program to reach its expected results.” It includes an assessment of the level, efficiency, transparency, and effectiveness of the expenditures included in the Program. To do so, it draws extensively on experience with the preceding NTPs, particularly NTP2, in clarifying both policy and practice in program implementation. It benefits from information gained through the intensive engagement of other donors in NTP2 and NTP3 budget and expenditure management, including their support for audit and M&E.

77. The analysis concludes that the government has put in place budget and expenditure management systems and practices that, with some well-recognized difficulties, support the NTP in reaching its expected results. The Program in the eight provinces of the Red River Delta area shares most of the characteristics of the national program, but in particular areas, including that of the level of expenditures, their transparency and effectiveness, the results-based approach under the Program mitigates difficulties that have been identified in the NTP.

78. Two sources of systemic problems within NTP stand out, both of which are addressed by the structure of the proposed Program. The first is a budget cycle (common to all of Vietnam’s government budgeting) with timing inconsistencies that result in very late budget decisions disruptive to investment programs. The second, particular to the NTP itself, is that the five-year plans and annual plans are made against notional resource availability, an important part of which is outside of central government control and almost all of which is outside provincial government control. In NTP2, actual resources fell about 10 percent below initial projections and even those were concentrated in the last three years of the program. This provided a highly uncertain funding environment for groups implementing that phase of NTP. With the IDA Credit and structure of the program comes greater funding certainty and the ability to plan medium term expenditures with more confidence.

79. The analysis validates central government concerns about the sustainability of sanitation investments, concerns linked to underinvestment in the IEC component of NTP. During appraisal, IDA has reviewed IEC program design and funding for appropriateness in addressing known NTP weaknesses. Finally, long-run sustainability of key investments in water supply and sanitation in schools, commune health centers, and other public institutions depends on adequate budgeting through the education and health systems. Although a longer-term concern not easily addressed through NTP3, the appraisal engaged government on this issue.

6 Budgeting

80. The budget process is fully described and evaluated in the Integrated Fiduciary Assessment (IFA). The strengths and weaknesses of the system as identified in the IFA are summarized below (Table 7). That discussion will not be repeated here, but the strengths and weaknesses reported there are shown in the table below:
### Table 7: Key Strengths and Weaknesses of the Budget Process

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vietnam’s PFM legal framework provides a good foundation for government budgeting at both central and local level.</td>
<td>Weak link between provinces and sector plans and strategies and the budget. Typically, unrealistic plans by provinces.</td>
</tr>
<tr>
<td>There is a well defined budget preparation calendar and regulated budget development process.</td>
<td>Province budget approval is delayed due to lack of funds and the budget revision process.</td>
</tr>
<tr>
<td>At the provincial level, PCERWASS, as assigned by PPC, prepares a 5-year financial plan for the NTP program conducted in the province, as part of the provincial overall 5-year plan.</td>
<td>The NTP 5-year plan lacks details (e.g., no breakdown by province, sub-project, activities or spending unit).</td>
</tr>
<tr>
<td>The budget classification system is broadly in line with the 1986 GFS Manual (cash system).</td>
<td>The budget classification system is being used for accounting and reporting, but not fully for budgeting, leading to inconsistencies.</td>
</tr>
<tr>
<td>The overall budget presented in NTP3 has included all sources of funds (central, local, donors, community and private sector).</td>
<td>Limited consultation process with provinces during the process of budget allocation by the central level. The formulation and management of recurrent and capital budgets in not integrated.</td>
</tr>
</tbody>
</table>

### 7 Program Financial Sustainability and Funding Predictability

The overall financial sustainability and funding predictability of NTP depend on the willingness of the central government to follow through on its budget commitments and its mobilization of VBSP concessional loan resources and donor resources, together with the ability of provincial and lower-tier governments to contribute their share and to effectively mobilize household participation. The overall experience in NTP2 is captured in Table 8.

### Table 8: Actual Expenditure of NTP Phase 2 (VND Billion)

<table>
<thead>
<tr>
<th>Funding sources</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>Total</th>
<th>Original estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Central budget</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investment capital</td>
<td>330</td>
<td>400</td>
<td>400</td>
<td>550</td>
<td>620</td>
<td>2,300</td>
<td></td>
</tr>
<tr>
<td>Recurrent capital</td>
<td>23</td>
<td>30</td>
<td>33</td>
<td>37</td>
<td>41</td>
<td>164</td>
<td></td>
</tr>
<tr>
<td>Integrated budget</td>
<td>300</td>
<td>350</td>
<td>716</td>
<td>911</td>
<td>500</td>
<td>2,777</td>
<td>2,300</td>
</tr>
<tr>
<td>External aid</td>
<td>270</td>
<td>250</td>
<td>664</td>
<td>1,048</td>
<td>1,334</td>
<td>3,566</td>
<td>3,400</td>
</tr>
<tr>
<td>Users’ contribution</td>
<td>450</td>
<td>554</td>
<td>747</td>
<td>485</td>
<td>780</td>
<td>3,016</td>
<td>8,100</td>
</tr>
<tr>
<td>Preferential credit</td>
<td>518</td>
<td>1,083</td>
<td>2,138</td>
<td>2,738</td>
<td>2,400</td>
<td>8,877</td>
<td>5,600</td>
</tr>
</tbody>
</table>
82. Inspection of the table reveals an overall ten percent shortfall in financing. It shows the back-loading of the program, with 78 percent of the resources available in the last three years of the five-year program. Across budget categories, the central government directly mobilizes its own budget and the preferential credit lines. In total, those exceeded the five-year target, but did so by shifting a greater proportion of the funding to loans from grants. The program was notably over-optimistic when estimating user contributions. However, the preferential credit becomes a financial obligation of the users and from that perspective, users contributed more than half of the total expenditures.

83. The Government has adjusted funding expectations for NTP3 nationally in response to the NTP2 experience. Upfront user contributions have been cut, but the preferential credit increased.

84. The NTP3 budget contains two elements amenable to government influence, but less under their control than other sources: donor funds and private investment. The donor funds category anticipates a more than doubling of the NTP2 donor contributions. A US$93 million grant has been agreed with Australia, Denmark, and the UK. That, together with the anticipated US$200 million IDA Credit, would provide approximately VND 6,000 billion, or over two-thirds of the hoped-for total. The private investment will eventuate only with success of the socialization policy and, unlike the donor funds, does not have immediate indications of success.

85. Within the scope of NTP3 execution in the RRD provinces, the IDA Credit will finance an estimated US$200 million of the US$260 million expected NTP expenditures in those provinces. The remaining resources are those generated at the provincial, local, and household levels. Meeting the NTP funding goal will require that VBSP loan funds be made available for sanitation investments and that households contribute at the expected level. The initial investment design work validated household willingness to pay in the first 17 of the communes targeted for water supply investments and those and other investments will commence only once sufficient numbers of households have formally agreed to make their contributions. Existing subsidy programs for poor households allow their participation by financing their connection to the water system or latrine construction. That program is run through the VBSP. A donor review found that “The VBSP program is very successful. The total loan amount in 2009 was more than four times higher than that of 2008. In 2009 it reportedly accounted for 51 percent of total expenditure on NTP2. In spite of this, demand for loans continues to be well in excess of the funds available. The mass organizations, such as the Women’s Union who facilitates the program at the grassroots level, are very effective.”

86. This assessment evaluated the planned expenditures against the requirements to achieve the Program outputs and outcomes. It finds those expenditures to be adequate to meet investment needs.

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8 Actual NTP expenditures will be higher, since the government NTP budgeting does not consider the NTP-related administrative and implementation expenditures budgeted outside of NTP.
9 See Circular 80-48. This statement holds only if the households are deemed able to repay the loan. For other, even poorer, households, connection depends on commune-level social assistance. The RRD RWSS experience showed that social assistance to be effective, but some risk remains that the poorest will not be able to connect.
10 Joint Annual Review 2010
87. The Program’s financial sustainability within the eight provinces through the NTP3 period and beyond has two elements, those of investment funding and operations funding. The investment funding sustainability is assured through the Program funding structure, which provides for advances from the IDA Credit to support investments, with recapture as outputs are achieved. This does introduce implementation risk into the funding predictability and financial sustainability, but that risk is minimized through the planning process and successful experience of the provinces under NTP2 (as described in other parts of this Technical Assessment).

88. Sustainable operating funding has two dimensions – that of sufficient resources being available for operations and of good management of those resources. Reacting to the first challenge, Government has implemented a series of tariff measures that provide the legal and regulatory basis for adequate revenue generation. But regulatory outcomes still depend on appropriate decisions at the provincial level. On the management side, the economic analysis demonstrates the experience under NTP1 and NTP2. The incidence of complete failure is low across all management types, but “poor” operational performance (which embodies more than financial sustainability) was found in about 10 percent of the cases for most of the management forms. The best overall experience was in the enterprise management form. Although the examples are few, and most are in the NTP2 period, so they have had less severe tests of their sustainability, Government has assessed this model as being important to replicate. It has, therefore, provided the legal basis for, and is advocating, enterprise management. The enterprise management model could be under either public or private management, but Government perceives greater incentives to good management under the private model and has chosen to emphasize that by providing the legal basis for and advocating a “socialization” model of management.

89. The enterprise model is best suited to more densely settled areas, as shown in analysis done of management models and reported in the economic analysis. The investments proposed in the eight provinces are concentrated in such densely settled areas (which characterizes both the Mekong and Red River Deltas). Furthermore, the provinces have undertaken to support, in their regulatory role, the tariffs needed for sustainable operations.

90. Another operational sustainability element identified in reviews of NTP2 experience has been the importance of involving beneficiary communities in the selection of the service level and design. That involvement must include a clear understanding of the likely costs of service. The preparatory work for NTP3 in the Program area has made that a central condition of commune selection, as documented in the Feasibility Studies. The Program technical assistance has a component designed to continue this focus on community engagement.

91. The above discussion applies to the water supply challenge. Sanitation is no less important, but here financial sustainability has proven less of an issue than has appropriate use. Where the investments are at the household level, households choose the latrine type in which

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11 State Audit Office, p. 40, referring to financial sustainability states “In the 18 provinces subject to the audit, as of 31/12/2010, the number of piped water supply schemes operating unsustainably was 671, representing 28.75% (671/2,334 schemes) of the total piped water supply schemes.” In p. 35 of that report they state: “piped water supply schemes were under good management, and the operators were equipped with good training which enable them to be good in operating, maintaining the schemes and collecting water usage charges; having good attention on allocating budget for recurrent expenditures to promote sanitation and communications;”
they invest. They bear the entire cost of that investment, although in many cases they enjoy investment financing support through the VBSP at mildly concessionary terms. Once the investment is made, the entire maintenance obligation is with the household. The maintenance demands are not substantial and the needed basic skills fall within those already possessed by most households. However, knowledge of and motivation to implement the needed good practices are lacking in some areas. The government program document for NTP3 states that in NTP2 “it was estimated that 1/3 of HH hygienic latrines were improperly used or maintained, i.e. not in accordance with Decision No. 08/2005/QĐ-BYT.”

92. Where the sanitation investments benefit government institutions such as schools and health clinics, those institutions become responsible for the subsequent management and financing of the facilities. Under NTP2, the central government evaluation has not been sanguine: “The management and use of latrines at schools, health clinics and markets, faced a number of difficulties. There were a number of newly constructed latrines locked and unused. Typically, there was no budget for repair of damaged facilities. School children’s awareness and behavior in using latrines remained low. Many schools had no budget for daily cleaning services.”12 The Credit-related technical assistance program will address the awareness issue, but the central government will need to follow through on the State Audit Office finding of the need “to increase the annual budget allocation for water supply and sanitation in schools, commune health centers, public works and household sanitation to promote the goals of environmental sanitation.”13

93. A third program element for which sustainable funding must be ensured is that of the IEC work. That work enhances the efficiency of the physical investments by encouraging the complementary hygiene behaviors that maximize the health benefits of those investments. Under NTP2, although an element of the overall program, this area proved the least well funded, with provinces opting to focus available resources on physical investments. NTP3 has sought to remedy this shortcoming through changes in the institutional responsibilities for IEC delivery. The donors jointly supporting NTP2 and NTP3 implementation have also focused on this area, and the structure of the DLIs for each province helps ensure that budget trade-offs are not made away from this program element.

8 Adherence of the Budgeted Program Expenditure and its Execution to the Government’s Priorities

94. The Government’s priority for the NTP is that it helps realize the national strategy on rural water supply and sanitation up to the year 2020. The main elements of that strategy are to improve the living conditions of the rural population by increasing access to water supply and sanitation, raise awareness of the need for changes in sanitation behavior and mitigate potential damage from environmental pollution.

95. The NTP3 program, like those of NTP1 and NTP2, is decentralized in design and execution, with the province being the level of government with primary implementation responsibility. That said, the central government has a clear view (supported by the donor community) of the appropriate mix of program elements, be they in water, sanitation, or hygiene promotion and institutional strengthening.

12 NTP Program document.
13 SAV, “18 province audit”. 
Achieving that mix would be the best demonstration that the central government’s priorities have been adhered to. However, the initial situation varies significantly across provinces and historically the central government has not been able to deliver full and timely funding for the program (recognizing that a high percentage of the funding obligation rests with localities and beneficiaries). In that environment, each province prepares plans consistent with the national goals, with those plans subject to national-level sign-off. If full funding is not identified, the province is free to choose their specific investment priorities as long as they fall within the approved plan. In effect, given the ambitious initial annual targets from each province, at the provincial level any use of funds that advances realization of any of the NTP sub-goals has been deemed to adhere to budgeted program expenditure framework. Tested against this metric, performance has been excellent: “The 2010 extended value for money audit carried out by the State Audit of Vietnam under terms of reference and supervision of AusAID found that, as in previous years, less than 1 percent of the expenditure was unauthorized. It is expected that, as has been the case in previous years, all unauthorized expenditure will be paid back to the state treasury by the provincial and other bodies responsible.”

That same donor appraisal found that “Experience has shown that use of government systems for implementation of the national policy in the water and sanitation sector is appropriate. Evidence of this can be found in: the appraisal of sector budget support to pilot provinces in 2006; annual reviews since 2006 especially the review in 2009 which looked at the conditions for national rollout of pilot provinces; a sector funding modality study carried out in 2007 for the World Bank and, annual fiduciary risk assessments and value for money studies and financial audits.”

Further, “The sector itself has shown a remarkable ability to learn and self correct as revealed by the attention now given to once highly controversial issues such as construction quality, allocation of funding to sanitation, involvement of other ministries as investment owners and a focus on operation and maintenance ahead of even physical target achievement.”

The SAV conducted an audit covering 15 of the 31 pilot provinces receiving donor funding in 2009. The audit report confirmed that in general NTP2 implementation provided value for money, complied with the budget law, the construction law and public finance and accounting policies, and adhered to NTP2 regulations. Triggers and benchmarks were substantially achieved.

When tested against the mix of central government priorities, performance overall closely matched resources, with NTP2 funded at 9 percent less than its target level delivering 9 percent less than expected in safe water coverage and 10 percent less in improved sanitation. But that

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14 p. 6, “Programme Support Document for National Target Programme on Rural Water Supply and Sanitation Phase III 2011-2015, Vietnam”, AusAID, Australian Agency for International Development, Australia; DANIDA, Ministry of Foreign Affairs, Denmark; and DFID, Department for International Development, United Kingdom

15 The 18 province audit was somewhat less positive: As compared with the national generic objectives as decided by the Prime Minister, the provinces recorded 92.94% (79%/85%) of target on rural population using hygienic drinking water, in which they reached 80% (40%/50%) of the target on population using clean water under meeting the standard 09 of the Ministry of Health; 72.74% (50.92%/70%) of the target on households having hygienic latrines; 72.91% (51.04%/70%) of the target on households having hygienic livestock stalls; 84.37% (84.37%/100%) of the target on kindergartens and schools having adequate living water and hygienic toilets; 88.95% (88.95%/100%) of the target on communal health centers having adequate clean water and hygienic latrines; 78.02% (78.02%/100%) of the target on markets, communal People’s Committee head-offices and other public
came with substantial variation across provinces, as revealed in a study of NTP2 performance in 2010 in six provinces. Of the six provinces, two invested nothing in school or clinic water and sanitation, two ran no hygiene communications campaigns, and four provided no support to latrine construction.\textsuperscript{16}

101. The proposed approach to NTP3 support in the RRD provinces relies on two elements to encourage alignment between national and provincial goals – and their realization. The first is funding certainty over the five-year period that corresponds with provincial plans incorporating all elements found in the national priorities. The second is the DLI structure that releases funds only with attainment of goals across the spectrum of activities; thus, provincial front-running in water supply, for example, will not lead to a disbursement until the sanitation and hygiene goals have also been achieved. Indeed, in later years, sustainability is incorporated as a metric, providing a strong incentive to continued attention to that goal at levels above the beneficiaries themselves.

102. The rural water and sanitation NTP has goals that overlap with many other national development goals. In the area of gender, a donor review found that for this NTP “field visits suggest that there is fair gender equality and women and men are actively involved in the planning and operation of water schemes and sanitation facilities. This is mainly through the Women’s Union who is the key player in identifying beneficiaries, managing loans and IEC activities. Women are also the key beneficiaries of the program as they are typically responsible for health, hygiene and sanitation in the family, including giving instructions on personal hygiene to family members and children.”\textsuperscript{17}

\section*{9 Efficiency of Program Expenditures}

103. This discussion of the efficiency of program expenditures looks at two elements of efficiency. The first is to assess whether overhead costs are held to an efficient level. The second is to assess whether program investments provide value-for-money.

104. The design of the NTP, beginning with NTP1, has been to channel the investment resources provided by the NTP through existing Government channels that already receive administrative budgets for their full work programs. In theory, managing the NTP investment program thus becomes an additional duty that does not itself draw resources from the NTP. Many of those playing a program management role will do so as a minor part of their other duties. This makes it difficult to assess actual program overheads, since the flow of funds for overheads takes place outside of the program and overhead expenses are commingled with those that contribute to activities beyond the NTP.

105. Despite not drawing directly on NTP resources, the administrative system has been reviewed. For example, the recent 18 province NTP audit concluded “The organization and apparatus for the Program implementation at central level and in provinces have been established

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\textsuperscript{16} Table 2, AusAID. Vietnam Public Expenditure Tracking And Verification Study And Update On Fiduciary Risk Assessment Of The Rural Water Supply And Sanitation National Targeted Program Phase II (RWSS NTP II).

\textsuperscript{17} Joint Annual Review 2010, para. 34.
and perform their duties quite efficiently. The public expenditure tracking study that reviewed experience in six provinces also suggests that administrative overheads have been reasonably efficient. Within the NTP, some participants have been allocated both investment and recurrent budgets, with the latter aimed at providing IEC and other support services. Across the provinces, the recurrent budgets tend to be under-spent, as shown in Table 9.

106. An under-spent recurrent expenditure budget would be positive if it represented, for example, a highly efficient construction procurement and supervision process. But given pervasive reports of inadequate delivery of IEC work, under-spending in that category might simply represent a lack of effort. Table 9 shows that, for the six provinces studied, the Departments of Health and Education (responsible for delivering IEC), fully spent their recurrent budgets. In this case, it may be that IEC was underfunded rather than under-spent. But DARD and “other spending units” showed no tendency to simply spend available budget in the recurrent expenditure category.

107. The NTP3 national indicative budget anticipates total expenditures over the period of VND 27,600 billion, of which investments will take 13,722 billion and recurrent budgets 13,878 billion, with the latter to cover, among other activities: “IEC activities, training courses; allowances to collaborators, surveys and investigations, recruitment of local and international experts; project appraisal, management, supervision, and evaluation of the program; other necessaries expenses.” The combination of projected budget allocations and the NTP2 experience suggests that, at least within the scope of NTP funding, overheads are held to an efficient level.

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18 18 province audit, section 4.1
19 Public expenditure tracking study.
20 NTP 3, VII.3.
Table 9: Budget Allocation and Disbursement in 2010 in Six Provinces (VND Millions)

<table>
<thead>
<tr>
<th>Spending Unit</th>
<th>Allocated budget</th>
<th>Disbursement</th>
<th>Disbursement Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DARD (PCERWAS or Irrigation Division)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Expenditure</td>
<td>93,286.0</td>
<td>92,343.6</td>
<td>98.99</td>
</tr>
<tr>
<td>Recurrent Expenditure</td>
<td>13,550.0</td>
<td>11,546.2</td>
<td>85.21</td>
</tr>
<tr>
<td><strong>Dept of Health</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Expenditure</td>
<td>8,712.0</td>
<td>8,342.4</td>
<td>95.76</td>
</tr>
<tr>
<td>Recurrent Expenditure</td>
<td>2,585.0</td>
<td>2,580.6</td>
<td>99.83</td>
</tr>
<tr>
<td><strong>DoET</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Expenditure</td>
<td>6,210.0</td>
<td>6,142.8</td>
<td>98.92</td>
</tr>
<tr>
<td>Recurrent Expenditure</td>
<td>2,235.0</td>
<td>2,208.9</td>
<td>98.83</td>
</tr>
<tr>
<td><strong>Other spending units (districts and others)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Expenditure</td>
<td>29,150.0</td>
<td>28,109.8</td>
<td>96.43</td>
</tr>
<tr>
<td>Recurrent Expenditure</td>
<td>680.0</td>
<td>501.0</td>
<td>73.68</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>156,408.0</strong></td>
<td><strong>151,775.3</strong></td>
<td><strong>97.04</strong></td>
</tr>
</tbody>
</table>

Source: Report from the six provinces

108. The efficiency of Program expenditures on the investment side will likely be a source of some tension in the execution of the IDA-funded NTP3. NTP3, like NTP1 and NTP2, uses construction cost norms established by the central government as the basis for planning and bidding projects. Investments themselves are designed against Government standards that specify assumptions in areas such as per capita consumption and call for service quality levels based on urban norms that may not be appropriate for rural systems. Based on outcomes in the IDA-financed Red River Delta project, the IDA team working on NTP has recommended that a study look at the basic design assumptions and conduct a sensitivity analysis on the impacts on project costs for design parameters.

109. The foregoing discussion applied to water supply systems, but questions have also been asked on latrine specification. The Joint Annual Review for 2010 found “Most latrines being promoted and built are the most expensive septic tank models that reportedly cost from VND 5 to 6 million. This is not affordable for poor people. MoH has been working on guidance for lower-cost latrines for over one year.”

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110. The cost norms are published and the traditional government efficiency measure is whether projects are delivered within these norms. Thus, the State Audit Office finding of investment efficiency in NTP2 is phrased in the following way “Value for money (returns on investments): Expenses for the Program operation were basically of economical nature, and matched with the budget year 2010 and subsequent years as well.” Subsequent discussion emphasizes that “The provinces have generally done quite well on the benchmarks. Capital and no-business expenditures were in compliance with provisions of the State Budget Law, and financial and procurement norms.”

111. The use of published construction cost norms provides bidders with clear guidance on the maximum bid that will be deemed compliant. Although this puts a cap on costs, when combined with a process that underutilizes fully open and competitive bidding (by overusing shopping as a procurement method) it also tends to put a floor on them. The IDA-funded, on-going, Red River Delta RWSS Project provides evidence that the cost norms and procurement practices may be a source of inefficiency. RRD investments are in water supply systems similar in scope and scale to those in the NTP. When looking at the per capita investment costs under that project, it would appear that a study may well assist the provinces to reduce these unit costs and therefore serve more people with the same total investments.

112. Apart from design and contract costs, in some provinces investments have faced a drawn-out construction period as a result of starting construction before full funding was available (a problem exacerbated by rules restricting carry-over of budgeted sums across fiscal years). In the State Audit office audit of 18 provinces, three were found to have at least some projects with excessively long construction periods due to resource shortages in a given year. An extended construction period delays the realization of project benefits and may drive up costs through inflation. The financing certainty that comes with IDA funding in NTP3 should address resource shortage issues.

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22 See NTP3, VIII.2 for norms.
23 18 province audit, p. 21.
24 18 province audit, p. 35.
PART C: Results Framework and Monitoring and Evaluation

10 Results Framework

113. **Key results.** The Program key results are those needed to realize the Program Development Objective: “To increase sustained access to water supply and sanitation services and improve sector planning, monitoring and evaluation in participating provinces of the National Target Program for Rural Water Supply and Sanitation”.

114. The results and supporting actions needed to efficiently implement them are presented in the Results Framework (RF) (Annex 2 of the Project Appraisal Document, or PAD).

115. Three key outcomes are sought in the Program:
   a. the delivery of sustained water services;
   b. the achievement of commune-wide sanitation; and
   c. a strengthened capacity for planning in the provinces.

116. In particular, the proposed Program aims to provide:
   - clean water to 1.7 million people (33 percent of the NTP3 target);
   - household hygienic latrines benefiting 650,000 people (38 percent of the NTP3 target); and
   - a total of 1,440 school and health clinic hygienic latrines (21 percent of the NTP3 target).

117. For water supply, sustainability is indicated by: (a) the recovery of operation and maintenance costs through the water tariff; (b) low non-revenue water; and (c) a specified, high, percentage of household connections established and functioning. Commune-wide sanitation is indicated by having a specified, high, level of improved sanitation coverage in the commune. The improved planning, monitoring and evaluation objectives that support efficient service delivery are measurable over the Program life. Each of these PDO elements is captured in the DLIs.

118. The outputs that contribute to achieving the outcomes would be measured through the attainment of four intermediate results: (a) number of working water connections; (b) number of people with access to improved household sanitation; (c) number of working water supply and sanitation facilities in schools, health centers and public buildings; and (d) appropriate monitoring and supervision at the national level based on strengthened provincial planning and reporting.

119. **Disbursement-linked indicators.** The disbursement-linked indicators designed for this Program derive from the results framework, so the Program will disburse against achievement of Program outputs and outcomes. The disbursement model proposes three DLIs over five

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26 In the PforR, only water connections provided through newly constructed community piped schemes will be counted in the disbursement-linked indicator (DLI) targets, given the need for this type of service to cope with source water quality problems.
27 This is equivalent to building 130,000 household latrines.
28 NWR is the difference between the volume of water that enters the distribution system and the volume that is billed to customers.
disbursement periods. The first two DLIs are scalable, which means that payments will be made in proportion to achievements. The DLIs are broadly described below, with details explained in Annex 3 of the PAD.

120. DLI 1 relates to the delivery of infrastructure. For Period 1 it consists of improved household sanitary latrines and for Periods 2-5 it consists of two inter-linked sub-indicators: (a) working water supply connections; and (b) 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.

121. DLI 2 relates to the achievement of outcomes. For Periods 1-3 it consists of commune-wide sanitation and for Periods 4-5 it consists of the two inter-linked sub-indicators of: (a) sustainable water supply connections; and (b) commune-wide sanitation.29 As in the case of DLI 1, the inter-linkage between the two sub-indicators is designed to incentivize the achievement of both targets.

122. DLI 3 is a measure of effective oversight and management of the Program (including more responsive planning, monitoring and financing) at the provincial and national level. It consists of two sub-indicators: (a) a disclosed provincial annual plan and progress report for each province; and (b) a disclosed annual implementation progress report issued by MARD for the whole Program.30 This DLI is not scalable and both (a) and (b) have to be achieved to trigger a disbursement.

123. The DLIs will be scalable with results being monitored and evaluated on an annual basis and disbursements made proportional to the achieved results. The criteria for disbursement against specific DLIs are described in detail in Annex 3 of the PAD. Planning, reporting, verification and disbursements will be aligned with the annual planning and budgeting cycle for NTP as a whole.

11 Assessing the NTP M&E Framework and the Program’s M&E Capacity

124. The NTP has a well established M&E system which uses a set of 14 indicators to track progress on program implementation. This system has been rolled out over the past five years after a national coordination and consultation effort supported by UNICEF, which has also assisted in the development of a geographical information database (WESmapper), as a key tool to facilitate program supervision, monitoring and evaluation. The national M&E system produced its first national data set last year. The system is now being reviewed to simplify the set of indicators and improve the database.

125. Data is collected at the district level and processed at the provincial level. Summary reports on investments and progress on the M&E indicators are sent to NCERWASS which compiles the information at the national level. In theory, through the WESmapper it is possible to map data on investments, coverage and service delivery down to the commune level for the entire country. Usually the staff under PCERWASS is responsible for compiling the data

29 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.
30 Full definitions of the Provincial Annual Plans and the Implementation Progress Report are included in Annex 2 of the PAD.
collected at the commune and district levels and introducing it in the system to which NCERWASS has access.

126. The M&E system should form the basis upon which provinces will both plan their investment program and track their results. Results reporting will take place on an annual cycle linked to the national planning and budgeting process.

127. The existing M&E system can still be improved, as the quality of the data is not yet fully adequate for planning and budgeting purposes due to different gaps and inconsistencies. For instance, difficulties in using the new M&E platform system have been frequently reported and many provinces face constraints related to data collection due to the lack of resources and qualified staff at the local levels. The platform is relatively new, and provinces have not yet given evidence that they systematically use collected data on program indicators to establish priorities when preparing provincial plans. Another challenge found was the complexity of the indicator set. Indicators were found to be too many, sometimes difficult to measure and adding low additional information.

128. The proposed TA will include an important component to strengthen the M&E system and planning process at the provincial and national level. PCERWASS and DoH will receive training to improve data collection and in using the existing M&E system, which will serve as a basis to elaborate the provincial plan.

129. Gender. DANIDA is providing TA to strengthen gender dimensions of monitoring. This will include developing protocols and reporting procedures which will enable the presentation and analysis of results (outputs and outcomes) disaggregated by gender, age and social characteristics. This would facilitate gendered planning and management of the Program. To support this effort the AusAID-funded TA under this Program will build provincial capacity to monitor and respond to gender considerations in outcomes. In addition, support will be provided to mainstream such gendered management approaches in the NTP.

130. IT platform for social accountability. In order to promote transparency, it is also proposed to create an IT platform to share relevant Program information, including progress on performance indicators, and information on costs, bidding processes or complaints, among Program stakeholders. This will make a positive contribution to social accountability and improved governance by ensuring that all stakeholders have access to relevant information in real time. This, in turn, will build up the potential for stronger and more proactive citizen engagement in RWSS.

12 Disbursement and Verification Process

131. MARD will support the provinces to measure progress appropriately using the existing M&E system and will collate the results to assess progress in achieving the DLIs. The results across the Program region will be aggregated as the basis for meeting the DLIs. Once satisfied with the accuracy of the reporting, MARD will present evidence of the DLI achievement to the SAV, which, as the IVA, is tasked with verifying the results.

132. In order to validate the disbursement request submitted by MARD, SAV will verify all DLI target indicators through both a desk review and physical inspection.
An assessment will be undertaken immediately after Program effectiveness by the IVA to validate the baseline information submitted by the provinces and create a starting point for the results that they will later be required to evaluate.

Results will be verified through physical inspection that tests the accuracy and quality of results claimed. In accordance with good audit practice, physical verification will take place against a sampling framework and frequency. For water supply, physical inspection will be focused on ensuring working connections at the household level, on water quality, unaccounted for water, O&M cost recovery and on the use of the connections, including the gender aspects of that use.

For sanitation, sample checks will be carried out to confirm levels of access to improved sanitation at the domestic level as well as the achievement of other aspects of commune-wide sanitation. For domestic sanitation, a sample of households listed as having obtained new improved sanitation during the Program period will be taken to confirm existence of the new facilities. For communes where commune-wide sanitation is claimed, a 100 percent check will be carried out on institutional sanitation facilities.

On the basis of these two steps, the IVA will prepare a Results Verification Report which will be shared with MARD and the World Bank. A key use of the Results Verification Report will be to determine the amount of the eligible disbursement to be made based on results achieved.

If the Bank finds that the disbursement request meets the terms of the Credit, the Bank will disburse the corresponding funds to the MoF.

Advances

The Borrower informed the Bank that advances for DLIs that have not yet been achieved will be needed. Advances up to 25 percent of total Program financing (“advance”) could be made by the Bank to MoF. After consulting the provinces, MARD and MoF will jointly determine how much of an advance will be requested. When the DLI(s) against which an advance has been disbursed are achieved, the amount of the advance will be deducted (recovered) from the total amount due to be disbursed under such DLI(s). The advance amount recovered by the Bank is then available for additional advances (“revolving advance”). The Bank requires that the borrower refund any advances (or portion of advances) if the DLIs have not been met (or have been only partially met) by six months after the Closing Date.

13 Risks and Risk Mitigation

The overall risk is rated “Substantial”, given that the rating is expected to reflect risks prior to the mitigating activities contemplated under the Program and documented in the PAD. Although the PforR lending instrument is new both to the client and Bank, the Program that it supports has a ten year history of increasingly robust performance, with international donors playing a significant and on-going role in that development. Satisfied with the fiduciary performance and NTP2 service delivery, Australia, Denmark, and the United Kingdom have elected to move to budget support of NTP3.
140. Bank lending will enjoy not only the explicit support of AusAID, but more generally that deriving from the supervision efforts of donor partners. Lessons gained from the Bank-supported Red River Delta rural water and sanitation project have also been brought into NTP3. This depth of experience informs the Program and significantly reduces the sustainability risk in the new rural water supplies. The more challenging part of NTP history – that of underinvestment in the sanitation component – will have explicit support from the DLI structure in the results-based approach.

141. The following are some of the key program risks identified from the technical perspective:

- risk at the design stage: many water sources in the RRD suffer from pesticides, nitrates, or arsenic. System design, including that of water source and treatment technology, must take this into account. Similarly, systems must be properly operated;
- related to sustainability of water systems: economic sustainability of water supply and sanitation investments is a known challenge in Vietnam. Sustainability requires cost efficient design and operation, coupled with adequate revenue;
- sanitation: technically viable designs are available for good sanitation outcomes. However, they may be too expensive for lower income households. Once sanitation facilities are provided, they must be properly operated to maintain their value and complementary behaviors are needed to capture potential benefits. Moreover, the IEC program has been a low performing part of NTP2, due to a relative lack of institutional interest and a small cadre of trained staff;
- related to the disbursement-linked indicators: results-based financing is a new concept in Vietnam, as is the use of DLIs. The DLIs have been developed and refined through rounds of consultations with implementing agencies, but they remain an untested approach; and
- lastly, the main other risk relates to unfamiliarity with the PforR instrument and the challenge of implementing an investment using a new lending instrument that places significant outcome risk at the provincial level and a different monitoring and evaluation role MARD at the national level.

142. The following measures have been proposed to mitigate these risks:

- Design can be managed through good technical design and management practice, demonstrated in existing systems. The technical assistance under the Program will support this;
- Risk on sustainability can be managed through good technical practice including clustering of communes to capture economies of scale in operation, coupled with application of national tariff policy. Recenly-built systems under NTP2 and RRD1 demonstrate the needed design and tariff collection;

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For risks related to fiduciary and environmental and social management see Fiduciary Systems Assessment and Environmental and Social Systems Assessment respectively.
• The risk on sanitation can be managed through full implementation of the IEC program under NTP3, boosted by the incentives created in the outcome DLIs and aided by Program technical assistance. The risk related to poor performance on IEC activities per se can be managed through the incentives created by the outcome DLIs and aided by the Program technical assistance;

• With respect to the DLI structure, DLIs are being carefully and repeatedly discussed and agreed with implementing agencies to ensure the DLI structure properly reflects the planned investments and is consistent with government fiscal regimes. A strong MARD-based M&E practice will provide continuous oversight and early warning of any problems. That, in turn, will be supported by the verification protocol; and

• Regarding the unfamiliarity thorough preparation in consultation with both Government and with development partners who have long experience in NTP budget support has helped identify potential execution risks and design responses. Particular attention has been given to engaging key provincial stakeholders. This risk will further be mitigated through intense supervision, partnership with AusAID, and technical assistance during the program implementation period.
PART D: Economic Evaluation

14 Justification for Public Provision

143. Public Financing. Safe water helps protect individual and community health, while improved access to safe water reduces costs that tend to be disproportionately borne by girls and women. Basic sanitation at the household level provides private benefits through convenience and enabling better hygiene and public health benefits to the community at large.

144. The broad private and social benefits that come with MDG7 achievement can be captured through private financing and there is evidence that the less-poor households in Vietnam have made investments in improved sanitation using private funds. However, for poor households, the up-front capital costs are a barrier to access and Vietnam lacks financial markets that can fully provide the private financing needed for such services. In the absence of public financing, service access and levels would grow very slowly. The public financing delivered through the NTP strongly accelerates service access.

145. The Government recognizes that water and sanitation services offer a mix of private and public benefits. The existence of a private benefit provides an avenue to mobilize private financial resources, complementing the public resources in the NTP. This is achieved through cost-recovery water supply tariffs. For private sanitation investments, the main financing avenue is loans to households through the VBSP. Although made at concessionary rates, these loans, too, serve to shift the long run financing burden toward the private users who enjoy most of the benefits.

146. Public versus private service provision. NTP3, while focused on public financing of investments, does not focus on public provision of the related services. Private sector involvement in water services delivery is a core principle of the Program while private sector masons are the main agents for construction of sanitation facilities. Public provision is primarily reserved for those elements of the program that have primarily public benefits which is primarily Information, Education, and Communication (IEC) activities. These support improved hygiene practices and environmental protection which have primarily public health benefits by increasing uptake of sanitation goods and services and hygiene practices. Government agencies take the lead in IEC work, complemented by community organizations such as the Vietnamese Women’s Union and NGOs.

147. Conclusion. The PforR guidance question assumes public provision and therefore pushes Bank teams to ensure that it is justified. As the above analysis demonstrates, the Vietnamese Government has already confronted this issue and decided in favor of a mixed public and private model that attempts to balance private benefit and private obligation.

15 Economic impact

148. General. The impact of the NTP2 for rural water and sanitation has not been explicitly evaluated in economic terms. The Government’s approach in designing and implementing NTP has been to identify the least cost means of meeting program goals. The NTP2 program includes both water supply and sanitation investments and these are assessed below.
149. **Water Supply.** NTP2 supported the extension of safe water to an estimated 5,483,000 rural residents over the five years of the program. NTP2 progressively aimed to provide a tariff framework that fully covered O&M costs and made a capital contribution (although falling short of full coverage of depreciation). The Government reported that “many provinces” introduced tariffs meeting the O&M and contribution to capital test. Despite these advances, progress was very mixed, with “sustainability and efficiency” remaining problematic in many locations. This was attributed to a combination of top-down planning and weak system management.

150. The studies reviewing NTP2 water experience show mixed economic outcomes. Clearly, systems no longer operating fail the economic test. At the other extreme, systems collecting tariffs that meet central government standards have a positive economic return. The majority of systems fall in-between, with those failing to cover O&M costs at high risk of negative economic returns. The one consistent finding was that systems in larger communities managed under the enterprise model performed best.

151. **Sanitation.** NTP2 supported the building of hygienic latrines that served an estimated 1,762,000 households.

152. VBSP reports a very good repayment experience with their water and sanitation loans, with a cumulative default rate of 0.15 percent. Although repayment does not itself prove that the sanitation investments were economically efficient, VBSP staff are likely to face repayment resistance and hear of unsatisfactory experience if inefficiency were to be general. They report neither. Under NTP2, latrine investments have been purely a matter of household discretion and at their cost, so while some failed to be properly used, hence have proven to be bad investments, an *a priori* private economic test guards against wholesale bureaucratic blunder.

153. **Schools and clinics.** In addition to private latrines, some 4,000 schools and nearly 8,000 clinics were provided with both improved water and sanitation facilities. Although not subject to benefit analysis, the lack of improved facilities at either type of institution would work against any IEC efforts for improved hygiene practices. Moreover, for schools at least, regular hand washing has been shown to significantly reduce school absences due to illness. The Government’s NTP2 evaluation highlighted that the investment choices were made with sustainability in mind. That said, studies unrelated to NTP have shown consistent weakness in school-based hygiene performance and this is an area that continues to suffer from under-investment particularly in IEC.

154. **IEC.** The evaluation of NTP2 highlights the weakness of IEC efforts. In part, this is structural, with IEC implementation responsibility given to MARD, while the expertise in this area is to be found in the Ministry of Health and its provincial and local affiliates. The groups leading NTP2 IEC implementation frequently lacked the expertise or the incentive to emphasize this work. As a result, in most provinces it was underfunded and weakly led and likely therefore to have a minimal positive economic impact.

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32 NTP3, / 4, “hygienic water”

33 Draft NTP3, II.1.2.1.4.

Additional Economic Impact of the Program with PforR Support

155. The economic impact of PforR support to NTP3 in the Red River Delta is expected to be positive because it draws on successful elements of NTP2 and the RRD1 project to ensure efficient investments meeting effective demand by rural households. In addition, a portion of the investments will be targeted at areas now relying on groundwater from aquifers known to have high levels of arsenic. The water supply projects in those areas can be expected to have an economic rate of return well above the level that would be expected from other water supply projects in NTP3.

156. The PforR will also move beyond the original NTP3 design by emphasizing open-defecation-free (ODF) communities, not just household sanitation. Where communes do not attain ODF status, even residents with hygienic household latrines and good hygiene practices can suffer from fecally-transmitted disease through exposure while walking in the village. Children are particularly vulnerable. Analytical work in other countries has demonstrated a high return to attaining ODF status.  

157. Finally, the PforR support will be designed to provide both water and sanitation upgrades to communes, recognizing that safe water and hygienic latrines both support better hygiene practices. In the same vein, schools and clinics in the communes will also be supported in providing safe water and hygienic latrines if they do not yet have them. The approach will allow assessment of the value of these complementary inputs.

158. The incidence of arsenic is high in the program provinces. The WHO 1993 Drinking Water Guidelines specify a 0.01mg/l level as the maximum for safe long term consumption. The most recent arsenic surveillance data shows that more than 1 percent of tube-wells in Ha Noi, Ha Nam and Hung Yen have more than 0.05mg/l of arsenic and over 1 percent of tube wells in Quang Ninh and Bac Ninh have more than 0.01mg/l of arsenic.

159. For every water project beneficiary household, the water supply will move to 24-hour-a-day supply of safe water at the house. Those households now exposed to arsenic will move to water supply with no measurable levels of arsenic. Every sanitation project household will enjoy sustainable hygiene services through a household latrine meeting standards, in a community with higher levels of sanitation provision (ideally, ODF).

160. The economic test will be willingness-to-pay for improved service. The willingness-to-pay sets a minimum bound on the economic benefit, as it includes only benefits that rural people both perceive and for which they are willing to put out cash. The willingness-to-pay is a function both of the household financial status and of the perceived benefit. The project design incorporates a willingness-to-pay test that has two components. The first is a required up-front capital contribution from each connecting household. That equals approximately 10 percent of system costs. The second is willingness to subscribe to a tariff regime that is designed, over time, to fully recover system capital, operating and maintenance costs. If project sponsors correctly calculate those costs and if households are both fully informed of the costs and believe that they will be collected, the particular sub-project will have a projected positive net present value.

161. The assumptions in the last paragraph may be bold. The preparation consultant has estimated the costs, but the proposed tariff profile starts with a level that does not fully recover costs. If households are told the initial tariff, but not engaged in a discussion of the tariff profile

35 WSP, Achieving and Sustaining ODF Communities: Learning from Action Research in East Java, Indonesia
over time, they may assume that the tariff will not change, at least in real terms, and therefore elect to participate in a system that does in fact cost more than they are willing to pay. System sustainability depends both on that willingness-to-pay and on good regulatory behavior in the ensuing years. Provincial governments might choose to delay tariff adjustments due to political expediency even if willingness-to-pay is sufficient to support an increase. Experience under the RRD project highlights the tariff as a risk area. Willingness-to-connect has been high, as has willingness-to-pay for modest amounts of water that are used for such activities as drinking and cooking, where households appreciate the connection between water quality and health outcomes. The volumes demanded have fallen short of those expected in Vietnamese design norms and highlight this as an area important to efficient project design.

**Arsenic-Affected Areas**

162. The analysis for arsenic-affected areas is handled differently. This is an area in which the World Bank has commissioned work, given that experience in willingness-to-pay studies in Bangladesh showed that villagers had a very low willingness-to-pay until some in the village began to show outward signs of arsenicosis.\(^{36}\) At that point, serious damage has already been done even to those not yet symptomatic.\(^{37}\) Another study found that the distribution of arsenic in groundwater in the Red River Delta is worse than the situation in Bangladesh. That same study established that the arsenic was already having measurable impact on residents.\(^{38}\) The selected approach values the benefits as avoided health costs plus the lost contribution to GDP of affected people. The latter dominates the benefit calculation, given that the health costs include only simple palliative care. The net present value of the benefits, when translated to the higher value of income created in Vietnam, ranges from US$365 to US$1,390 per capita, with the lower values reflecting a 10 percent discount rate and the higher a 5 percent discount rate. In the Bangladesh case, the analyst reviewed the net present value of various interventions to avert the arsenic risk. The proposed interventions cover the same engineering range as seen in Vietnam, from shallow dug wells to deep wells, to surface water abstraction and treatment. In the Bangladesh case, the intervention that will be most used in NTP3 – river abstraction, treatment, and distribution through a piped system, consistently yielded the second highest net present value, behind a pond water community slow sand filter system that will not gain social acceptance in Vietnam due to its need for large amounts of land.

163. **Sanitation.** A recent study into the economic losses associated with poor sanitation, and the related benefits that could accrue from improved sanitation, provides a valuable insight into the likely benefits of improved rural sanitation under the program.\(^{39}\) These benefits include health costs saved, increased productivity due to increased health status, reduced drinking water costs, time savings and economic benefits. The analysis showed that the economic losses associated with poor sanitation are currently significant. Nationally, financial losses are equivalent to 0.5 percent of annual Gross Domestic Product (GDP) and population welfare losses equivalent to 1.3 percent of GDP. The annual welfare loss per capita is US$9.38. Of these

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\(^{36}\) Effect of arsenic poisoning.

\(^{37}\) The study was undertaken by Phoebe Koundouri and was reported in “The Economics of Arsenic Mitigation”, Paper 4 in Vol. II, Technical Report, Arsenic Contamination of Groundwater in South and East Asian Countries, World Bank, March 2005.


\(^{39}\) (Thang, Tuan, & Hutton, 2008)
welfare losses, 34 percent are associated with health, 37 percent with negative impacts on water resources and 15 percent with environmental impacts.

164. These losses can be significantly reduced. The study assessed the benefits of improved treatment and disposal nationally to be US$355 million, and the benefits of improved hygiene through reduced health care costs of US$228 million.

165. In the RRD provinces the benefits from sanitation may be lower than the national averages since coverage is already reasonably high. Most project beneficiaries will however gain access to an improved hygienic latrine instead of using a poor quality latrine which provides limited health protection. Studies in Vietnam have shown that households value the improved latrine both for health outcomes and for the comfort and status that come with higher value latrines.

166. In the PforR-supported NTP3 program, as in much of the NTP2 program, households will assume the full cost of latrine building, with the program contribution being financing of the investment. As reported above, the experience to date has been very positive both in terms of willingness to borrow for the investment and in repayment histories. The latrine investments therefore have a built-in economic viability test. Sustainability is entirely a household matter, with all costs privately borne. Evidence on both counts has been positive in the on-going program, with the biggest challenge being to maintain adequate focus on this component.

167. The project will also focus attention on coordinating domestic sanitation investments with environmental sanitation interventions such as public sanitation and improved management of waste. The benefits of sanitation in this project are therefore likely to consist of lower-than-the-national-average health benefits but average or higher benefits associated with protection of water resources and environment.

168. The particular hygiene and sanitation goal of the PforR program – commune-wide sanitation – will offer benefits that exceed the benefits from individual household latrines. Again, using a benefit-transfer approach based on analysis of ODF villages in India and Indonesia, the net present value of the health impacts of this additional component can be expected to reach some US$40 per capita.

16 Value Added of World Bank Support

169. The Bank has worked with the central and provincial governments in Red River Delta provinces through the on-going Red River Delta Rural Water and Sanitation Project. This has allowed the Bank to help the government test management approaches that have significantly improved the efficiency and sustainability of piped rural water supply. Work with government on the design of water systems, coupled with greater use of competitive procurement processes, has led to lower costs when compared to NTP2. The NTP3 design and implementation of water supply will draw immediately on the RRD1 experience. Although these benefits could be realized under NTP3 without Bank participation, the engagement of the Bank in the preparation processes has helped ensure their incorporation in the final design.

170. Bank financing has the additional value added of ensuring that funding will be reliably available to the participating provinces over the life of NTP3. This allows more efficient planning and multi-year resource allocation at the provincial level. Analysis of the NTP2

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40 The Vietnamese program for this is known as the “clean and healthy village.”
experience reported in the fiduciary assessment detailed the efficiency losses attendant on funding uncertainties that will be overcome through Bank participation.

171. However some of the most significant benefits are likely to arise from the performance pressures that come with the PforR funding model. This will focus efforts on completing schemes in a timely manner and commissioning schemes rapidly to ensure service delivery at the household level.