Joint GoV - Donor Sector Review
Rural Water Supply, Sanitation and Health in Viet Nam

Sector Status Report

John Soussan
Do Manh Cuong
Kim J. Patrick
Tim McGrath
Le Tuyen Hong Hai
Nguyen Van Than
Nguyen Thuy Nha

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This report has been produced as the first major output of the Joint Government of Viet Nam - Donor Review of Water Supply and Sanitation in Viet Nam. The report has been produced after extensive consultations with a wide range of stakeholders, but the views and opinions expressed here are those of the Review Team alone and do not necessarily reflect the opinions of either the Government of Viet Nam or the donor community.

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JOHN SOUSSAN
Team Leader

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Acronyms and Abbreviations

ADB	Asian Development Bank
AusAID	Australia Agency for International Development
CPMU	Central Project Management Unit
CERWASS	Centre for Rural Water Supply and Environmental Sanitation
CEMMA	Committee for Ethnic Minorities in Mountainous Areas
CPC	Commune People's Committee
CDA	Community Development Approach
CPRGS	Comprehensive Poverty Reduction and Growth Strategy
CLDRWSS	Cuu Long Delta Rural Water Supply and Sanitation
DANIDA	Danish International Development Agency
DRA	Demand Responsive Approach
DFID	Department for International Development (British Government)
DARD	Department of Agriculture and Rural Development
DOC	Department of Construction
DOET	Department of Education and Training
DOF	Department of Finance
DOH	Department of Health
DOLISA	Department of Labour, Invalids and Social Affairs
DPI	Department of Planning and Investment
DPM	Department of Preventative Medicine
DOSTE	Department of Science, Technology and Environment
DAF	Development Assistance Fund
DPC	District People's Committee
DVC	Double Vault Composting (latrine)
GSO	General Statistics Office
GoV	Government of Viet Nam
HRD	Human Resource Development
HEPR	Hunger Eradication and Poverty Reduction

IEC	Information, Education and Communication
IDE	International Development Enterprise
INGO	International Non Government Organization
ITI	International Trachoma Institute
LQAS	Lot Quality Assurance Sampling
MOU	Memorandum of Understanding
MDG	Millennium Development Goals
MARD	Ministry of Agriculture and Rural Development
MOC	Ministry of Construction
MOET	Ministry of Education and Training
MOF	Ministry of Finance
MOH	Ministry of Health
MOLISA	Ministry of Labour, Invalids and Social Affairs
MPI	Ministry of Planning and Investment
MOSTE	Ministry of Science, Technology and Environment
M&E	Monitoring and Evaluation
NRWSSS	National Rural Clean Water Supply and Sanitation Strategy
NTP	National Target Programme
RWSS-NTP	National Target Programme for Rural Water Supply and Sanitation
NGO	Non Government Organisation
NMRP	Northern Mountain Poverty Reduction Project
O&M	Operation and Maintenance
PCERWASS	Provincial Centre for Rural Water Supply and Environmental Sanitation
PRA	Participatory Rural Appraisal
PMU	Project Management Unit
PPC	Provincial People's Committee
RRA	Rapid Rural Appraisal
RISP	Rural Infrastructure Structure Project

RWSIHIP	Rural Water and Sanitation Infrastructure and Health Improvement Project
RWSS	Rural Water Supply and Sanitation
UNDP	United Nation Development Programme
UNICEF	United Nations Fund for Children
VBARD	Viet Nam Bank for Agriculture and Rural Development
VIP	Ventilated Pit Latrine
VND	Viet Nam Dong
VLSS	Viet Nam Living Standard Survey
VNHS	Viet Nam National Health Survey
VWU	Viet Nam Women's Union
WSP	Water & Sanitation Programme (World Bank)
WAterSPS	Water Sector Programme Support (MARD DANIDA)
WES	Water Supply and Environmental Sanitation
WSS	Water Supply and Sanitation
WSG	Water Supporting Group
WUG	Water User Group
WB	World Bank
WHO	World Health Organisation
WSSD	World Summit on Sustainable Development

Executive Summary

This report sets out a detailed picture of the status of rural water supply and sanitation (RWSS), and related health and poverty reduction issues, in Viet Nam. It is a key output of a joint Government of Viet Nam - Donor Review of Rural Water Supply and Sanitation, and is a building block to the preparation of a Strategic Plan for the sector. The Report concentrates on the current status of the sector rather than recommendations for future actions: these will be developed once a consensus on present status is agreed.

The report focuses on (a) a detailed picture of RWSS, disaggregated to a provincial level where possible, (b) an overview of major projects and programmes by GoV, donors and NGOs, (c) the policy, legal and institutional framework for RWSS development, (d) the role and potential of the private sector, especially small-scale local entrepreneurs and (e) monitoring and evaluation in the sector. The analysis is contextualised to the goals and targets set out in the National Rural Clean Water Supply and Sanitation Strategy (NRWSSS) and the Comprehensive Poverty Reduction and Growth Strategy (CPRGS). The objectives of the Review are three-fold:

- To describe and assess the present status of the rural water supply and sanitation sector framework and related health issues in Viet Nam.
- To assess the status of implementing the NRWSSS and summarise lessons learned and recommend solutions to issues identified in the implementation of the NRWSSS.
- To provide guidance and recommendations to Government and donors on the future development of strategies and implementation modalities for the sector.

The Review is based on a structured process to assess all available information on progress and approaches in the sector and to ensure that the experiences and perspectives of as wide a range of stakeholders as possible is accessed and included in the analysis. A large number of interviews, with individuals and groups, have been undertaken in Ha Noi and throughout the country, including some participatory rural appraisals to fill key knowledge gaps. The development of an adaptive and flexible methodology has meant that the Review Team has been able to access a wide range of opinions and is confident that the information and analysis presented here reflects as accurate a picture of the current status of the RWSS sector in Viet Nam as is possible at this time.

The key conclusions concerning **RWSS coverage and challenges** are:

- The overall national picture for rural water supply suggests that the targets for 2010 and 2020 are likely to be met if existing efforts are maintained.
- The same is not true for improved sanitation: present trends show that there is little prospect of the 2010 and 2020 targets being met without changes to the approach to sanitation development. This is true for national, regional and provincial levels.
- There are major differences between regions and provinces in RWSS technologies, coverage the trends over time. Strategies to develop RWSS need to reflect the characteristics of different areas.
- Whilst the national trends for water supply are positive, there are a number of provinces in all regions that are lagging behind the overall trend.
- Health indicators are improving but still not satisfactory and need better coordination between improvements to RWSS services, health and hygiene promotion, primary health care provision and the participation of rural communities (especially women).

The importance of developing a supportive and coordinated **institutional environment** for the development of RWSS is stressed. There is a wide range of institutional capabilities that can be built on, but these capabilities are fragmented, lack coordination and suffer from some key gaps in the policy, legal and institutional framework. There are three generic challenges in this field:

Fragmentation and a lack of coordination between different institutions involved in the sector. This is true within the government system: there is little or no coordination between the different ministries (MARD, MOH, MOET etc) involved in RWSS. It is also true between the government, donors and NGOs working in the field. Finally, there is only cursory engagement by any of these agencies with the private sector.

Subsidiarity: there is a need to ensure that the structure of decision-making in the sector is re-organised to devolve authority, in line with government policies on decentralisation and socialisation. This includes more effective links between the centre and provincial levels, building provincial capacities and institutional processes within provinces so that there is coherence in the actions at province, district, commune and community levels.

Participation: models of good practise on community participation available, in particular from donor-assisted and NGO projects, have not been mainstreamed in most provinces and levels of participation in RWSS are poor. This is problematic for both the planning of the construction and operation of RWSS facilities and the development of a better understanding of related issues such as health and hygiene.

The range of existing and potential **financial mechanisms** for both new investments and the operation of existing facilities is analysed in depth. This includes the cost recovery and operation and maintenance systems developed under different GoV and donor-supported projects, the range of existing and potential sources of credit available to rural communities, the approaches developed by NGOs operating in the sector and the factors that encourage or act as barriers to the entry of private sector finances into the RWSS sector in Viet Nam.

Special attention has been paid to the role and potential of the small-scale **private sector**, a key knowledge gap. In many areas, small local entrepreneurs are the largest builder of RWSS facilities and provider of RWSS services, but they are poorly integrated into main GoV and donor programmes. A series of factors that constrain and provide opportunities for the development of the private sector are identified. Actions to promote this sector are seen as critical if NRWSSS principles of demand-led approaches and socialisation are to be realised and if the level of resources needed for the development of RWSS to meet national targets are to be generated.

The final Chapter provides an overview of the present status of and opportunities for improving **monitoring and evaluation** of the RWSS sector. Problems associated with the limitations of the present system are emphasised, which are producing high levels of uncertainty in key decision-making processes. The need for a coherent national system is stressed and the scope for developing this under existing initiatives is discussed.

A number of key issues have been identified as critical for the future development of RWSS in Viet Nam. These issues particularly relate to (a) factors that influence the effectiveness of current activities in relation to achieving national goals and targets and (b) factors that present opportunities for change to substantially improve effectiveness of actions in the sector in the future. These key issues are:

- The **approach and objectives of the RWSS-NTP**, which has a strong construction focus and fails to identify and fund activities on many other parts of the NRWSSS.
- The **legal, policy and regulatory** environment is complex and fragmented.

Action to develop a coherent legal, policy and regulatory setting for RWSS is an urgent issue.

- **Coordination** between government departments, between government and donor projects and with the NGO sector.
- **Decentralisation**, and especially how to strengthen coordination and implementation capacities at provincial and sub-provincial levels.
- A coordinated and coherent approach to further **socialisation** should be a key part of the future development of a national programme for the RWSS sector.
- Establishing a range of choices on sustainable **financial mechanisms** that fit the needs and circumstances of different people and technical options.
- The **participation** of local communities in the development of RWSS services, including scaling up and mainstreaming positive local level pilot experiences.
- The importance and future potential of the **private sector**, and especially of small-scale local entrepreneurs.
- The importance of **targeting** the resources available from GoV and donors to reach the poor and use these resources in a more effective manner.
- The strengthening of **IEC** as an integral part of any programme aimed to ensure benefits of improved RWSS are reached.
- **Improving sustainability** of investments, including O&M, cost recovery, improved local participation and more effective management systems.
- Improve the **links** between WSS, poverty reduction and economic development, including providing for the use of domestic water for productive activities.
- Meeting **sanitation targets** will require structural change, the substantial expansion of present levels of investment and clearer institutional commitments.
- Improve the links between **WSS provision and health** and make sure that health and hygiene promotion are key aspects of all RWSS activities.
- Clarify and strengthen institutional responsibilities for **water quality** monitoring and regulation.

- Strengthen **monitoring and evaluation**, including a central sector system and reconciling data from different sources.

These issues are the key to the future of the sector. It should be noted that generating higher levels of funding for RWSS programmes is not one of the key issues. This is because if those listed are addressed then the resources to not just meet NRWSSS targets, but to meet the needs of all the people of Viet Nam will be generated, including increases in the resources that flow from rural communities themselves.

This is the core message to emerge from this Review: effective RWSS provision is not about how to use subsidies. It is about how to build more effective institutional and decision-making systems so that rural people themselves can make the choices over what to spend and what levels of service they want.

Chapter

1

Background and Introduction

1.1 Introduction

Improving the availability of good quality domestic water supplies and improved sanitation for poor rural communities has been identified as a key development objective of Viet Nam, with ambitious national goals included in the country's overall development strategy: to provide *all* rural people with enough good water and hygienic latrines by 2020. These goals exceed Viet Nam's international commitments in this area, as reflected in targets in the national sector strategy that are more ambitious than those contained in the 2000 Millennium Development Goals (MDGs) or the 2002 World Summit on Sustainable Development (WSSD) Plan of Implementation.

There is good reason for the high standard of aspirations that Viet Nam has set itself in this field, for although the demands that they place are great, there is good cause to believe that the rural water supply and sanitation (RWSS) goals are achievable if the existing commitment and dedication by all sections of the community are maintained and enhanced in the remaining period over which the targets have to be met. These ambitious goals and targets will not happen automatically, however: in this case 'business as usual' is not enough. As we shall see, this is particularly true in the case of improved sanitation, where a concerted effort by all stakeholders is needed to turn the situation around. This has been recognised and the Government of Viet Nam (GoV) has defined the need for a systematic process of change and reform to enhance the country's capacity to attain the RWSS goals that have been set and, as importantly, to ensure that this is done in ways that are part of the wider process of development and change that characterises contemporary Viet Nam.

This report sets out in detail an assessment of the current status of rural water supply and sanitation in Viet Nam. It follows on from and develops an earlier summary status report that was presented to a national workshop in November 2004. Feedback from the workshop and written comments on the summary report have been taken into account in the preparation of this full report. This report is intended to be a comprehensive compilation and analysis of the best available information on rural water supply and sanitation status and issues in contemporary Viet Nam. There have been a number of problems in undertaking the analysis that reflect the limitations of the data available, both in terms of coverage and information gaps and

in terms of the differences (which in some cases are large) between the picture presented in different data sets. The information and analysis in this report reflects a sustained effort to reconcile these differences and present the most authoritative picture of the status of RWSS in Viet Nam that is possible. This issue is discussed in depth later in the report.

The assessment presented here reflects the views expressed in consultations with a wide range of stakeholders at all levels, including a number of field research activities in different regions of the country in which the views and experiences of rural people were collected. Emphasis is placed on lessons learnt from recent programmes in order to assess any changes needed to enhance performance in the future. Overall, this emphasis on learning from the past, along with an orientation to building on existing institutions and processes rather than creating new ones, reflects the general conclusion that much has been achieved in RWSS in Viet Nam in recent years and there is a strong basis to build on for the future. There is no room for complacency, however, as there are, as we shall see, also areas where there is significant room for improvement and formidable challenges remain. These lessons will be the basis for the development of a framework strategic plan and a memorandum of understanding in the second phase of this Review.

The strategic plan that will be prepared will identify a range of options for both increasing investments in RWSS and, as importantly, enhancing institutional capacities and introducing much needed reforms to the systems through which RWSS facilities are planned, constructed and operated. The strategic plan will be based on a consensus amongst key stakeholders, with the discussion of potential options informed by an 'Issues and Options' paper that will be circulated in advance of detailed discussions in the plan's contents. The strategic plan will map out a process through which approaches, goals and targets set out in the National Rural Clean Water Supply and Sanitation Strategy (NRWSSS) can more effectively be achieved. This includes approaches such as socialisation, decentralisation, demand-led planning and enhancing community knowledge and capacities that have yet to be effectively included in the implementation of activities it the sector in most parts of the country.

This Sector Status Report is a building block towards this process. As such, it is focused on the current status of the sector, rather than the identification of options and recommendations for change: these will come later. In preparing this paper, the Review Team has focused on the assessment of the RWSS sector, and in particular

has analysed progress made towards achieving the goals and targets set out in the NRWSSS. It also analyses a range of issues, including the policy and institutional dynamics of the sector and the range of finance mechanisms through which RWSS investments are financed and facilities are operated, that are of material importance in advancing or constraining progress towards these goals and targets. Particular emphasis has been placed on the role of the private sector in providing services, constructing facilities and selling materials for RWSS, reflecting what was identified as a key knowledge gap in the initial stages of the work of the Review. The analysis presented in the report links the availability of clean water and improved sanitation to the poverty and health status of rural people, assesses the levels of access to water supplies and sanitation in different parts of the country and different sections of the community and analyses the legal, policy and institutional environment within which the sector operates.

The NRWSSS was developed to catalyse more effective actions to address the needs of rural communities for improvements in their access to water supplies and sanitation. It reflects an understanding that achieving this is essential to the reduction of poverty and development of rural communities in different parts of Viet Nam:

> *"Safe water and environmental sanitation are basic needs of people's daily life and they have become urgent requirements for protection and improvement of people's health and living conditions, as well as for the cause of national industrialisation and modernisation"* [1]

This statement reflects the different ways that access to water and sanitation affects the lives and livelihoods of rural people in Viet Nam, as elsewhere in the developing world. At a national level, the Comprehensive Poverty Reduction and Growth Strategy (CPRGS) identified specific targets on RWSS:

> *"To ensure that 60% of rural and 80% of urban population have access to clean and safe water and 50% rural population have access to sanitary toilets by 2005 and 85% of rural population have access to clean and safe water and 75% have access to sanitary toilets by 2010"*

This report assesses progress towards achieving these targets and identifies factors that are constraining or accelerating progress. The analysis looks at progress in different parts of the country, with this linked to poverty and health conditions in the different regions. Emphasis is placed on institutional factors that have advanced or constrained progress towards the NRWSSS goals and targets.

[1] National Rural Clean Water Supply and Sanitation Strategy (2000), page1

1.2 Development Context

This provides an overview of the relationships between (i) the incidence and characteristics of poverty and (ii) the availability and use of rural water supply and sanitation in Viet Nam. The framework for all activities aimed at poverty reduction in Viet Nam is the **Comprehensive Poverty Reduction and Growth Strategy** (CPRGS). This strategy sets out goals and targets for all aspects of poverty reduction; in most cases with an interim target for 2005 and a final target for 2010. These goals and targets are based on, but are generally more ambitious than, the Millennium Development Goals (MDGs) agreed at the United Nations Millennium Summit in the year 2000. National development policies (see Chapter 3) assign primary responsibility for RWSS development to the **provincial level**. Provinces, through the authority of the Provincial People's Committee (PPC) are where key decisions on water management and investments are made for all but very large schemes that are of national significance (including all RWSS investments). Success in ensuring a more effective targeting of poverty reduction in water management must focus on the development of capabilities at the provincial level to undertake strategic planning in water management. This issue is discussed in more depth below.

Although the significance of urban poverty is acknowledged, and indeed will be of growing importance as Viet Nam urbanises, the focus of attention in this report is on rural poverty and actions to cater for the needs of rural communities. This reflects the fact that both in numbers and in proportional terms rural poverty is far greater than urban poverty. It also reflects the nature of rural livelihoods, which are far more directly linked to and dependent upon access to and the quality of the natural resource base than the livelihoods of the urban poor. The potential gains in poverty reduction from investments in RWSS are likely to be far more direct and far greater than the impacts of urban investments. This does not mean that the needs of urban communities should be ignored: it is a matter of prioritisation and targeting.

Poverty is now recognised internationally as a complex and multi-dimensional phenomenon. Income poverty (the net income of poor people falling below an appropriate poverty line) is, of course, an important aspect of poverty but on its own is not a sufficient basis for either understanding the life experiences of the poor or, perhaps more importantly, guiding our actions to address specific aspects of poverty through focused and targeted actions. In Viet Nam, poverty is at present often defined as being below the official poverty line, an income-based definition. This is

of critical importance, but is only part of poverty and does not give sufficient guidance on how to target specific aspects of poverty through different types of interventions. The official definition of poverty (box 1) has a basic needs approach, which takes us further but is still needs to be developed to reflect international approaches to poverty and provide a link between the CPRGS goals and targets and strategic water planning.

The basis for this is the CPRGS goals and targets. Those relevant for water are listed in Table 1. These goals and targets are the agreed national framework to guide all poverty reduction and development activities. The starting point for developing a poverty-based approach to water management, and basis for developing the NWRSSS, is to define a set of goals and targets for water that show how water management will contribute to achieving the national goals and targets. This is discussed in more detail below.

Box 1: Approaches to Poverty

The most widely used indicator of poverty is the **$1/day** (in 1993 PPP, or purchasing power parity, terms). Based on this, there were 1,174 million poor people in 1998 (23.4% of the world's population, a reduction from 28.5% in 1987). If $2/day is used then there were 2,811 million poor in 1998, over 56% of the world's population. This figure is recognised as no more than a crude indicator, however, and key programmes such as the World Bank/IMF **PRSPs** (poverty reduction strategy papers) call for multi-dimensional assessments of poverty that reflect specific local conditions. The PRSP programme has no standard definition of poverty or blueprint for poverty reduction.

The **Viet Nam Comprehensive Poverty Reduction and Growth Strategy** uses the definition of poverty agreed at an ESCAP meeting in 1993: *"Poverty is a situation in which a proportion of the population does not enjoy the satisfaction of basic human needs that have been recognised by the society depending on the level of economic and social development and local customs and practises"*.

Two measures of the poverty line are used for Viet Nam: the lower is the *food poverty line*, which is based on those unable to access an average of 2,100 Kcal per capita per day. The higher is the *total poverty line*, which adds non-food expenditures necessary to meet basic needs. The 1998 total poverty line figure was calculated as being VND 1,790,000 per annum (39% higher than the food poverty line), which is roughly the equivalent of US$0.35/day.

The **UNDP** has been at the forefront of developing new approaches to poverty and produced the "Human Poverty Index" in the 1997 Human Development Report. This sees poverty as a lack of basic human capabilities, with the index consisting of five key indicators: life expectancy, access to safe water and to health services, literacy and the proportion of children underweight aged five and under. Income poverty is also recognised, with extreme poverty defined as the lack of income to satisfy basic food needs and overall poverty as the lack of income to satisfy a range of basic needs including food, shelter, energy and others.

The outcomes of the WSSD re-emphasised both the complex nature of poverty and the centrality of poverty reduction to the achievement of sustainable development. The focus on poverty reduction at the WSSD was stronger than in past sustainable development conferences and was reflected in the emphasis placed on the attainment of the MDGs as a shared responsibility of the international community.

Table 1: The Contribution of Water Management in Reaching the CPRGS Goals and Targets

CPRGS Goals & Relevant Targets (Only targets where water management can contribute in a significant way are included)	**Water: Direct Contribution**	**Water: Indirect Contribution**
Goal 1: Reduce the percentage of poor and hungry households Target1: Reduce by 40% the proportion of people living below the international poverty line between 2001 and 2010. Target 2: Reduce by 75% the number of people living under the international food poverty line by 2010.	Water as a factor of production in agriculture industry, many other types of economic activity. Investments in water infrastructure and services as a catalyst for local and regional development. Improve operational efficiency of and area under irrigation. Reliable water for subsistence agriculture, home gardens, livestock, tree crops. Sustainable production of fish, tree crops and other foods gathered in common property resources.	Disaster management reduces risks in investments and production. Improved health from better quality water increases productive capacities. Ensure ecosystems integrity to maintain water flows to food production. Reduced urban hunger by cheaper food grains from more reliable water supplies.
Goal 2: Universalise education and improve education quality		Improved school attendance from improved health and reduced water carrying burdens, especially for girls.
Goal 3: Ensure gender equity and social empowerment	Community-based organisations for water management improve social capital of women.	Reduced time and health burdens from improved water services lead to more balanced gender roles.
Goal 4: Reduce child mortality, child malnutrition and reduce the birth rate Target 1: Reduce the infant mortality rate to 30 per 1000 live births by 2005 and 25 by 2010. Target 2: Reduce the under 5 mortality rate to 36 per 1000 live births by 2005 and 32 by 2010 Target 3: Reduce under 5 malnutrition to 25% by 2005 and 20% by 2010.	Improved quantities and quality of domestic water and sanitation reduce the main morbidity and mortality factors for young children. Improved nutrition from more reliable water as the basis for greater food security amongst poor.	Improved nutrition and food security reduces susceptibility to diseases.
Goal 5: Improve Maternal Health Target 1: Reduce the maternal mortality rate to 80 per 100,000 live births by 2005 and 70 by 2010.	Improved health and reduced labour burdens from water portage reduce mortality risks.	Improved health and nutrition reduce susceptibility to anaemia and other conditions that affect maternal mortality.
Goal 6: Reduce HIV/AIDS infection and eradicate other major diseases Target 1: Reduce to the minimum the rates of cholera, typhoid, petechial fever, malaria and other diseases.	Better water management reduces mosquito habitats and malaria incidence. Reduced incidence of range of diseases where poor water management is a vector.	Improved health and nutrition reduce susceptibility to HIV/ AIDS and other major diseases.

CPRGS Goals & Relevant Targets (Only targets where water management can contribute in a significant way are included)	Water: Direct Contribution	Water: Indirect Contribution
Goal 7: Ensure environmental sustainability Target 1: Extend forest cover to 43% by 2010 Target 2: Ensure that 60% of rural and 80% of urban population have access to clean and safe water and 50% rural population have access to sanitary toilets by 2005 and 85% of rural population have access to clean and safe water and 75% have access to sanitary toilets by 2010 Target 3: Ensure that all waste water in towns and cities is treated by 2010. Target 4: Air and water pollution must attain national standards by 2005.	Improved water management, including pollution control and sustainable levels of abstraction, key factors in maintaining ecosystem's integrity. Action to ensure access to adequate and safe water for poor and poorly - serviced communities. Enforcement of regulations on pollution emissions and introduction of clean production technologies.	Development of integrated management within river basins creates conditions where sustainable ecosystems management is possible and upstream - downstream impacts are mitigated.
Goal 8: Reduce vulnerability Target 1:omcrease average income of lowest expenditure quinitile to 140% of than in 2000 by 190% by 2010. Target 2: Develop strategies to prevent and alleviate natural disasters. Reduce by 50% the rate of poor people falling back in to poverty due to natural disasters and other risks by 2010.	Improve and diversify livelihood opportunities of the poor through improved access to and reliability of water supplies for all forms of production. Integration of disaster mitigation and adaptation as a key part of water management strategies . Specific disaster management programmes for most vulnerable people & areas.	Enhanced food security, improves incomes, improved health and greater reliability of water supplies reduces vulnerability of poor people to impacts of disasters.
Goal 9: Improve governance for poverty reduction	Capacity building and increased participation in water management basis for stronger community level organisations.	Improved capacities in provincial and central government agencies improves effectiveness and transparency of state organisations.
Goal 10: Reduce ethnic inequality	Introduce special water management programmes for the specific needs and priorities in ethnic minority areas.	
Goal 11 : Ensure pro-poor Infrastructure development Target 1 : Provide basic infrastructure to 80% of poor communities by 2005 and 100% by 2010	Targeting of investments to poor communities basis for improved water supplies, irrigation, sanitation, disaster protection infrastructure.	Improved institutional capacities amongst poor enhances their ability to access investments in and manage infrastructure

The overall setting for poverty reduction initiatives in Viet Nam is extremely positive, with sustained economic growth and significant progress in reducing the proportion of the population living below the poverty line over the last 10-15 years (see Table 2). Although there are some regional variations in this, the overall achievement of reducing by half the number of people below both the general and the food poverty line in little more than a decade is remarkable. Viet Nam's gross domestic product grew by between 5% and 9% per year throughout the 1990s and

the first years of the new millennium. Growth rates were strongest in industry and services, but agriculture also grew each year by between 1% and 5% during this period. As table 2 shows, the result has been a general reduction in poverty throughout the country, with the number of people below both the general and the food poverty line falling by roughly half in a ten year period.

Table 2: Rural Income and Food Poverty Trends by Region 1993 - 2002

Region	1993 Income Poverty % Rural Population	1998 Income Poverty % Rural Population	2002 Income Poverty % Rural Population	1993 Food Poverty % Rural Population	1998 Food Poverty % Rural Population	2002 Food Poverty % Rural Population
Red River Delta	70.7	36.1	27.1	28.1	10.5	6.5
North East	87.3	71.8	52.1	46.4	36.6	25.3
North West	87.3	71.8	52.1	46.4	36.6	25.3
N. Central Coast	76.9	51.3	49.1	37.2	20.7	19.7
S. Central Coast	57.6	44.9	31.3	27.3	20.8	11.5
Central Highlands	70.0	52.4	61.0	32.0	31.5	34.9
South East	49.5	18.4	17.7	16.7	8.4	5.4
Mekong Delta	51.9	42.0	26.6	19.7	12.8	7.6
All Viet Nam	66.4	45.5	35.6	29.1	18.6	13.6

Source: VLSS preliminary data outputs, General Statistics Office, Government of Viet Nam

The economic development of the last 10-15 years has led to significant increases in real income for most sections of the population: one of the notable features of economic growth since 1988 is that it has been largely achieved without a significant widening of inequalities between different regions and sections of the population (though progress has been somewhat slower in more remote upland areas and amongst ethnic minorities). One of the main reasons for this has been the introduction of the *doi moi* reform process and the associated re-distribution of land in rural areas:

> *"The doi moi reform process, which started in the mid-eighties, provided a new framework for realising human development objectives…The doi moi reform process has clearly resulted in a substantial improvement in the well-being of the vast majority of the Vietnamese people"* (UNDP 2001, page 1)

This process has been tremendously successful in reducing poverty, enhancing the asset base of many poor people and increasing productivity levels throughout the

agrarian economy. There are concerns, however, that these gains in growth without widening inequalities are a "one-off": land reforms and associated benefits can only take place once. Future growth trends may be at the expense of widening inequalities, with the likelihood of this being increased by the increasing openness and higher level of integration into global economic processes of Viet Nam's economy: *"Recent new statistical evidence of widening disparities…suggests that maintaining equity is an emerging new challenge facing the country"* (UNDP 2001, page 1).

Despite these concerns over the possible widening of inequalities, the overall growth prospects for Viet Nam are positive in the medium term. A joint assessment by the World Bank and Asian Development Bank (2002) suggests that this is in no small measure due to continued reforms and the vigour shown by the private sector:

> *"Viet Nam is again growing quite strongly. This improvement is partly due to a series of policy measures that put the economy on an enhanced medium-term growth path…in early 2002 a special meeting of the Party Central Committee gave the strongest endorsement of the private sector ever…During the previous phase of rapid growth, a key question was whether Viet Nam would become a market economy. Today, the question is rather what kind of market economy?"* (World Bank 2002 page i).

The report goes on to suggest that a sustained period of strong growth, perhaps as high as 7% per annum, is likely. If achieved, this will create the fundamental economic conditions for sustained poverty reduction, but international experience suggests that this will not be achieved by accident or through a reliance on development "trickling down" to reach the poor. Poverty reduction in Viet Nam in the future will require a sustained and conscious effort to target the needs and capabilities of the poor.

The Government of Viet Nam recognises and is committed to this, with this commitment reflected in the CPRGS, with this pivotally important document based on a vision of a transition to a market economy that is balanced by a process of socially inclusive development: *"it gives strong emphasis to poverty reduction and social equity, and to a more modern system of governance"* (World Bank 2002, page i). In this, the need to channel investments and development efforts to rural areas and regions that are lagging behind the rest of the country in the speed of their development is recognised. This is as true for RWSS as it is for other areas of investment; an issue that is the basis for the definition of targets and priorities that will be integrated into the strategic plan that this Review will develop.

As such, the fundamental conditions for effective and targeted poverty reduction exist, with a growing economy, a commitment to socially inclusive development and a process of reform by the government all in place. Nevertheless, it is also recognised that challenges still exist, not least in creating the institutional and governance conditions that genuinely empower the poor and integrate them into the wider process of national development. This is as true for water management as it is for other sectors. Three particular challenges can be identified:

1. The development of institutional capabilities amongst the poor that enhance social and gender equity and that build a basis for genuine participation by local communities in all aspects of development decision-making.

2. Working the reform process through the system, based on further decentralisation, and enhancing the capabilities of government institutions to institute new, pro-poor approaches at provincial, district and commune levels. The starting point for this is to strengthen understanding and capabilities in province-level institutions where key development decisions are taken.

3. Balancing the responsibilities of government, the private sector and local communities in different aspects of water management. This relates to the management of the resource base, the provision of services and the regulation of both of these aspects of water management.

The ways that these challenges are worked out will in large measure define the extent to which the potential of RWSS in poverty reduction in Viet Nam is realised. As has been said, the basic development conditions are positive but this does not automatically mean that potential is translated to reality. This will only occur where appropriate changes are made to the way that water resources are managed that reflect the wider development and reform process and the need to balance growth with targeting the specific needs of the poor.

1.3 Review Origins and Scope

The joint GoV - Donor Sector Review of Rural Water Supply, Sanitation and Health in Viet Nam (the Review) is sponsored by DANIDA, AusAID, UNICEF and ADB, and reports to a national task force consisting of representatives of GoV, key donors in the sector and other stakeholders. The objectives of the Review are three-fold:

- To describe and assess the present status of the rural water supply and sanitation sector framework in Viet Nam and related health aspects, including a brief overall assessment of government programmes and donor-/INGO/NGO assisted programmes and projects.
- To assess the status of implementing the NRWSSS and summarise lessons learned and recommend solutions to constraints/issues identified in the implementation of the NRWSSS.
- To provide guidance and recommendations to Government and donors on harmonisation, aid management modalities, partnership implementation strategies, information sharing, access to global learning, appropriate approaches for rural water supply, sanitation and health in Viet Nam and future investment plans for GoV and the donor community.

The TOR set out a series of specific points under the scope of work. These were consolidated and further developed by the Review Team during the initial planning period, with the activities undertaken during the Review consolidated into two main phases of work, with each phase culminating in a workshop and the presentation of one or more major outputs from the Review. These two phases are:

- **Phase 1: Assessment of the RWSS Situation in Viet Nam**: during this phase, the team will concentrate on providing an overview of the current situation in water supply and sanitation in Viet Nam. This report represents the culmination of efforts by the Review Team in this first phase of the Review.
- **Phase 2: Preparation of Strategic Plan and Memorandum of Understanding:** this phase will build on the overview developed in Phase 1 to prepare a series of recommendations on how to enhance the effectiveness of activities in the sector and generate increased resource flows to the sector.

The terms of reference of the Review set out a series of issues that should be covered in Phase 1 of the work. These issues were consolidated in the inception report to identify the following main areas of work:

- Collect and assess information on completed and ongoing **major programmes and projects**. This will include information on technical, institutional, social, economic and water resource issues, as well as the planning, implementation modalities and monitoring systems of these projects and programmes. Particular attention will be paid to assessing the current status with regard to the

implementation of the National Rural Clean Water Supply and Sanitation Strategy (NRWSSS). Attention will also be paid to include INGO and NGO programmes as well as those managed by government agencies and donors.

- Review the existing **policy, legal and institutional framework** for WSS development and management. This will include the analysis of planning, budgetary flows and the links between WSS development and other policies and programmes (especially those concerned with poverty reduction, health, decentralisation and private sector involvement in service delivery).
- Assess levels and types of **community participation and empowerment**, including that of women and ethnic minorities, in planning and implementation of WSS services. Particular attention will be paid to institutional capacities at the community and local authority levels and the links between local institutions and external institutions at commune, district, province and national levels.
- Review the findings and recommendations made by recent **reviews** carried out by Government and various donors and review the workshop proceedings of the three recent sector **workshops**. The findings of these exercises will be used as a point of departure for the analysis and recommendations made by the Review Team.
- Review provincial and national **monitoring and evaluation systems**, including the main national system of CERWASS, the M&E systems of other relevant agencies and the M&E systems of different programmes and projects. Review the existing database monitoring system of UNICEF and make recommendations for a possible sector wide use. In this analysis, attention will be paid to (a) identifying and providing recommendations on how to address inconsistencies and contradictions in the different data collection systems and (b) the links between WSS data flows and data on health, poverty reduction and water resources.

All of these issues are covered in this report, though to ensure a logical structure and coherence of style they have been compiled in a slightly different structure for purposes of reporting. This includes specific Chapters on financial mechanisms and on the private sector, as these have been identified as areas of key knowledge gaps during Phase 1 of the Review. The consultations and discussions undertaken in the initial stages of the Review led to the identification of a series of key strategic issues

that the Review would need to address (these are discussed in section 1.5., below). The information presented in this report provides a basis for establishing a consensus position on the current status of these key issues across the country. This consensus is an essential pre-requisite for agreeing the strategic steps that need to be taken to address these key issues over the coming years.

1.4 Review Methodology

The Review is based on a structured process to access all available information on progress and approaches in the sector and to ensure that the experiences and perspectives of as wide a range of stakeholders as possible is accessed and included in the analysis. These different stakeholder perspectives are essential for the analysis presented here, as there is a range of uncertainties surrounding the sector and opinions are often based on personal experience, institutional priorities and anecdotal observations. To ensure that these different perspectives have been captured in the Review process, a large number of interviews, with individuals and groups, have been undertaken in Ha Noi and throughout the country.

The time and resources available to the Review inevitably meant that there were limits on, in particular, the amount of fieldwork that could be undertaken, but despite this the development of an adaptive and flexible methodology has meant that the Review Team has been able to access a wide range of opinions and is confident that the information and analysis presented here reflects as accurate a picture of the current status of the RWSS sector in Viet Nam as is possible at this time.

The first component of the methodology adopted for the Review has been the collation and analysis of all **key data sets** on RWSS coverage, related health issues and the poverty status of rural populations. The main data sets that have been used for this are the reporting system of CERWASS, the Viet Nam Living Standards Survey (VLSS: three survey data sets were obtained, for 1992, 1998 and 2002) and the Viet Nam National Health Survey (VNHS) of 2002. A range of other data sources were used where they are available, including sources such as the reports of assorted donor-supported projects, reporting on progress towards the WSS MDGs in Viet Nam, the Viet Nam Human Development Report and others. Where possible, these data sources have been analysed at the provincial level, but in some cases disaggregation has only been possible to a regional level (reflecting data coverage or survey sample size). The reconciliation of these different data sources

has been accomplished through close collaboration with UNICEF, who are taking the lead in the development of a unified national RWSS monitoring and evaluation system.

The second methodology component has been an extensive process of **stakeholder consultations**. This includes discussions, often with repeat visits, to all relevant government agencies (including ones such as Ministries of Health, Education and Planning and Investment, the Prime Minister's Office and the General Statistical Office as well as the different departments of MARD). It includes discussions with all donors with an interest in the sector and consultations with all major donor-assisted projects and programmes (including ones under preparation as well as existing and recently completed projects), combined with field visits to a number of key donor projects (including ones sponsored by DANIDA, AusAID, UNICEF, ADB and NGOs). The consultations include extensive meetings with members of the NGO community and a presentation at the NGO working group on water supply and sanitation. Finally, the Review has undertaken a programme of consultations and discussions at provincial, district, commune and community levels, meeting political leaders, different province-level departments such as PCERWASS and the Provincial Department of Preventative Health *and* rural people from different parts of the country. The province-level consultations included the following visits:

Schedule of Field Visits

No.	Region	Note
1	Central Highlands	NRWSSS Pilot Province, DANIDA supported activities Dak Lak
2	Mekong Delta	Aus AID supported activities Vinh Long, An Giang, Long An, Kien Giang
3	Red River Delta	UNICEF Programme Vinh Phuc
4	North Central Coast	ADB, JICA, UNICEF, IDE & World Vision supported activities, ITI programme Thanh Hoa, Quang Tri
5	North - East Highlands	Phu Tho, Bac Giang
6	South - East	HCMC, Vung Tau

To complement these province-level visits, **participatory rural appraisal** exercises were undertaken in five provinces (An Giang, Dak Lak, Quang Tri, Vinh Phuc and Bac Ninh) to assess patterns of use of rural water supplies and sanitation (including their use for productive purposes) and the structure, significance and economic basis of private sector involvement in all aspects of RWSS. These PRA exercises were added to the scope of the Review during Phase 1 in order to add to the extremely limited information available on the role and characteristics of small-scale local entrepreneurs in RWSS development. This emerged as a key knowledge gap during the Review which, given the prominence of socialization and private sector development in both the NRWSSS and overall national development strategies, the PRA exercises have to an extent filled, but is an issue where far more needs to be known and further field assessments that are beyond the scope of the current Review are needed.

During the consultations, all key **documents**, including laws, decrees, policies, strategies, plans and budget allocations, programme and project evaluations, technical manuals and background materials on issues such as operation and maintenance, technical aspects of construction and health and hygiene promotion, were collected (the majority in Vietnamese but some also available in English). The content of this extensive collection of documentation has been carefully analysed and the key experiences, lessons learnt and (perhaps most revealingly) gaps in their coverage and orientation have been identified. This document content analysis was, where relevant, validated through further consultations with the key institutions responsible for different aspects of RWSS development. It has been critical in informing the conclusions presented in this report.

This combination of data analysis, stakeholder consultations, field research exercises and documentary reviews was undertaken using a variety of both **quantitative and qualitative methods**. Most interviews were based on open-ended discussions rather than formatted questionnaires (the exception being some of the field interviews). The data analysis has been undertaken with standard spread-sheet analytical tools (outlined in more detail below). The review of documentation and data findings were based on well-established approaches to policy and livelihoods analysis and the field exercises were undertaken using what are now standard, validated and robust techniques such as focus group discussions, wealth-ranking methods for identifying key stakeholder groups and semi-structured interviews. Taken together, the range of methodological and analytical tools used in the different parts of the assessment mean that the results presented in this report

represent a robust, effective and objectively verifiable synthesis of the best knowledge available on RWSS issues in Viet Nam.

1.5 Key Issues

A number of key issues have been identified as critical for the future development of RWSS in Viet Nam. These issues are discussed throughout the text where appropriate, but to assist the understanding of the different sections below, they are consolidated into a list and briefly discussed here. These issues particularly relate to (a) factors that influence the effectiveness of current activities in relation to achieving national goals and targets and (b) factors that present opportunities for change to substantially improve effectiveness of actions in the sector in the future.

- The first and perhaps most crucial point in relation to reviewing the NRWSSS is the **approach and objectives of the RWSS-NTP**, the main GoV mechanism for translating NRWSSS targets into action. The RWSS-NTP has a strong construction focus and fails to identify and fund activities on many other parts of the NRWSSS. This has been critical in the achievements or lack of success in the NRWSSS.

- The **legal, policy and regulatory** environment is complex and fragmented. There are many positive changes, but also issues of overlap and gaps and many uncertainties over rights and responsibilities. Action to develop a coherent legal, policy and regulatory setting for RWSS is an urgent issue.

- The issues associated with **coordination** between government departments, between government and donor projects and with the NGO sector. There are numerous programmes on RWSS but they are fragmented across different government agencies, with donor projects and NGOs working largely in isolation. Creating effective coordination at, in particular, the provincial level and below is essential for ensuring the different contributions of different stakeholders are deployed to the best effect.

- The links between RWSS development and **decentralisation** policies, and especially how to strengthen coordination and implementation capacities at provincial and sub-provincial levels. Decentralisation has the potential to enhance provincial planning of investment and management of WSS activities, including control over the allocation of funds and the capacity to develop their

own regulations and policies. However, the capacity of provincial, district and commune officials to manage and decide investments remains low. Actions to enhance these capacities are a key issue for the future of the sector.

- Similar conclusions can be made concerning the implementation of **socialization** in RWSS development. This is a key principle in the NRWSSS and in wider government policies but as yet has only been partially implemented in a limited number of provinces. A coordinated and coherent approach to further socialization should be a key part of the future development of a national programme for the RWSS sector.

- Establishing a range of choices on sustainable **financial mechanisms** that fit the needs and circumstances of different communities is critically important for both levels of future investments and the sustainable operation and maintenance of water supply and sanitation facilities.

- The **participation** of local communities in the development of RWSS services, including all stages of identification, planning and implementation of investments and the operation of services once they are developed. A particular issue is scaling up and mainstreaming positive local level experiences.

- The importance and future potential of the **private sector**, and especially of small-scale local entrepreneurs. Although data is patchy, in many places they are already the main provider of WSS services. The scope for strategies to enhance their role and integrate them into mainstream programmes is a key issue for the development of affordable and sustainable RWSS services.

- The importance of **targeting** the resources available from government and donor sources to, in particular, reach the poorer sections of the community, and of using these resources in a more effective manner. This includes in particular (a) ensuring that these resources assist the poor who are least able to meet their own needs and (b) the resources are used to build capacities and develop new modalities for reaching ambitious targets.

- The strengthening, including better coordination, of **IEC** as a core part of RWSS development: this is a key issue in the NRWSSS. The current dominant supply-driven approach needs to be replaced with one that recognises as effective IEC as an integral part of any programme aimed to ensure benefits of improved RWSS are reached. The scope of IEC activities need to be prioritised and tailored to reflect the institutional, financial and other resources available to

implement them.

- There are concerns over the **sustainability** of many investments: reflecting the lack of attention to operation and maintenance in programmes to expand RWSS facilities, uncertainties over rights and responsibilities, ineffective management systems, poor tariff and cost recovery mechanisms, low levels of participation and a lack of local ownership.

- There is a need to better understand the **links** between WSS, poverty reduction and economic development, including the use of domestic water for productive activities and the full economic benefits that come from improved water supply and sanitation provision. Ensuring that the development of RWSS services (and especially centralised water supply systems) can meet these demands for water for home-based productive activities is critical for both the viability of future investments and the ability of RWSS development to meet its full poverty reduction potential.

- The tremendous challenges that meeting **sanitation targets** presents. Present trends suggest that there is little prospect of sanitation targets in the NRWSSS and the VDGs without major changes to the current approach. This is a key priority for the next 5 years and more resources must be devoted to this issue. The challenge includes clarifying institutional responsibilities as well as actions to encourage rural people to make their own investments.

- The need to understand better the links between **WSS provision and health** and make sure that health and hygiene promotion are key aspects of all RWSS activities. This should include using health indicators to assess RWSS programme impacts and better use of the experience and capacities of MOH at the community level in RWSS programmes.

- The importance of and lack of good information concerning **water quality**. Little is presently understood about patterns of water quality in different forms of RWSS provision and there is a lack of clarity over institutional responsibilities for water quality monitoring or regulation.

- The challenges associated with **monitoring and evaluation**, including the need for a central sector system and reconciling data from different sources. There are a number of concerns over definitions, accuracy of data reporting and effectiveness of coverage that are being further examined.

These issues are the key to the future of the sector. It should be noted that generating higher levels of funding for RWSS programmes is not one of the key issues. This is because if those that are listed are addressed then the resources to not just meet NRWSSS targets, but to meet the needs of all the people of Viet Nam will be generated, including significant increases in the resources that flow from rural communities themselves. This is the core message: effective RWSS provision is not about how to use subsidies. It is about how to build more effective institutional and decision-making systems so that rural people themselves can make the choices over what to spend and what levels of service they want.

Chapter

2

Status of the Sector

2.1 Outline

This Chapter describes the current status of the rural water supply and sanitation sector in Viet Nam, including the current status of water resources, environment, water supply and sanitation coverage, popular water supply and sanitation models, incidence of common water supply and sanitation related diseases, access of vulnerable and disadvantaged groups to improved water supply and adequate sanitation, and information on investment to the sector during the last five years.

The Chapter first presents the **water resource and environmental** context, which includes surface and groundwater resources, rainfall patterns, droughts, floods, irrigation, environmental pollution and salinity. Water resource and environmental factors strongly influencing the current status of water supply and sanitation coverage are highlighted, and links to some specific health problems are drawn. Opportunities for improved rural water supply and sanitation service provision within the particular water resource and environmental context of particular regions are provided.

In 2002 the Poverty Task Force highlighted the problem of incompatible data sets for water supply and sanitation coverage in Viet Nam[2]. They concluded that RWSS coverage data collected before 1998 varied widely due to methodological, survey and definition differences. There are differences in data collection techniques such as sampled surveys versus archived records; or mixing of groups like urban and rural; and particularly problematic is the diversity of definitions for what actually constitutes 'safe' or 'improved' water sources or a 'hygienic' latrine.

The Chapter presents a comparative analysis of data from two recently completed nationwide surveys that measured rural water supply and sanitation coverage. The two main surveys on rural water supply and sanitation coverage in Viet Nam are the Viet Nam Household Living Standards Survey (VLSS 2002) and the Viet Nam National Health Survey (VNHS 2002). Additional background information about these surveys and other monitoring systems for RWSS coverage in Viet Nam appears in Chapter 7.

The comparative analysis provides some measure of the reliability of RWSS

[2] "Ensuring Environmental Sustainability" June 2002, Hanoi

coverage data sets and has informed the selection of particular data sets for measuring specific monitoring indicators. The comparative analysis shows up various incongruities between the two data sets and some possible explanation for these is given. Nationwide coverage maps for 'clean water supply', 'improved water sources' and 'hygienic latrines' are provided based on the preferred data sets. Information on **water supply & sanitation coverage at schools** is also presented.

There is enough agreement between major 2002 household RWSS data sets to propose regional baselines. These can be used to monitor NRWSSS progress to 2020. These preferred estimates will form the basis for developing revised coverage targets that better reflect different starting points for each of the regions. Notably when the NRWSSS targets were devised there was no real accounting for the differences in coverage between regions. To support the development of revised RWSS coverage targets for 2010, 2015 and 2020, various trend analyses are presented here that shed light on the rate of change of coverage over the last five to ten years.

To compliment the analysis of water supply and sanitation coverage data, this chapter includes an analysis of available health records for several water supply and sanitation related diseases. This analysis includes trend and spatial mapping of the incidence of diseases such as typhoid, cholera, dengue fever, dysentery, diarrhoea and Japanese encephalitis. During the 1999-2003 implementation period of the NRWSSS some progress was made to reduce the incidence of these diseases. However there are still several geographical hot-spots, and water supply and sanitation related diseases remain a serious health problem in many areas.

The status of investment in rural water supply and sanitation heads the final section of the Chapter. Data is drawn mainly from provincial CERWASS records. Community contributions are compared with government funds, and results show a considerable difference between how provinces leverage user funds to cover the costs of RWSS.

2.2 Water Resources & the Environment

This short section describes water resources and the environment, which is a key influencing factor on the current status of water supply & sanitation coverage, poverty and disease. This section is intended to overview some of the water

resources and environmental factors limiting progress towards the goal of universal clean water supply and hygienic sanitation coverage. Drawing from baseline data, it outlines key opportunities to improve water supply and sanitation coverage in particular regions and highlights remaining risks. Tables 3 and 4 below provide an overview of surface and groundwater resource availability and quality across Viet Nam's eight regions.

Table 3: Water Resources Availability in Viet Nam

Region	Surface Water	Ground Water	Issues
North West	+++++	+++	Flash floods, floods, seasonal drought, reservoir siltation and construction.
North East	++++	+++	Flash floods, floods, seasonal drought.
Red River Delta	+++++	+++++	Floods, cross sectoral water allocation and use, intensive agriculture, groundwater over exploitation.
N. Central Coast	+++	+++	Flash floods, floods, seasonal droughts, low river flow during prolonged dry season in south of region.
S. Central Coast	++	+++	Flash floods, floods, severe seasonal droughts, low river flow during prolonged dry season entire region.
Central Highlands	++++	++++	Flash floods, seasonal droughts, groundwater over exploitation for irrigation, reservoir construction.
South East	++++	+++++	Floods, seasonal drought, sector wise water allocation and use, groundwater over exploitation (HCMC)
Mekong River Delta	+++++	+++++	Flood, cross-sectoral water allocation and use, intensive agriculture/ aquaculture, groundwater over exploitation

Source: Viet Nam Environment Monitor - WATER, 2003

Surface water sources, including rivers, irrigation channels, navigation canals, lakes and ponds, provide an important source of water for homes in many parts of the country. The Red River Delta, the Mekong River Delta and the South East are characterised by dense river networks and abundant surface water. Communities in the Mekong Delta are highly dependent on open surface waters for everyday use. Although the North West and the North East also have abundant surface water, steep valleys make many rivers difficult access for domestic consumption. There are differences in the quality of surface water depending upon ecological region. For rural households living at the downstream end of the South East region the surface water quality is of poor quality and potentially hazardous on account of the upstream industrialisation along with saline intrusion. The greatest scarcity of surface water is

experienced in the South Central Coast region, largely attributable to the prolonged dry season and the comparatively short and steep river basins that characterise this region. Coastal and downstream areas with limited scope for groundwater development or rainwater harvesting are among the most vulnerable areas and hence they are frequently identified in provincial master planning for RWSS development.

Table 4: Water Resources Quality in Viet Nam

Region	Rivers		Ground Water	Coastal Waters	Issues
	Up stream	Down stream			
Red River Delta	++++	++	+++	+++	Urban and industrial pollution, saline intrusion, agrochemical pollution.
North East	+++++	++	++++	+++	Urban pollution, saline intrusion, marine transport pollution risks.
North West	+++++	++++	+++++	-	-
N. Central Coast	++++	+++	++++	++++	Urban pollution, saline intrusion
S. Central Coast	+++++	++	++++	++++	Urban pollution, saline intrusion
Central Highlands	+++++	++++	+++++	-	-
South East	++++	+	+++	++	Urban and industrial pollution, saline intrusion
Mekong River Delta	++++	++	+++	+++	Saline intrusion, low pH in rivers (acid soils), agrochemical pollution.

Source: Viet Nam Environment Monitor - WATER, 2003

The availability of exploitable groundwater resources varies greatly between regions. The Mekong Delta contains some 42% of exploitable groundwater nationwide. By contrast the North Central Coast and South Central Coast combined account for around 3%. However there are many shallow sandy aquifers along coastal areas, and these can be tapped with simple hand drills and pumps. The deep artesian aquifers at the coastal fringe of the Mekong River Delta, by contrast, are some 500 metres below surface and much harder to tap. Groundwater is a comparatively underused water resource in Viet Nam an estimated 95% of total reserves are untapped (Viet Nam Environment Monitor - WATER, 2003).

In rural areas, groundwater is mainly used for domestic consumption. Many households use tube wells or hand-dug wells that tap the shallow groundwater at a

depth of 5 to 20 metres. Rural households in the Mekong Delta, the Red River Delta and the South East are increasingly tapping deeper aquifers. Compared with urban areas, or areas where groundwater is used for agriculture and other productive uses, groundwater pumping to meet rural domestic consumption needs is not likely to be the major contributing factor to unsustainable rates of groundwater abstraction. Nonetheless there must be greater attention to monitoring the development and use of groundwater for all purposes, which obviously includes rural domestic uses.

Yet there are a number of instances where groundwater pumping for agricultural and industrial use is impacting upon the availability and quality of domestic water. Groundwater used to irrigate cash crops in the Central Highlands is being pumped out at apparently unsustainable rates. There are also a number of cases of shallow groundwater sources being damaged as a result of activities associated with the expanding shrimp and aquaculture industry (the links between aquaculture and the security of the domestic clean water supply are described later).

In the more mountainous areas of the North West and North East regions groundwater is often not reachable using hand-dug wells. The water table is typically deep and the annual fluctuations in groundwater level large compared to more low-lying areas of the country. Instead these are the areas where groundwater discharge from natural springs and seeps is most common. Ethnic minority households either walk to collect water from these springs and seeps or if possible direct water via bamboo or plastic pipelines. Continued deforestation and slash-and-burn agricultural techniques in certain parts of the country are undermining the natural hydrological balance of many catchments. As a result of the loss of vegetation, a higher proportion of rainfall in these areas is ending up as runoff, resulting in reduced dry season groundwater base flow. Integrating catchment management with water supply provision in mountainous areas is urgently required if these valuable groundwater-fed springs, seeps and streams are be a viable future source of safe water.

Rainfall in Viet Nam varies greatly by geographic area and season. The North East has some of the highest annual rainfall rates, as do the central coastal provinces around Hue and Da Nang. These two areas receive as much as 4000mm of rain a year. The central coastal provinces are also some of the most drought-prone in the country, underlining the highly seasonal pattern of rainfall. (The dry season in the central coast lasts around seven months). Nationwide an average annual rainfall of 1200 to 1400 mm is about the lowest rate and areas with either very low rates of

annual rainfall or very extended dry season are among the most vulnerable to scarcity of clean water supply. Provinces where very low annual rainfall rates occur regularly include Son La, Lang Son, Nha Trang, Phan Thiet, and An Giang provinces. As will be discussed in later sections of this report, there are a number of indications that the full potential of rainwater collection and storage in Viet Nam has not been realised.

Drought is a growing concern for a number of regions, and climate change may well increase the length and frequency of future droughts. Seasonal droughts, common across all regions, are most severe in the South Central Coast and the southern provinces of the North Central Coast (Viet Nam Environment Monitor - WATER, 2003). Vulnerability to drought conditions and desertification is generally not a one-off event but is a characteristic of an area that repeats itself and compounds overtime. Priority areas for assistance to combat desertification were identified in a major study by the United Nations Convention to Combat Desertification (UNCCD, 2002). This particular study highlighted several problematic areas, including the South Central Coast, the Da River catchment in the North West, the Central Highlands, and the Long Xuyen Triangle in the Mekong Delta. More still needs to be done to compile a definitive data set on the length and location of droughts. Such data would support improved targeting of clean water supply assistance to drought-ridden areas.

Viet Nam is one of the most flood-prone countries in the world. The nature of flooding in different areas, however, means management strategies differ widely. Flooding in the Mekong Delta cannot be directly mitigated, and a large component of flood management in the region involves supporting people to live safely with the floods. Many floods in the Red River Delta have been directly mitigated as a result of an extensive network of dykes. Dyke failure, however, still results in sudden and destructive flooding, and management strategies in the region remain highly concerned with improving the dyke system. Flood management strategies in central provinces, hit often by flash floods, emphasise preparedness and the construction of structures able to withstand sudden onrushes of water.

Flooding has various impacts on water supply and sanitation in rural areas. Poor sanitation is often made worse in the wake of a flood. Particularly in areas where hand-dug wells are the preferred water supply model, flooding creates the necessary conditions for pollutants on the land to cause widespread contamination of people's drinking and cooking water sources. For example 70% of communities in the central

coastal regions use wide-diameter open wells for drinking water, and yet there is no tradition of protecting these wells from flooding or treating well water after floods to ensure it is safe. (There is also very little use of rainwater as an alternate water source). By contrast, flooding in the Mekong Delta actually improves the quality of water for many people. Flood waters flush out stagnant surface waterways, bringing direct relief to about half the population who still rely on surface water for direct human consumption. Cholera, however, remains a threat in low lying delta and flood-prone coastal areas, reflecting the close link between flooding and certain water-related diseases.

Salinity is a major problem in coastal and delta communities and could be affecting as many as 13 million people annually (NRWSSS, 2020). The Mekong Delta is particularly vulnerable as a result of its low-lying topography. Tidal flows result in surface water flow reversals that push saltwater upriver. Saltwater intrusion is expected to worsen as upstream diversions increase. The Mekong Delta is particularly vulnerable to such diversions, as such a high proportion of the river originates and is diverted outside Viet Nam. Communities living in the Central Coast are vulnerable to storm surges and typhoons, both of which can cause salinisation of shallow groundwater. At the coastal fringe of the Red River Delta there are also growing signs of groundwater extraction impacting on local groundwater conditions.

In the four furthest downstream provinces of the Mekong Delta (the provinces most severely affected by salinity and acid sulphate soil) around 80% of households use drilled tube wells with pumps. But this source of fresh water is under threat. Unsustainable rates of groundwater extraction for agriculture and aquaculture is causing saltwater intrusion into traditional water sources or alternatively directly depleting these water sources. Shrimp farmers especially are increasingly using fresh groundwater to reduce the salinity of their shrimp ponds. Given that surface water quality is so poor along the coastal fringe of the Mekong Delta, and that rainwater is difficult to promote safely given the incidence of dengue fever, it is critical that groundwater in the area be adequately managed. The deep aquifers near the coastal fringe represent a good source of fresh water but are extremely vulnerable to saltwater intrusion and must be tapped carefully.

Environmental pollution is most problematic around towns, industrial zones, and intensive animal breeding and handicraft villages. Human excreta and waste from small-scale animal breeding are also contributing to a decline in the quality and

safety of surface water and shallow groundwater resources. The most densely populated areas, the delta plains, are the most polluted. Pollution and poor environmental sanitation are particularly detrimental to health during the dry season and after floods.

In 2000, irrigation accounted for an estimated 84% of total water demand nationwide (Viet Nam Environment Monitor - WATER, 2003). Between 2000 and 2010, the volume of water used for irrigation is predicted to increase from 76.6 billion cubic metres to 88.8 billion cubic metres. Most of this water will be diverted from surface reservoirs and lakes created by dams. Irrigation has had varying impacts on domestic water supply in rural areas. Some rural communities, especially small towns, benefit directly from the provision of piped water supply from dams and reservoirs. Moreover irrigation increases the rate of groundwater recharge, which contributes to better water availability in shallow water wells in areas adjacent to irrigation areas. Irrigation recharge also causes wider annual water fluctuations that can result in increased oxidation of the shallow groundwater environment, sometimes worsening groundwater quality (e.g. increased iron and manganese).

Arsenic is a naturally occurring groundwater quality problem that poses a potentially serious human health risk. (The health impacts of elevated arsenic are described in section 2.6 on WSS related diseases). Naturally occurring arsenic is generally concentrated in organic deposits typically associated with delta environments. Indeed a recent situation overview prepared by UNICEF[3] concluded that the most probable cause of Viet Nam's arsenic problem is natural dissolution of arsenic in delta regions due to highly reduced organic deposits being subject to fluctuations in groundwater level and pressure. There is not yet a complete picture of the extent of arsenic occurrence in Viet Nam however the Red River Delta and Mekong Delta have recorded the highest concentrations to date. Identified arsenic hot spots include: Ha Nam, Hanoi, Ha Tay, Hung Yen, Nam Dinh, Ninh Binh and Thanh Hoa in the North; and An Giang and Dong Thap in the South. In July 2003 a National Arsenic Action Plan (NAAP) was submitted to the GoV for approval and is based on 3 main pillars of intervention: water testing to **screen** for arsenic, monitoring public **health impacts** of arsenic, and **mitigation** through development of alternative water sources.

[3] Arsenic Contamination in Vietnam - a Situation Overview & the Mitigation Measures Required, UNICEF Vietnam Water, Environment & Sanitation (WES) Section, October 2004

2.3 Coverage of WSS in Rural Areas of Viet Nam

The ambitious goals that Viet Nam has set itself for rural water supply and sanitaion will not be realised without an better understanding of coverage patterns, trends over time, and the relationship between water supply and sanitation coverage and poverty and health. The analysis presented below gives a detailed overview of these areas and can be summarised as follows:

- The overall national picture for rural water supply suggests that the targets for 2010 and, with less certainty, for 2020 are likely to be met if existing efforts are maintained.
- The same is not true for improved sanitation. Present trends clearly show little or no prospect of the 2010 and 2020 targets being met unless major structural changes are made to how sanitation is provided and promoted in Viet Nam. This is true at all levels.
- There are major differences between regions and provinces in the main types of water supply technologies used, as well as the levels of coverage and trends over time. Strategies to further develop water supply facilities need to be tailored to the specific characteristics and opportunities of different areas; the existing uniform approach of promoting piped water systems in all areas is not appropriate.
- While the national and regional trends for water supply are generally positive, there are a number of provinces in all regions that are lagging significantly behind the overall trend. Special efforts are needed in these provinces if they are to attain NRWSSS goals and targets.
- Trends in key health indicators show considerable regional and provincial variations. Many have shown positive trends in recent years but are still unsatisfactory. There needs to be more effective integration between (1) the improvement of rural water supply and sanitation services, (2) health and hygiene promotion and (3) primary health care provision. This needs to be based on the active participation of rural communities, especially women.

These overall conclusions are elborated on below. For the purposes of this Review, Viet Nam's eight ecological regions will constitute the main units of reporting and analysis. Althogh data is limited, rural water supply and coverage at the provincial level will also the explored in as much detail as possible.

There are four main monitoring systems for rural water supply and sanitation coverage in Viet Nam: the 2002 Viet Nam National Health Survey (VNHS), the 2002 Viet Nam Household Living Standards Survey (VLSS), routine CERWASS reporting and routine commune health station and village health worker monitoring. The 2002 VNHS and the 2002 VLSS provide the most comprehensive view of nationwide water supply and sanitation coverage. These surveys are centrally managed and follow relatively uniform systems of data collection and reporting. The VLSS is one of the main tools used to monitor progress towards CPRGS goals, and it is an increasingly well-conducted survey. The government's commitment to maintain the VLSS monitoring system makes it too a key tool to track future progress. CERWASS has compiled records of water supply and sanitation coverage change over the period from 1999 to 2003 based on reports from the provincial CERWASS units. The origin of CERWASS coverage estimates is not well documented (to a significant extent it is based on reporting by commune people's committees) and collection methods vary by province. The system is also incomplete; around one-third of Viet Nam's 64 provinces have not provided regular coverage reports. In provinces where CERWASS has been diligent, however, coverage and investment figures provide a useful basis for assessing progress towards several targets (see Section 2.5). Monitoring of rural water supply and sanitation coverage by commune health stations and village health workers has been neglected since the inception of the NRWSS and the RWSS-NTP.

2.3.1 Household Water Supply & Sanitation Coverage

In 2002, both the VNHS and the VLSS were carried out using large sample groups: the 2002 VLSS surveyed 30,000 households nationwide the 2002 VNHS surveyed close to 36,000 households. Although there are some differences in the definitions and indicators used in the two surveys as regards water supply and sanitation, coverage figures remain reliable and are disaggregated down to province level. The 1998 and 1992 VLSS data sets were also sourced from the GSO and these data sets have been used in the analysis of changes in coverage over time and progress towards coverage targets (see Section 2.5).

To evaluate the usefulness of the 2002 VLSS and VNHS data for generating reliable estimates of the current rural water supply and sanitation coverage by region and province, the approach has been to conduct a scatter plot analysis. A scatter plot is a useful tool for comparing how well two systems measure the same thing at a given

scale. The extent to which the scatter plot show a 1 to 1 relationship between the two data sets can be used as a measure of the reliability of potential error bars around the data. The more strongly the 1 to 1 relationship between data sets the smaller the likely error bar around the data and the greater the confidence can be placed in the survey data to provide reliable coverage estimates. A strongly 1 to 1 correlation between data is measured in terms of the degree to which the line of best fit approaches a gradient of 1, and the extent to which the scatter around the line of best fit approaches an **R^2 value of 1**.

Figure 1 below shows the correlation between regional estimates of rural water supply coverage from the 2002 VLSS and VNHS data sets. The correlation between data sets measured in terms of scatter about the line of best fit is actually very good with and **R^2 value of 0.9115**. Province by province comparisons in Figure 2 show a greater scatter of the data, but still an **R^2 value of 0.8366** suggests that even at the provincial level both data sets are relatively convergent. Much of what scatter exists can be attributed to confusion over definitions. The most significant divergence concerns the estimated proportion of households in mountain areas using water from rivers, lakes, ponds and springs. Two other areas of divergence involve rainwater collection and the proportion of households using hand-dug wells in the Red River Delta. The overall correlation between the two surveys, however, is good suggesting both provide statistically meaningful estimates of water supply coverage by region and, to a lesser extent, by province.

Figure 1: Comparison of Regional Water Supply Coverage Estimates

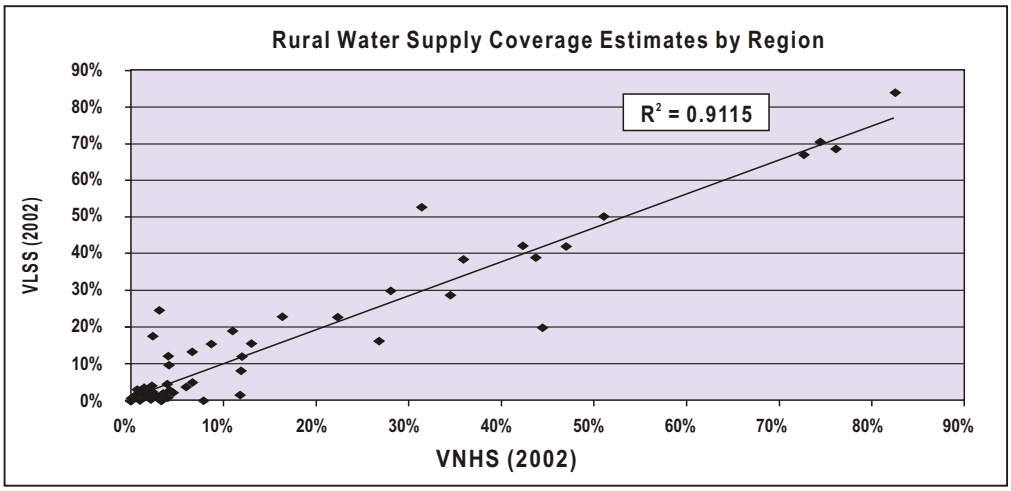


Figure 2: Comparison of Provincial Water Supply Coverage Estimates

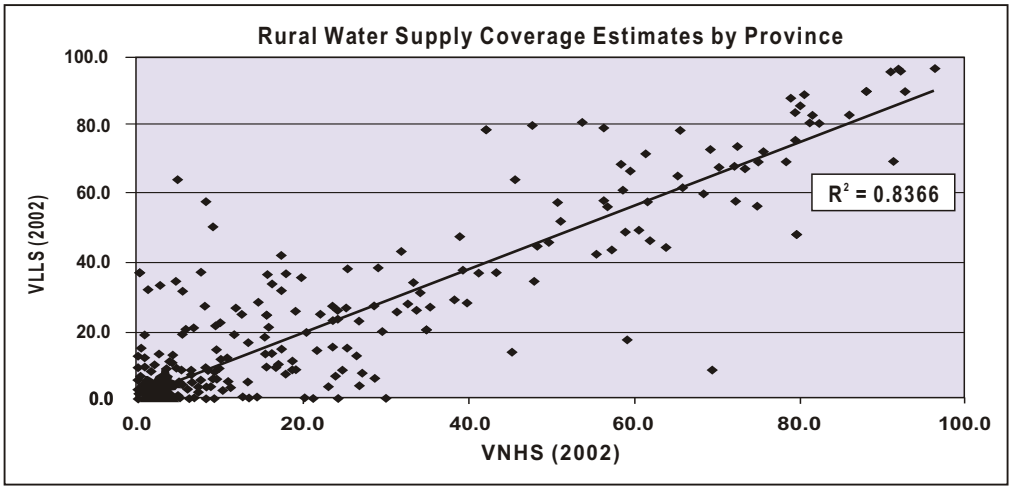
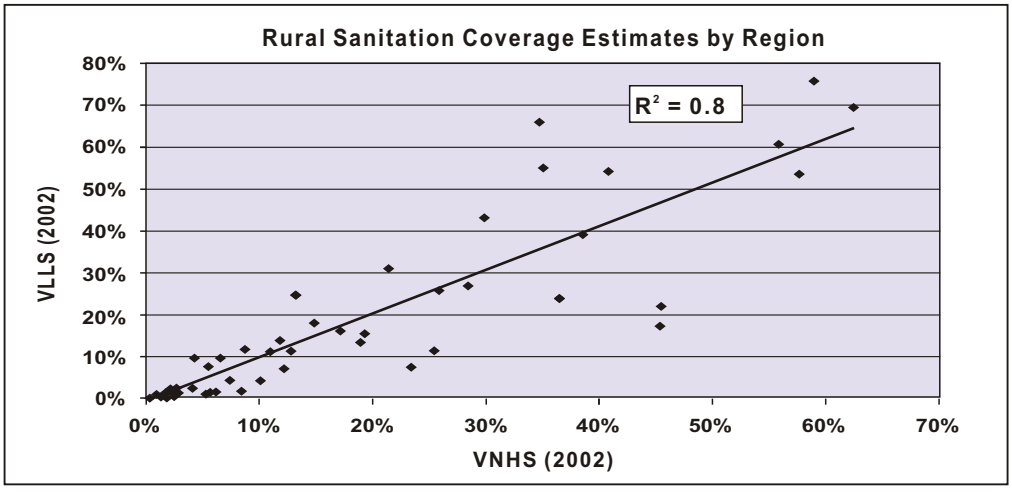


Figure 3: Comparison of Regional Household Latrine Coverage Estimates



There is also a good correlation on rural sanitation coverage between the two surveys. Figure 3 shows the scatter of regional sanitation coverage data (presented in Table 8) has an **R^2 value of 0.8**. This figure indicated that the correlation between the data on rural sanitation is not as close as that for data on rural water supply. But correlation on sanitation coverage becomes better when contrasting definitions are ironed out. The 2002 VLSS simply counts whether or not a double vaunt composting latrine is present or absent. By contras, the 2002 VNHS includes observational data on the hygienic condition of the latrine; if a double vault composting latrine is considered unhygienic then it is marked down as a simple latrine. When simple latrines and double vault composting latrines are lumped together in the VNHS and compared to the VLSS, then a more convincing **R^2 value of 0.9682** is achieved.

Contrary to number of previous evaluations of the sector, including the preliminary results provided in the Summary Sector Status Report (November 2004), the Poverty Task Force (2003) and the Report on Progress Towards the MDGs on Water Supply and Sanitation (2004), the correlation between the two surveys is actually quite good.

2.3.2 Implications for the Development of National RWSS Coverage Maps

The 2002 VNHS does not distinguish between a constructed hand-dug well and an unprotected earthen hand-dug well. According to the MDG definitions, improved water sources include: piped water, public taps, drilled wells, constructed wells, protected springs, or rainwater. Improved water sources do not include vendor-provided waters, bottled water, tanks trucks or unprotected earthen wells and springs. Clearly it is difficult to use the 2002 VNHS to estimate the number of "improved" water sources as reflected in the MDGs' defintitions. Therefore the favoured data set for the preparation of nationwide rural water supply coverage maps is the 2002 VLSS. However the 2002 VNHS is the favoured data for hygienic latrine coverage, as the survey pays greater attention to the hygienic condition of latrines than the VLSS.

While the MDG definition of an improved water source is comparatively straightforward, the definition of clean water supply is a less objective measure and more prone to differences of interpretation. Definitions applied when calculating nationwide rural water supply & sanitation coverage maps are shown in Table 5. To

calculate the proportion of households with a clean water supply a correction coefficient was applied based on the proportion of constructed or hand-dug wells less than 7 meters from a pollutant source (see Table 6). Households that used physical filtration or chemical processes to treat water are also counted as having a clean water supply. This method results in significantly higher rates of clean water supply coverage in the Mekong River Delta than are seen if the MDG definition is applied.

Table 5: Definitions Used to Prepare Nationwide RWSS Coverage Maps

Clean Water Supply	Improved Water Source	Hygienic Latrine
Source: VLSS (2002) • Tap water • Drilled wells • Rainwater • Mountain spring with filters • Constructed hand-dug wells > 7m from pollutant source • Filter / chemical treated water from unprotected sources	**Source: VLSS (2002)** • Tap water • Drilled wells • Rainwater • Mountain spring with filters • All constructed hand-dug wells	**Source: VNHS (2002)** • Pour flush septic tank • Pour flush sulabh • Hygienically maintained double vault composting latrine

Table 6: Hand-dug Wells with Nearby Pollutant Source

Region	Proportion of Hand-dug wells	Hand-dug well < 7 meters from pollutant source	Proportion of Hand-dug wells nearby pollutant source	Proportionality Coefficient by Region
Red River Delta	11.4	3.3	22.4	**0.224**
North East	43.8	20.1	31.5	**0.315**
North West	30.8	7.4	19.4	**0.194**
N. Central Coast	42.4	20.1	32.2	**0.322**
S. Central Coast	46.6	12.3	20.9	**0.209**
Central Highlands	60.1	19.1	24.1	**0.241**
South East	29.5	2.4	7.5	**0.075**
Mekong River Delta	3.3	0.5	13.2	**0.132**

Source: Viet Nam National Health Survey (VNHS, 2002)

Table 7: Estimated Rural Water Supply Coverage by Region

	Tap Water			Drilled Well			Hand-dug Well			Rain Water			River, lake, pond			Mountain Spring			Purchased			Other		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Red River Delta	4.5	2.3	**2.2**	34.3	28.4	**5.9**	26.6	16.1	**10.5**	31.2	52.3	**21.1**	1.4	0.8	**0.6**	0.1	0.1	**0**	1	0	**1**	0.9	0.1	**0.8**
North East	2.3	1	**1.3**	3.9	4.6	**0.7**	74.3	70.6	**3.7**	2.3	3.2	**0.9**	2.7	1.8	**0.9**	2.3	17.3	**15**	0	0	**0**	11.7	1.5	**10.2**
North West	3.1	0	**3.1**	0.6	0.1	**0.5**	42.2	41.9	**0.3**	0.2	0.7	**0.5**	3	24.4	**21.4**	6.6	13.3	**6.7**	0	0	**0**	44.3	19.6	**24.7**
North Central Coast	4.3	3	**1.3**	12.9	15.5	**2.6**	72.6	67.1	**5.5**	4.1	9.6	**5.5**	0.6	3.1	**2.5**	1.7	1.6	**0.1**	0.4	0	**0.4**	3.4	0	**3.4**
South Central Coast	3.8	2.4	**1.4**	16.2	22.7	**6.5**	76	68.7	**7.3**	0.1	0.2	**0.1**	1.3	3.5	**2.2**	0.5	1.3	**0.8**	0.1	1	**0.9**	2.1	0.3	**1.8**
Central Highlands	3.2	1.4	**1.8**	0.8	1	**0.2**	82.3	83.9	**1.6**	0.3	0.4	**0.1**	4	12.1	**8.1**	1.6	1.2	**0.4**	0	0	**0**	7.8	0	**7.8**
South East	6.6	4.8	**1.8**	35.7	38.2	**2.5**	51	49.9	**1.1**	0.8	0.9	**0.1**	3.3	1.8	**1.5**	0	0.2	**0.2**	2.2	4.2	**2**	0.4	0	**0.4**
Mekong River Delta	11.8	8.1	**3.7**	27.8	29.7	**1.9**	4	4.4	**0.4**	8.6	15.4	**6.8**	46.9	41.7	**5.2**	0.1	0.1	**0**	0.3	0.6	**0.3**	0.5	0	**0.5**
Whole Country	5.9	3.7	**2.2**	22.1	22.4	**0.3**	43.6	38.8	**4.8**	10.9	18.9	**8**	11.9	12	**0.1**	0.9	2.9	**2**	0.6	0.6	**0**	4	0.8	**3.2**

Sources: 1: Viet Nam Household Living Standards Survey (VLSS, 2002); 2: Viet Nam National Health Survey (VNHS, 2002); 3: different between data sets.

Table 8: Estimated Rural Household Latrine Coverage by Region

	Septic Tank			Sulabh			Double Vault			Pond / Animal Pen			Simple Latrine			No Latrine		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Red River Delta	11.7	14.1	**2.4**	1.7	0.4	**1.3**	45.4	17.5	**27.9**	1.4	1.2	**0.2**	34.7	65.7	**31**	5.2	1.2	**4**
North East	2.2	2.5	**0.3**	1.3	0.3	**1**	36.4	24.2	**12.2**	2.3	2.3	**0**	40.8	54.2	**13.4**	17	16.5	**0.5**
North West	1.9	1	**0.9**	0.9	1.2	**0.3**	8.4	2	**6.4**	0.7	0.6	**0.1**	62.4	69.1	**6.7**	25.7	26.1	**0.4**
North Central Coast	4.2	9.8	**5.6**	2.4	0.5	**1.9**	45.5	22.4	**23.1**	2.1	0.9	**1.2**	35	55	**20**	10.9	11.4	**0.5**
South Central Coast	12.7	11.5	**1.2**	4.1	2.5	**1.6**	12.1	7.3	**4.8**	0.3	0.2	**0.1**	13.1	25.1	**12**	57.7	53.5	**4.2**
Central Highlands	5.5	7.9	**2.4**	2.6	2.7	**0.1**	6.1	1.6	**4.5**	1.7	0.1	**1.6**	55.9	60.5	**4.6**	28.3	27.2	**1.1**
South East	21.3	31.3	**10**	10	4.4	**5.6**	5.7	1.6	**4.1**	5.4	7.7	**2.3**	38.5	39.3	**0.8**	19.2	15.7	**3.5**
Mekong River Delta	6.5	9.9	**3.4**	1.8	2	**0.2**	1.9	0.2	**1.7**	59	75.5	**16.5**	7.4	4.5	**2.9**	23.3	7.8	**15.5**
Whole Country	8.7	11.9	**3.2**	2.8	1.5	**1.3**	25.3	11.6	**13.7**	14.7	18.5	**3.8**	29.7	43.1	**13.4**	18.8	13.5	**5.3**

Sources: 1: Viet Nam Household Living Standards Survey (VLSS, 2002); 2: Viet Nam National Health Survey (VNHS, 2002); 3: different between data sets.

Figure 4: Clean Water Supply Coverage Map (VLSS, 2002)

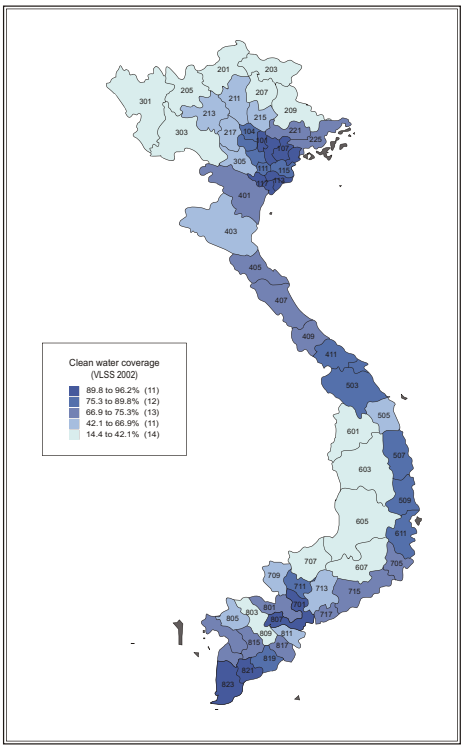


Figure 5: Improved Water Source Coverage Map (VLSS, 2002)

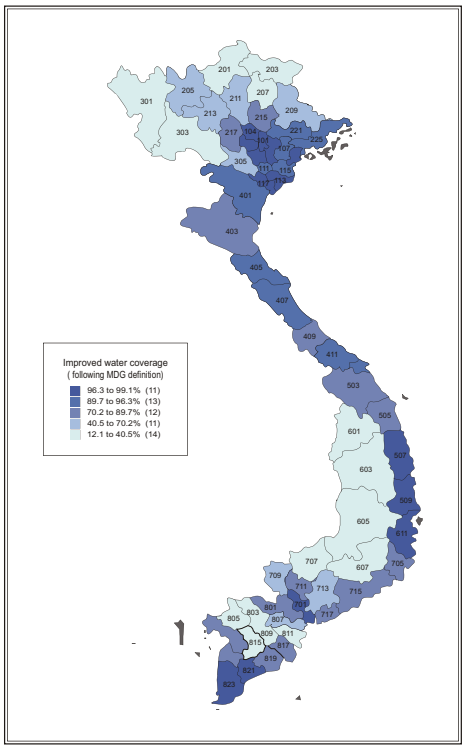
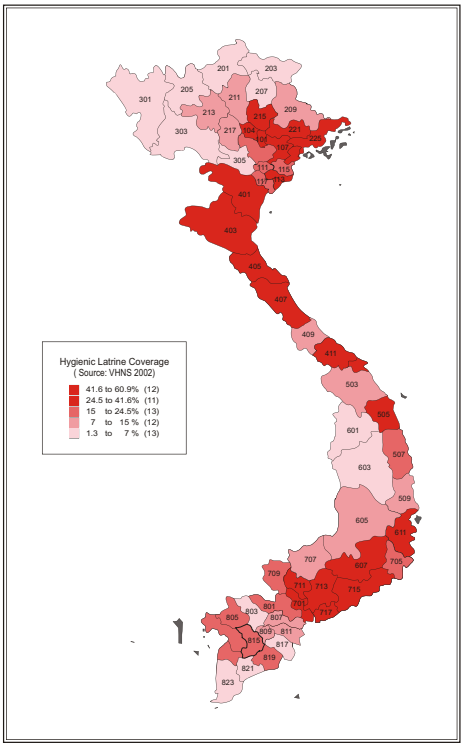


Figure 6: Hygienic Latrine Coverage Map (VNHS, 2002)



Code	Admin Unit	Code	Admin Unit
1	**Red River Delta**	**5**	South Central
101	Hanoi	501	Da Nang
103	Hai Phong	503	Quang Nam
104	Vinh Phuc	505	Quang Ngai
105	Ha Tay	507	Binh Dinh
106	Bac Ninh	509	Phu Yen
107	Hai Duong	511	Khanh Hoa
109	Hung Yen	**6**	**Central Highlands**
111	Nam Ha	601	Kon Tun
113	Nam Dinh	603	Gia Lai
115	Thai Binh	605	Dak Lak
117	Ninh Binh	607	Lam Dong
2	**North East**	**7**	**South East**
201	Ha Giang	701	Ho Chi Minh City
203	Cao Bang	705	Ninh Thuan
205	Lao Cai	707	Binh Phuoc
207	Bac Kan	709	Tay Ninh
209	Lang Son	711	Dinh Duong
211	Tuyen Quang	713	Dong Nai
213	Yen Bai	715	Binh Thuan
215	Thai Nguyen	717	Ba Ria - Vung Tau
217	Phu Tho	**8**	**Mekong Delta**
221	Bac Giang	801	Long An
225	Quang Ninh	803	Dong Thap
3	**North West**	805	An Giang
301	Lai Chau	807	Tien Giang
303	Son La	809	Vinh Long
305	Hoa Binh	811	Ben Tre
4	**North Central**	813	Kien Giang
401	Thanh Hoa	815	Can Tho
403	Nghe An	817	Tra Vinh
405	Ha Tinh	819	Soc Trang
407	Quang Binh	821	Bac Lieu
409	Quang Tri	823	Ca Mau
411	Thua Thien - Hue		

Table 9: Rural Water Supply Coverage by Province

Name	Private Tap	Public Tap	Pollutant Coeff.	Bought	Rain water	Drilled Well		Constructed well		Mountain spring (filtered)		Dug Well		River, pond		Other	
						Total	Treat	Total	Treat	Total	Treat	Total	Treat	Total	Treat	Total	Treat
Ha Noi	13.5	3.0	0.224	0.2	3.3	58.4	38.9	20.3	1.0	0.0	0.0	1.1	0.0	0.2	0.0	0.0	0.0
Hai Phong	9.3	1.6	0.224	3.0	41.9	24.5	16.4	17.1	1.7	0.0	0.0	0.6	0.0	1.9	0.1	0.0	0.0
Vinh Phuc	0.0	0.5	0.224	0.5	0.1	33.1	2.6	62.0	1.1	0.5	0.0	3.2	0.0	0.0	0.0	0.0	0.0
Ha Tay	1.8	0.8	0.224	0.7	7.7	47.8	33.1	37.6	3.6	0.0	0.0	1.9	0.0	0.1	0.0	1.7	0.1
Bac Ninh	3.0	1.9	0.224	0.1	5.4	58.9	30.9	27.5	3.5	0.0	0.0	0.8	0.2	0.0	0.0	2.4	0.0
Hai Duong	0.0	0.0	0.224	1.6	56.2	15.3	10.3	21.4	2.5	0.0	0.0	2.3	0.8	0.6	0.0	2.6	0.0
Hung Yen	0.7	3.0	0.224	0.0	16.1	65.9	38.0	12.9	3.8	0.5	0.0	0.2	0.0	0.6	.0.0	0.2	0.0
Ha Nam	0.7	3.0	0.224	2.4	53.7	18.5	15.0	13.4	5.3	0.0	0.0	2.0	0.3	4.6	0.1	1.7	0.0
Nam Dinh	3.5	2.6	0.224	2.2	45.4	32.4	1.1	10.6	2.7	0.0	0.0	0.6	0.1	2.6	0.3	0.1	0.0
Thai Binh	0.3	1.0	0.224	0.0	47.6	18.5	11.8	27.8	5.8	0.0	0.0	0.6	0.0	3.8	0.8	0.4	0.0
Ninh Binh	0.0	1.1	0.224	1.2	59.5	6.5	0.0	27.6	2.8	0.5	0.1	3.5	0.1	0.1	0.0	0.0	0.0
Ha Giang	0.7	0.0	0.315	0.0	8.8	0.1	0.0	8.5	1.4	4.9	0.0	29.5	0.6	26.5	0.0	21.0	1.4
Cao Bang	0.0	1.7	0.315	0.0	2.0	0.7	0.0	20.9	1.3	0.3	0.0	14.2	0.0	1.3	0.0	59.0	0.0
Lao Cai	0.2	1.4	0.315	0.0	0.0	0.2	0.0	25.0	0.8	17.2	2.3	31.3	0.0	0.8	0.0	24.0	0.0
Bac Kan	0.0	2.3	0.315	0.0	0.0	0.2	0.0	31.9	0.0	2.7	1.9	17.7	3.0	0.3	0.0	45.0	3.1
Lang Son	3.7	2.3	0.315	0.1	0.4	0.0	0.0	26.8	0.0	9.1	0.3	37.0	0.7	7.3	0.0	13.2	0.0
Tuyen Quang	6.1	3.4	0.315	0.0	0.0	0.9	0.0	47.5	0.8	0.8	0.1	28.0	0.0	0.7	0.0	12.6	0.0
Yen Bai	0.7	1.5	0.315	0.0	0.1	0.0	0.0	52.4	0.0	4.2	1.0	26.4	0.0	0.4	0.0	14.3	0.0
Thai Nguyen	0.0	0.3	0.315	0.0	0.2	2.4	0.1	73.5	0.0	0.2	0.0	22.6	0.0	0.0	0.0	0.7	0.0
Phu Tho	0.3	0.9	0.315	0.0	0.1	2.0	0.1	82.4	2.8	1.0	1.0	8.4	0.2	0.0	0.0	4.8	0.0
Bac Giang	1.7	0.1	0.315	0.0	1.1	13.3	0.8	72.4	0.1	1.0	0.0	9.8	0.0	0.1	0.0	0.4	0.0
Quang Ninh	0.0	0.0	0.315	0.0	15.7	5.3	1.1	72.9	0.0	0.0	0.0	1.9	0.0	1.0	0.0	3.1	0.0
Lai Chau	0.3	0.6	0.194	0.0	0.0	0.7	0.0	8.2	0.8	5.4	0.0	10.7	0.8	4.6	0.0	69.3	0.0
Son La	0.0	0.1	0.194	0.0	0.1	1.2	0.0	11.4	0.0	9.4	0.6	12.0	0.0	3.8	0.0	61.8	0.3
Hoa Binh	5.8	1.0	0.194	0.0	0.4	0.0	0.0	54.5	0.8	5.2	0.3	17.5	0.1	1.2	0.6	14.3	0.3
Thanh Hoa	2.1	1.0	0.322	0.3	3.6	11.6	3.6	69.5	12.8	1.6	0.5	5.4	0.8	0.0	0.0	4.9	0.3
Nghe An	0.1	0.7	0.322	0.7	5.8	9.0	4.5	70.1	6.1	1.8	0.0	8.2	0.1	0.7	0.0	3.0	0.3
Ha Tinh	2.7	4.4	0.322	0.0	2.4	15.2	1.0	65.1	5.2	2.5	2.5	7.3	0.1	0.0	0.0	0.4	0.0
Quang Binh	0.0	0.6	0.322	0.8	6.3	8.1	0.7	72.7	3.1	2.9	0.0	6.6	0.0	0.2	0.0	1.8	0.0
Quang Tri	0.8	0.0	0.322	0.0	0.0	28.9	6.7	52.7	2.1	0.6	0.0	4.5	0.0	3.4	0.0	9.2	1.6
Thua Thien-Hue	16.9	8.1	0.322	0.7	3.7	23.9	4.0	38.4	2.9	0.0	0.0	4.7	0.0	2.2	0.1	1.5	0.0
Da Nang	8.1	0.0	0.209	0.0	0.0	12.5	0.0	72.2	0.0	0.0	0.0	7.3	0.0	0.0	0.0	0.0	0.0
Quang Nam	1.4	1.8	0.209	0.0	0.0	39.1	1.2	43.0	0.4	0.0	0.0	7.7	0.0	0.8	0.0	6.2	0.4
Quang Ngai	0.0	2.1	0.209	0.0	0.1	17.2	0.0	55.9	0.0	1.1	0.0	16.3	0.0	5.2	0.0	2.1	0.0
Binh Dinh	0.0	1.3	0.209	0.0	0.0	6.7	0.4	88.6	3.9	0.9	0.0	2.5	0.0	0.0	0.0	0.0	0.0
Phu Yen	4.2	0.9	0.209	0.0	0.0	3.0	0.2	89.7	3.4	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0
Khanh Hoa	5.7	4.5	0.209	0.3	0.0	2.7	1.0	83.3	16.9	0.0	0.0	2.5	0.0	0.0	0.0	1.0	0.0
Kon Tum	0.0	0.0	0.241	0.0	0.0	0.0	0.0	24.0	0.0	6.7	0.0	31.3	0.0	8.3	0.0	29.7	0.0
Gia Lai	0.0	0.2	0.241	0.0	0.3	0.0	0.0	38.7	0.0	1.0	0.0	34.6	0.7	11.8	0.0	13.4	0.0
Dak Lak	0.0	2.2	0.241	0.0	0.3	0.8	0.0	22.2	0.8	0.1	0.0	69.6	0.2	1.1	0.0	3.7	0.0
Lam Dong	4.5	6.3	0.241	0.0	0.3	2.2	0.0	32.9	0.3	3.9	0.4	47.5	0.0	0.0	0.0	2.5	0.0
HCMC	1.2	3.7	0.075	4.2	1.7	79.4	7.4	6.1	0.0	0.0	0.0	3.7	0.2	0.0	0.0	0.0	0.0
Ninh Thuan	11.2	4.8	0.075	15.4	1.1	2.4	0.0	35.1	0.0	0.0	0.0	3.6	0.0	26.2	0.8	0.2	0.0
Binh Phuoc	0.1	0.2	0.075	0.0	1.2	1.0	0.0	22.7	0.0	0.0	0.0	69.8	0.0	4.4	0.0	0.5	0.0
Tay Ninh	0.0	0.5	0.075	0.0	0.0	51.0	0.2	16.1	0.6	0.0	0.0	32.0	0.0	0.0	0.0	0.4	0.0
Binh Duong	0.1	3.2	0.075	0.0	0.0	69.2	0.7	16.6	0.0	0.0	0.0	9.9	0.0	0.0	0.0	0.9	0.0
Dong Nai	1.7	0.9	0.075	0.5	0.4	25.2	0.6	39.5	0.0	0.0	0.0	28.8	1.0	3.0	0.1	0.0	0.0
Binh Thuan	8.7	8.1	0.075	3.9	1.8	10.7	0.0	45.5	3.3	0.0	0.0	15.9	0.0	4.8	0.0	0.6	0.0
Ba Ria-Vung Tau	5.8	16.1	0.075	0.0	0.0	18.9	0.0	29.5	0.4	0.0	0.0	29.1	5.2	0.0	0.0	0.7	0.0
Long An	8.7	11.3	0.132	1.5	17.8	31.7	2.4	3.0	0.2	0.0	0.0	1.0	0.0	25.1	1.3	0.0	0.0
Dong Thap	1.1	5.3	0.132	0.0	1.0	4.2	0.0	0.7	0.0	0.0	0.0	0.0	0.0	87.8	16.7	0.1	0.0
An Giang	7.1	16.4	0.132	0.6	1.6	2.1	2.1	0.0	0.0	0.0	0.0	1.9	0.0	70.2	26.3	0.2	0.2
Tien Giang	21.1	13.5	0.132	0.4	20.2	9.4	3.0	0.4	0.0	0.0	0.0	1.2	1.2	33.9	27.4	0.0	0.0
Vinh Long	4.7	1.9	0.132	0.0	1.5	8.4	2.3	0.0	0.0	0.2	0.1	1.7	0.3	81.3	8.8	0.2	0.0
Ben Tre	2.9	3.9	0.132	0.1	19.6	7.6	1.0	1.2	0.3	0.0	0.0	3.9	0.0	60.6	14.2	0.3	0.0
Kien Giang	0.4	2.9	0.132	0.3	14.5	41.0	0.7	5.2	0.0	0.5	0.0	4.2	0.5	29.3	6.5	1.6	0.6
Can Tho	1.0	3.7	0.132	0.0	10.0	24.0	10.6	1.6	0.6	0.2	0.0	1.5	0.5	56.7	32.2	1.3	1.3
Tra Vinh	0.1	1.7	0.132	0.0	3.5	61.6	0.6	9.0	0.0	0.0	0.0	0.9	0.0	23.3	0.5	0.0	0.0
Soc Trang	0.2	2.9	0.132	0.0	0.8	65.5	0.2	1.3	0.0	0.0	0.0	2.4	0.0	26.9	5.1	0.0	0.0
Bac Lieu	0.9	7.3	0.132	0.8	0.0	79.9	0.0	2.0	0.0	0.0	0.0	1.8	0.0	7.4	0.0	0.0	0.0
Ca Mau	0.7	2.4	0.132	0.0	0.4	81.1	3.5	8.0	0.1	0.0	0.0	0.2	0.0	4.2	0.0	2.9	0.0

Source: Viet Nam Household Living Standards Survey (2002)

Table 10: Rural Household Latrine Coverage by Province

Name	Septic Tank Pour Flush	Double Vault Composting Latrine (DVCL)	Suilabh Pour Flush	Simple Toilet (including unhygienic DVCL)	Toilet drains into river, pond or animal pen	Other	No Toilet
Ha Noi	42.9	16.6	1.4	38.3	0.0	0.2	0.6
Hai Phong	18.6	14.8	0.0	64.4	1.0	0.3	0.9
Vinh Phuc	4.3	21.9	0.5	69.7	1.9	0.0	1.7
Ha Tay	13.6	8.2	0.3	72.6	2.3	0.2	2.8
Bac Ninh	12.0	38.7	0.0	46.8	0.4	0.0	2.2
Hai Duong	6.2	38.4	0.0	53.9	0.2	1.3	0.0
Hung Yen	5.8	18.7	0.0	73.9	0.5	0.0	1.1
Ha Nam	5.4	15.1	1.1	47.2	3.5	27.2	0.6
nam dinh	23.9	12.4	1.0	58.9	2.2	0.2	1.4
Thai Binh	6.6	8.8	0.4	83.4	0.0	0.7	0.2
Ninh Binh	13.6	10.1	0.3	73.9	1.2	0.2	0.8
Ha Giang	0.9	2.1	0.0	46.2	3.7	0.0	47.2
Cao Bang	0.4	2.5	0.0	24.1	11.7	7.4	53.9
Lao Cai	2.6	0.8	2.3	45.2	4.5	0.0	44.6
Bac Kan	0.0	3.7	0.5	55.6	0.0	19.8	20.5
Lang Son	5.2	4.7	0.6	72.3	0.0	0.0	17.1
Tuyen Quang	3.8	11.2	0.0	77.1	0.0	0.0	8.0
Yen Bai	1.0	6.5	0.7	62.1	4.7	0.0	25.1
Thai Nguyen	3.1	41.4	0.0	52.1	0.3	0.0	3.2
Phu Tho	2.5	11.8	0.0	73.0	4.3	0.0	8.5
Bac Giang	2.1	55.0	0.0	37.2	0.5	0.0	5.2
Quang Ninh	3.4	50.7	0.6	34.9	0.3	3.4	6.6
Lai Chau	0.0	1.4	0.0	40.1	1.3	0.0	57.2
Son La	1.6	2.6	1.4	66.2	0.8	1.0	26.4
Hoa Binh	1.0	1.8	1.8	89.8	0.0	0.0	5.7
Thanh Hoa	13.8	12.3	1.4	67.8	1.9	0.6	2.4
Nghe An	4.3	35.2	0.0	49.1	0.6	0.0	10.9
Ha Tinh	3.1	38.6	0.0	50.7	0.0	0.2	7.5
Quang Binh*	6.7	19.8	0.0	42.1	0.0	3.6	27.8
Quang Tri	6.1	6.7	0.0	49.2	0.4	0.0	37.6
TT-Hue	28.9	4.4	0.0	35.5	0.0	0.0	31.2
da Nang	49.4	1.7	0.7	11.6	0.0	0.0	36.5
Quang Nam	10.4	1.0	2.5	41.6	0.2	0.0	44.3
Quang Ngai	12.9	15.3	0.0	10.5	0.0	0.0	61.3
Binh Dinh	4.3	12.1	4.6	20.3	0.4	2.1	56.1
Phu Yen	2.9	3.0	4.4	34.4	0.0	0.3	54.9
Khanh Hoa	22.8	3.5	1.5	16.7	0.2	0.0	55.4
Kon Tum	1.8	0.0	0.6	57.3	0.0	0.0	40.3
Gia Lai	1.7	2.6	1.9	31.6	0.0	0.0	62.3
Dak Lak	6.7	1.7	1.4	74.2	0.2	0.0	15.8
Lam Dong	19.5	0.9	7.2	55.0	0.0	7.2	10.3
TP HCM	56.9	0.6	0.3	19.1	16.4	0.5	6.2
Ninh Thuan	21.5	0.0	0.0	15.8	0.0	0.0	62.7
Binh Phuoc	10.3	0.7	3.2	77.9	0.5	0.0	7.5
Tay Ninh	9.1	0.0	5.9	52.6	24.4	0.0	8.0
Binh Duong	46.6	0.0	0.0	42.0	2.8	0.0	8.5
Dong Nai	39.6	0.2	12.3	37.9	3.7	0.0	6.2
Binh Thuan	19.4	9.0	0.0	19.8	0.7	9.8	41.3
Ba Ria- V.Tau	38.9	2.9	3.3	32.9	0.5	0.0	21.4
Long An	13.0	0.0	3.5	1.8	71.9	2.4	7.4
Dong Thap	6.5	0.2	0.0	0.1	90.5	0.0	2.6
An Giang	14.2	0.2	1.7	2.0	66.3	0.2	15.5
Tien Giang	13.7	0.2	0.0	0.7	85.2	0.0	0.3
Vinh Long	7.1	0.0	0.0	0.5	92.2	0.3	0.0
Ben Tre	7.3	0.2	0.0	0.1	88.6	1.7	2.1
Kien Giang	11.1	0.0	6.9	12.0	37.2	0.0	32.9
Can Tho	16.3	0.4	0.2	2.1	80.5	0.2	0.2
Tra Vinh	1.6	0.2	1.5	9.6	66.1	0.0	20.9
Soc Trang	8.5	0.0	12.0	0.3	59.5	14.3	5.4
Bac Lieu	4.6	0.4	0.0	7.3	80.2	2.3	5.3
Ca Mau	4.7	0.0	0.4	5.9	88.5	0.0	0.5

Source: Viet Nam National Health Survey (VNHS, 2002)

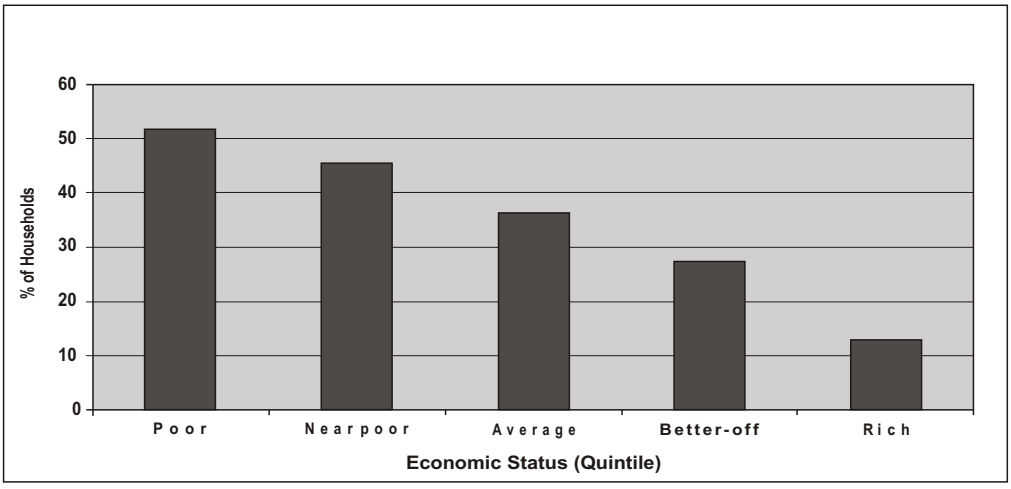
2.4 Major Household WSS Models

2.4.1 Water Supply

For rural households in Viet Nam, the single most popular water source is the traditional **hand-dug well**. Up to 44% of the rural population relies on wide diameter hand-dug wells. There are significant regional variations in the proportion of hand-dug wells constructed with bricks and those simply dug into the earth. The South Central Coast and the North Central Coast have the highest rates of constructed well coverage; around 70% of households use a constructed well as their primary drinking water source. By contrast, 54 % of households in the Central Highlands use traditional earthen dug wells. (In Dak Lak province this figure is 70%). Binh Phuoc province in the South East region on the Cambodian border has a similarly high rate of dependency on earthen wells.

Hand-dug wells are most commonly used by lower income families. The adjacent figure illustrates how wealth correlates with water source, and shows that families in the poorest quintile of the population are four times as likely to use a hand-dug well as are families in the richest quintile. The South East region is out performing the rest of the country in economic development terms and yet 50% of the population still use hand-dug wells as their primary drinking water source. What is even more surprising is that in a number of the prosperous provinces like Tay Ninh, Dong Nai and Ba Ria Vung Tau the proportion of households using unimproved earthen wells is still about 30%. This is a much higher rate of earthen well use than any of the province along the South and North Central Coast regions.

Figure 7: Proportion of Households Using Hand-dug Wells by Income Group



Source: Viet Nam National Health Survey (VNHS, 2002)

In the most populous regions of the Mekong Delta and the Red River Delta, hand-dug wells are not widely used as source water for drinking and cooking. Hand-dug wells are not popular in the Mekong Delta because much of the region's groundwater is plagued by acid-sulphate and salt intrusion, and the region is also flooded for part of the year, making wells unpractical. Although the Red River Delta has comparatively good groundwater resources, less than one quarter of the region's population rely primarily on hand-dug wells for drinking and cooking water; most households rely on rainwater or drilled well water. As with the Mekong Delta there are many areas of the Red River Delta that have various problems of elevated iron and manganese in the shallow groundwater environment, meaning that the water does not meet user satisfaction.

Drilled Wells are now the second most common water supply model in rural Viet Nam. An estimated 22% of rural households use drilled wells as their primary source of drinking water. The increase in use of drilled wells over the past ten years mirrors the decline in use of hand-dug wells and the sourcing of unprotected surface water. Household investment in drilled wells has been highest in low-lying delta and coastal regions and among richer families.

The South East, the Mekong River Delta and the Red River Delta regions have the highest rates of drilled well ownership in the country (28 to 36 percent of households in each region). In general drilled wells provide greater protection from a range of pollutant sources. Furthermore according to the 2002 VNHS, owners of drilled wells are four times less likely to experience annual drinking water scarcity as are owners of hand-dug wells. Drilled wells are expected to steadily increase in popularity in the next 10 years, especially in low-lying coastal and delta regions. However there is the potential health risk of elevated arsenic in drilled wells that needs to be effectively screened for and mitigated against.

The use of drilled wells in the Mekong Delta greatly reflects the hydrogeology of the region. Northern and eastern provinces, including Dong Thap, An Giang, Tien Giang, Vinh Long and Ben Tre, report drilled well coverage rates of less than 10%. (Drilled well coverage in An Giang is only 2%) These rates reflect the absence of portable aquifers, both shallow and deep, in these areas. These provinces will likely continue to remain highly dependent on unprotected surface water, though the demand for piped water is also predicted to be high. Drilled well coverage in the southern and western provinces of the region are much higher, peaking at around 80% in Ca Mau and Bac Lieu provinces, reflecting the greater abundance of high-quality groundwater.

Only 4 to 6 percent of the nationwide rural population has access to **piped water**. This figure includes access to both private household taps and public taps. The Mekong Delta is leading in this area; some 8 to 12 percent of the region's rural population have access to piped water. However this access has not been evenly distributed, with large variations across provinces. A disproportionate level of growth in rural piped water supply coverage has occurred in the provinces of Tien Giang (35%), An Giang (24%) and Long An (20%). Outside the Mekong Delta some other provinces where rural piped water supply access levels are well above the national average rate include Thua Thien Hue (25%), Ba Ria Vung Tau (22%), Ha Noi (17%), Binh Thuan (17%), Ninh Thuan (16%), Hai Phong (11%) and Khanh Hoa (10%).

Tien Giang's achievements in the development of piped water supply are well documented[4]. An Giang's achievements have been less publicised, however. Much like Tien Giang, the development of piped water systems in An Giang has been driven by investment from private water suppliers and cooperatives. Between 1999 and 2003, private water suppliers and cooperatives accounted for over 50% of investment in the sector. Most of this investment was in piped water systems. Both in An Giang and Tien Giang the absence of potable groundwater sources has compelled many households to participate in community water supply initiatives. Prospects for the replication of such systems in nearby provinces where groundwater is scarce (Dong Thap, Ben Tre, Vinh Long, others) are good.

The South East provinces of Binh Thuan and Ninh Thuan had also achieved high rates of piped water supply coverage (17 and 16 percent respectively). Both provinces are two of the most drought-prone in the country, and this has no doubt raised demand for piped water as the only viable alternative. Experiences from these provinces, both in the South East region and Mekong River Delta region, serve as an important lesson, which is that piped water supply is most effectively promoted to rural communities who face water scarcity or have particular water supply problems. Promoting piped water supply in the name of **modern convenience** or **bridging the gap between urban and rural** is not a sound basis for planning and investment of GoV and Donor funds. Instead demand-based targeting of technical and financial resources for expensive (and high risk) water supply interventions like piped water is required.

River Water, Ponds & Lakes: Although only 12% of households nationwide use unprotected surface water for drinking and cooking, regional variations are

[4] Salter 2003, Private Sector Financing of Rural Water Supply in Viet Nam and Cambodia

dramatic: an estimated 42 to 47 percent of the rural population of the Mekong River Delta uses unprotected surface water for drinking and cooking daily, compared with a nationwide average of about 12%. Rates are highest in the Mekong Delta provinces of Dong Thap, Vinh Long and An Giang (estimated rates of 88, 81 and 70 percent respectively). The Mekong Delta also has one of the highest rates of open defecation nationwide some 60 to 75 percent of households were using fishpond latrines in 2002, and as many as 23% had no latrine at all.

Rain Water Collection & Storage: Rainfall can be a high quality and safe source of water largely free of environmental pollution *if* the right facilities are available for collection and storage. In Viet Nam, a comparatively small percentage of the population (11 to 19 percent) relies primarily on rainwater for direct consumption. Moreover, of those households that rely primarily on rainwater, 20% report water scarcity every year (VNHS, 2002). Rainwater use is most common in the Red River Delta (31 to 52 percent) followed by the Mekong Delta and the North Central Coast. Rainwater containers such as the UNICEF rainwater jar can provide a good habitat for the *Aedes aegypti* mosquito to breed, which is the mosquito responsible for transmitting haemorrhagic dengue fever. If promoting rainwater collection and storage in Viet Nam, dengue fever needs to be addressed as a cross-cutting issue.

Buying Water: Less than 1% of the rural population buys water. (This does not include households that pay for water from piped water supply systems.) The South East region has the highest rate of households buying water on a regular basis (2 to 4 percent). A number of coastal provinces in the Red River Delta also have bought water rates well above national average. The distribution of households needing to buy water tends to be quite localised. The situation is particularly bad in drought-prone Ninh Thuan and Binh Thuan along with saline intrusion and industrial pollution-impacted coastal districts of Ho Chi Minh City.

Water Treatment & Disinfection: The pattern emerging is that a lot of rural households already have year-round access to cheap water supply in the form of hand-dug wells, shallow tube wells and surface water bodies. Such water supply models are particularly common among low income households. These water sources are prone to biological contamination and chemical pollution. Given that many poor households cannot afford to pay for external safe water, it may be most appropriate to promote simple and effective household water treatment and safe storage practices. Key to this will be ensuring poor communities have access to adequate knowledge about technologies.

Results from the 2002 VLSS survey indicate that regular filtration or chemical disinfection of drinking water is practised by a small fraction of the population. There are a few provinces with high filtering levels such as Hung Yen (44%), Ha Tay (37%) and Bac Ninh (34%) in the Red River Delta where there is high iron levels and Can Tho (36%) in the Mekong Delta. (The Red River Delta, North Central Coast and Mekong River Delta have the highest rates.) Households that treat their drinking water on a regular basis tend to either own a drilled well or constructed hand dug well. Although unprotected earthen wells are far more vulnerable to microbiological contamination, most families who use them are much less likely to treat their water before drinking. Possibly users of earthen wells are generally lower income, lower literacy households who are less likely to know about treatment methods and less able to afford them when they are aware of them.

In the Mekong Delta there is a strong tradition of treating water collected from open waterways. Households commonly use aluminum sulphate to flocculate the surface, flush out particulate matter and remove microbial pathogens. Research in Cambodia[5], the results of which were confirmed as part of a research study for the AusAID funded Cuu Long Delta RWSS Projects, found that aluminum sulphate flocculation is highly effective in reducing the microbiological load of surface water. Secondary treatment such as physical filtration, UV radiation and chlorination is often required. Around 14% of households in the Mekong Delta use drinking water that has undergone secondary treatment.

The most common form of water treatment in Viet Nam is boiling. According to the 2002 VNHS, an estimated 84% of rural households boil water before drinking. Rates are highest in the Red River Delta, the North Central Coast and the low-lying provinces of the Northeast. In the North West, the South Central Coast, the Central Highlands and the South East, from 20 to 25 percent of households do not boil water before drinking. Rates are worse still in the Mekong River Delta, where an estimated 35 to 40 percent of households do not boil water before drinking. Boiling water is relatively energy intensive, which makes it difficult in areas without easily available energy sources. It is also very costly and time consuming for low-income households to boil both drinking water and water used for preparation of food (washing, vegetable, etc.).

[5] Wrigley, 2003 The Use of Alum as a disinfectant tool for rural people in the Mekong River Basin, Water 21

Table 11: Percentage of Households Treating Water Prior to Drinking and Cooking

Region	Drilled wells	Constructed Hand-dug wells	Earthen Hand-dug wells	Rain Water	River pond or lake	Other
Red River Delta	18.17	3.19	0.01	0.13	0.17	0.02
North East	0.28	0.74	0.45	0.21	0.00	0.19
North West	0.00	0.52	0.33	0.27	0.25	0.22
N. Central Coast	3.44	7.71	0.56	0.31	0.01	0.26
S. Central Coast	0.55	3.65	0.00	0.00	0.00	0.09
Central Highlands	0.00	0.43	0.08	0.24	0.00	0.00
South East	1.37	0.54	0.00	0.70	0.08	0.00
Mekong River Delta	2.41	0.11	0.01	0.25	14.27	0.21
Whole Country	**5.93**	**2.47**	**0.15**	**0.24**	**3.24**	**0.13**

Source: Viet Nam Household Living Standards Survey, 2002

2.4.2 Sanitation & Latrines

In general the more economically prosperous regions have higher rates of hygienic latrine ownership (see Figure 6). For example leading in terms of **septic tank latrine** ownership are the South East and Red River Delta regions with 21 to 31 percent and 12 to 14 percent respectively. The North Central Coast region is also making comparatively good progress in terms of achieving above average rates of hygienic latrine ownership. The models of latrine classified as hygienic include pour flush septic tank, pour flush sulabh, and hygienically maintained double vault composting latrines (see Table 5).

The **double vault composting latrine** (DVCL) is very popular in the North of the country. Operated and maintained correctly it can offer a culturally appropriate and hygienic model of latrine that supports livelihoods. Particularly in the north there is often a preference for the DVCL because of the convenient access to human excreta that is then used as a fertilizer. According to VNHS (2002) results in the Red River Delta and North Central Coast regions about 20% of the population have a hygienically operated and maintained DVCL compared with about 25% of households with a DVCL not being operated and maintained hygienically.

Nationwide the majority of the population use traditional dry latrine models, including simple pit latrines, single vault latrines, double vault composting latrines. Only the DVCL are currently accepted by the MOH as sanitary and hygienic. Depending upon the geographical location and cultural setting the excreta from the dry latrines models may or maynot be reused in agriculture. The treatment approach,

including duration for composting, varies between communities and even within communities.

In the Mekong River Delta there is a long tradition of using fishpond latrines. The practice of using fishpond latrines is now discouraged by the MOH and relevant local authorities. Identifying and promoting alternative latrine models suitable for the low-lying and flood-prone local conditions has proven to be difficult. In the raised residential cluster areas it has been possible to introduce a single vault water-sealed pour -flush latrine that leaches into the underlying soil and groundwater environment.

The Sulabh latrine, which is a water-efficient, low-cost pour-flush toilet with leach pits, has not been popularised. Only some 1 to 3 percent of rural households use the Sulabl model of latrine. The South East region has the highest rates of Sulabh latrine use; between 4 to 10 percent of households in the region have a Sulabh latrine.

There have been a number of successful ecological sanitation pilot schemes in Viet Nam. These schemes (particularly in Phu Tho and Khanh Hoa provinces) have demonstrated the potential of ecological sanitation (ecosan) and the speed at which new waste disposal methods can become culturally accepted if promoted in the right fashion. However these pilots have not been followed up, and there is no process to mainstream ecosan into RWSS development.

The mountainous province have some of the lowest rates of latrine ownership in Viet Nam. Low rates of latrine ownership in provinces like Lai Chau (54%), Cao Bang (54%), and Ha Giang (47%) are not surprising given the high poverty incidence and low population densities, providing plenty of open space for defecation. The influences are similar in Kon Tum and Gia Lai in the Central Highlands, where 40 and 62 percent of households respectively report having no latrine. Of note, all these provinces have large ethnic minority populations.

Less explicable are the low rates of latrine ownership in certain provinces of the Central Coast, including Quang Ngai (61%), Binh Dinh (56%), Ninh Thuan (63%), Phu Yen (55%). Low rates of latrine ownership in the South Central Coast may in part reflect a less established tradition of using human waste in agriculture. As excreta are not valued as a source of fertiliser, there is no perceived value in centralized defecation. Many of these areas are also very vulnerable to flash floods. Makeshift latrines are easily destroyed in these floods, and many householder are not inclined to continually reconstruct them.

Table 12 gives details of access to clean water and hygienic latrines by region. These data do show stark differences between income groups in terms of access to both clean water and sanitation. The contrasts are true for all regions regardless of the overall levels of coverage. They are particularly sharp for sanitation coverage, with almost no poor people (the poorest 20%) having access to hygienic latrines. Coverage is low even amongst middle income groups and it is only amongst the most prosperous 20% of the population that coverage approaches acceptable levels.

Table 12: Clean Water Supply and Hygienic Latrine Coverage by Income Group

Region	Clean Water Supply			Hygienic Latrines		
	Poorest 20%	Middle 20%	Richest 20%	Poorest 20%	Middle 20%	Richest 20%
Red River Delta	54.7	73.1	93.2	2.5	11.9	71.1
North East	5.3	11.6	47.3	0.5	3.6	51.0
North West	5.3	11.6	47.3	0.5	3.6	51.0
N. Central Coast	12.9	30.1	65.1	2.6	7.5	57.1
S. Central Coast	16.0	21.7	63.9	4.0	19.4	83.0
Central Highlands	4.3	9.4	43.9	1.3	16.9	76.7
South East	27.7	37.8	87.6	6.5	23.1	86.7
Mekong River Delta	41.1	48.8	75.3	1.0	4.9	44.8
All Viet Nam	22.7	42.7	78.8	2.0	10.7	69.6

Source: 2003, VLSS Data

2.4.4 School Water Supply and Sanitation Coverage and Other Public Institutions

The NRWSS has made it clear that schools and other public institutions are the first priority for water supply and sanitation improvements. In 2003, a national survey of rural water supply and sanitation facilities in schools was conducted as a joint exercise between the DOET and CERWASS. Results indicate that 70% of schools nationwide have access to clean water and 42% have hygienic latrines. Decision 104/2000, on which the NRWSSS is based, set the goal of all schools and other educational and public establishments (information on water supply for health care clinics and public markets is almost non-existent) having clean water and hygienic sanitation by 2005. This goals has clearly not been met.

Table 13: Latrine Coverage in Central Commune Schools

Region	Total No. of schools	Toilets		
		Total	Hygienic Toilets	% of Hygienic Toilets
Northern Mountains	7306	5245	2313	32%
Red River Delta	7311	7092	3876	53%
North Central Coast	6265	5179	2906	46%
South Central Coast	4029	3504	1442	36%
Central Highlands	2129	1853	867	41%
South East	2675	2328	1279	48%
Mekong River Delta	5885	5120	2174	37%
Nationwide	**35500**	**30321**	**14857**	**42%**

Source: CERWASS and DOET Nationwide Survey of RWSS coverage in schools, 2003

Table 14: Clean Water Supply and Hygienic Latrine Coverage by School Type

Schools	Total No. of schools	Toilets			Clean Water Supply Coverage	
		Total	Hygienic	% of Hygienic Toilets	Total	% of clean water supply
Kindergarten	9675	8852	4021	42%	6375	66%
Primary	14136	10766	4976	35%	9653	68%
Secondary	9593	8634	3952	41%	6871	72%
High school	2069	2069	1908	92%	1832	89%
Nationwide	**35500**	**30321**	**14857**	**42%**	**24731**	**70%**

Source: CERWASS and DOET Nationwide Survey of RWSS coverage in schools, 2003

2.5 Changes in Coverage over Time and Progress towards Targets

The 2002 nationwide surveys earlier provide a reasonable basis for defining the current status of RWSS coverage by region and, to a lesser extent, by province. However the surveys carried out before 2002 were based on significantly smaller sample sizes - the VLSS surveys of 1998 and 1992 has sample sizes of 6000 and 4000 households respectively, compared with 30,000 households in 2002 - and this makes it impossible to show accurate trends at the provincial level. Trend analysis, therefore, must be confined to the regional level. Charts showing the regional changes in coverage of particular water supply and latrine models are presented below.

Figure 8 shows nationwide changes in coverage of different domestic water sources between 1992 and 2002. During the 10 year period there has been a steady decline in the number of households using dug wells as their primary drinking and cooking water source. From 1992 to 2002 there was a 15% decline in the use of hand-dug wells nationwide. Still hand-dug wells remain the single most important domestic water source nationwide. Many of the remaining hand-dug wells are now "improved" constructed wells rather than "improved" earthen wells. During the same 10 year period, the proportion of households using unprotected surface water for drinking and cooking was nearly halved, from 22% in 2002. While the use of surface water and dug wells has been declining, of tap water and drilled well has been rising, available statistics show that Viet Nam achieved approximately a five fold increase in the use of drilled well and piped water from 1992 to 2002.

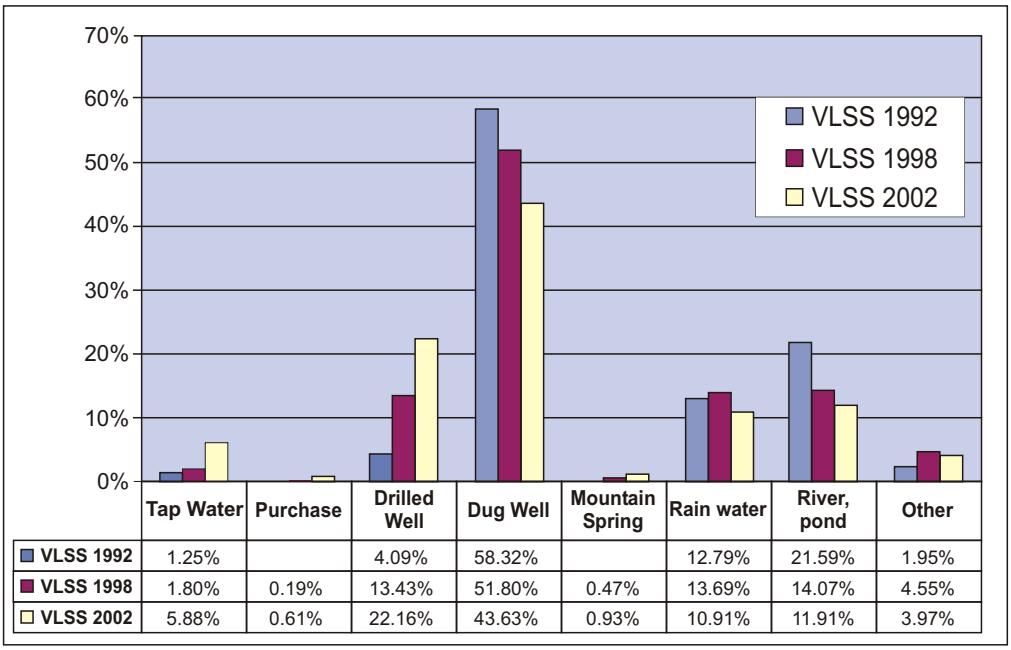
From 1992 to 2002 there has been no increase **in the use of rain water**. In fact usage rates for rainwater actually dropped between 1992 and 2002. This may in part reflect the lack of attention to promoting the collection and safe use of rainwater. Moreover the Mekong Delta and the Red River Delta, regions where rainwater collection has been traditionally popular, have experienced some of the highest increases in access to drilled well water and piped water (see Figures 9 and 10) over the period. Households that traditionally used rainwater may now be using piped water and / or drilled wells as the water source for drinking and cooking.

Progress towards current regional coverage rates are plotted as bar charts for a number of water supply and sanitation models, including piped water supply, drilled wells, septic tank latrines and double vault composting latrines. The bar charts show that by region, very different rates of increase in the use of improved water sources and improved sanitation have been achieved. The poorest regions, especially the North West, North East and Central Highlands, are progressing more slowly than affluent regions. Major differences in progress towards RWSS coverage targets underline the need to direct GoV and Donor resources at the more impoverished and / or technically challenging areas where growth in RWSS coverage is lagging behind.

Figure 9 shows the rate of increase in drilled well ownership in the Mekong Delta may be starting to slow down, as compared with other regions. This is understandable given the scarcity of groundwater in the north and east portions of the Mekong Delta region. The North Central Coast has experienced the fastest rate of growth in drilled well ownership during the 10 year period. Drilled wells in the

North and South Central Coast regions were almost unknown in 1992; however some 13 to 16 percent of households (mostly those in lowland delta and coastal areas) now use these wells.

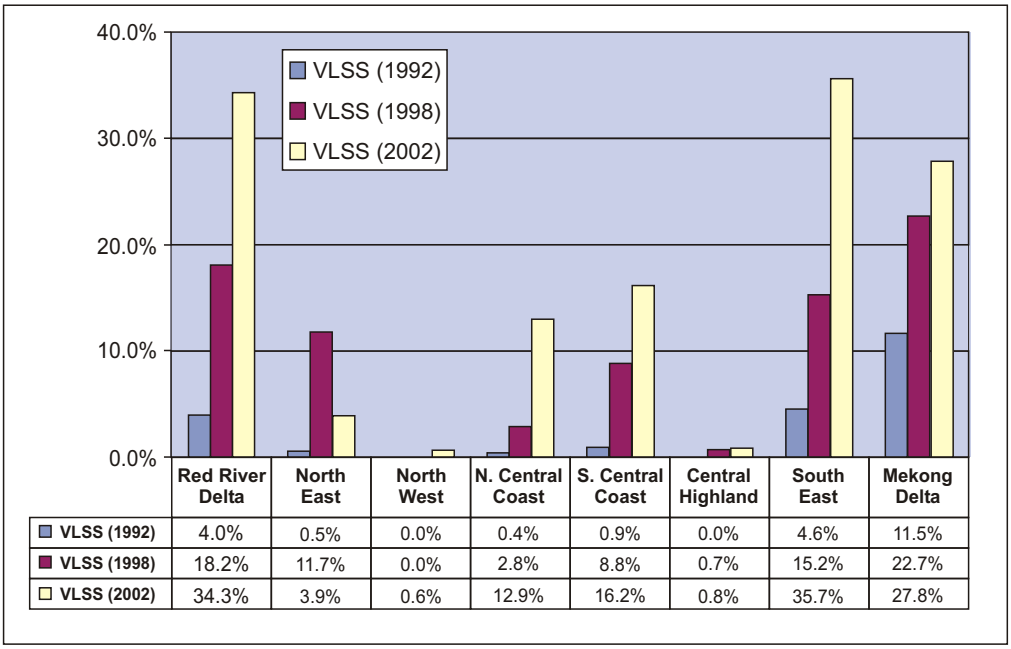
Figure 8: Nationwide Changes in Use of Drinking Water Sources (1992 - 2002)



	Tap Water	Purchase	Drilled Well	Dug Well	Mountain Spring	Rain water	River, pond	Other
VLSS 1992	1.25%		4.09%	58.32%		12.79%	21.59%	1.95%
VLSS 1998	1.80%	0.19%	13.43%	51.80%	0.47%	13.69%	14.07%	4.55%
VLSS 2002	5.88%	0.61%	22.16%	43.63%	0.93%	10.91%	11.91%	3.97%

Source: Viet Nam Household Living Standards Survey (1992, 1998 & 2002)

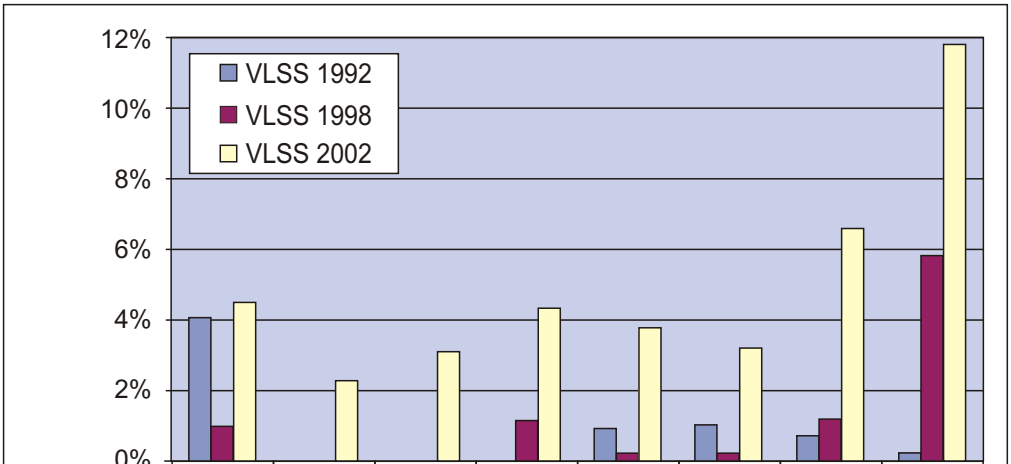
Figure 9: Regional Changes in the Use of Drilled Wells (1992 - 2002)



	Red River Delta	North East	North West	N. Central Coast	S. Central Coast	Central Highland	South East	Mekong Delta
VLSS (1992)	4.0%	0.5%	0.0%	0.4%	0.9%	0.0%	4.6%	11.5%
VLSS (1998)	18.2%	11.7%	0.0%	2.8%	8.8%	0.7%	15.2%	22.7%
VLSS (2002)	34.3%	3.9%	0.6%	12.9%	16.2%	0.8%	35.7%	27.8%

Source: Viet Nam Household Living Standards Survey (1992, 1998 & 2002)

Figure 10: Regional Changes in the Use of Piped Water Supply (1992 - 2002)

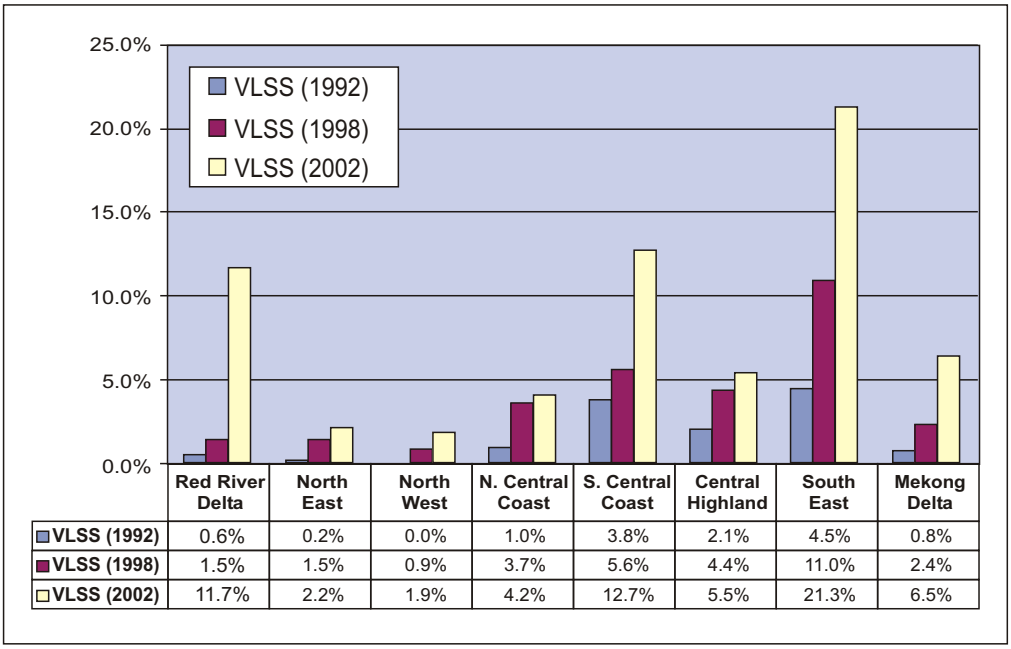


	Red River Delta	North East	North West	N. Central Coast	S. Central Coast	Central Highland	South East	Mekong Delta
VLSS 1992	4.1%	0.0%	0.0%	0.0%	0.9%	1.0%	0.7%	0.3%
VLSS 1998	1.0%	0.0%	0.0%	1.2%	0.2%	0.2%	1.2%	5.8%
VLSS 2002	4.5%	2.3%	3.1%	4.3%	3.8%	3.2%	6.6%	11.8%

Source: Viet Nam Household Living Standards Survey (1992, 1998 & 2002)

The rate of adoption of the DVCL in the North East, the Red River Delta and the North Central regions has been impressive (see Figure 12). In all there regions, DVCL ownership tripled between 1992 and 2002. However only about 50% of these latrines are operated and maintained hygienically (VNHS, 2002). The use of the DVCL in the North West has also increased; being a water scarce area, it makes sense that DVCL be further promoted in this region. In the South Central Coast, growth in septic tank ownership has outpaced growth in DVCL ownership, which has been slow. DVCL do not appear to be meeting the needs or expectations of many in the South Central Coast and even less so in the other regions further south.

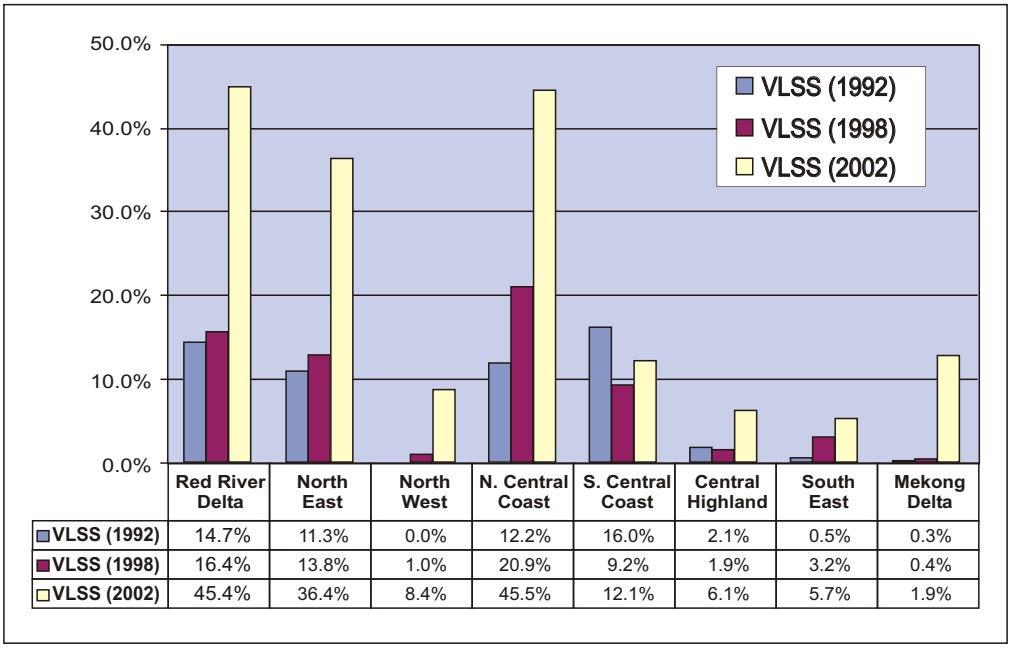
Figure 11: Regional Changes in the Use of Septic Tank Latrines (1992 - 2002)



	Red River Delta	North East	North West	N. Central Coast	S. Central Coast	Central Highland	South East	Mekong Delta
VLSS (1992)	0.6%	0.2%	0.0%	1.0%	3.8%	2.1%	4.5%	0.8%
VLSS (1998)	1.5%	1.5%	0.9%	3.7%	5.6%	4.4%	11.0%	2.4%
VLSS (2002)	11.7%	2.2%	1.9%	4.2%	12.7%	5.5%	21.3%	6.5%

Source: Viet Nam Household Living Standards Survey (1992, 1998 & 2002)

Figure 12: Regional Changes in the Use of Double Vault Composting Latrines (1992 - 2002)



	Red River Delta	North East	North West	N. Central Coast	S. Central Coast	Central Highland	South East	Mekong Delta
VLSS (1992)	14.7%	11.3%	0.0%	12.2%	16.0%	2.1%	0.5%	0.3%
VLSS (1998)	16.4%	13.8%	1.0%	20.9%	9.2%	1.9%	3.2%	0.4%
VLSS (2002)	45.4%	36.4%	8.4%	45.5%	12.1%	6.1%	5.7%	1.9%

Source: Viet Nam Household Living Standards Survey (1992, 1998 & 2002)

During the period of implementation of the RWSS-NTP, provincial CERWASS units have monitored RWSS coverage in their areas. These monitoring results have been routinely reported to the national CERWASS. But the records are not complete; at least 20 provinces have not submitted minimum reports as part of the five-year evaluation of the implementation of the RWSS-NTP (1999 to 2003). There are also some concerns about how the data was collected, and the apparent inconsistencies in the use of indicators to measure clean water supply coverage. Nonetheless, CERWASS has prepared its own regional estimates of access to clean water from 1998 to 2003, and these are summarised in table 15. Provided in Table 16 is a detailed breakdown of the year by year increase in clean water supply coverage for 38 provinces over the period 1998 to 2003.

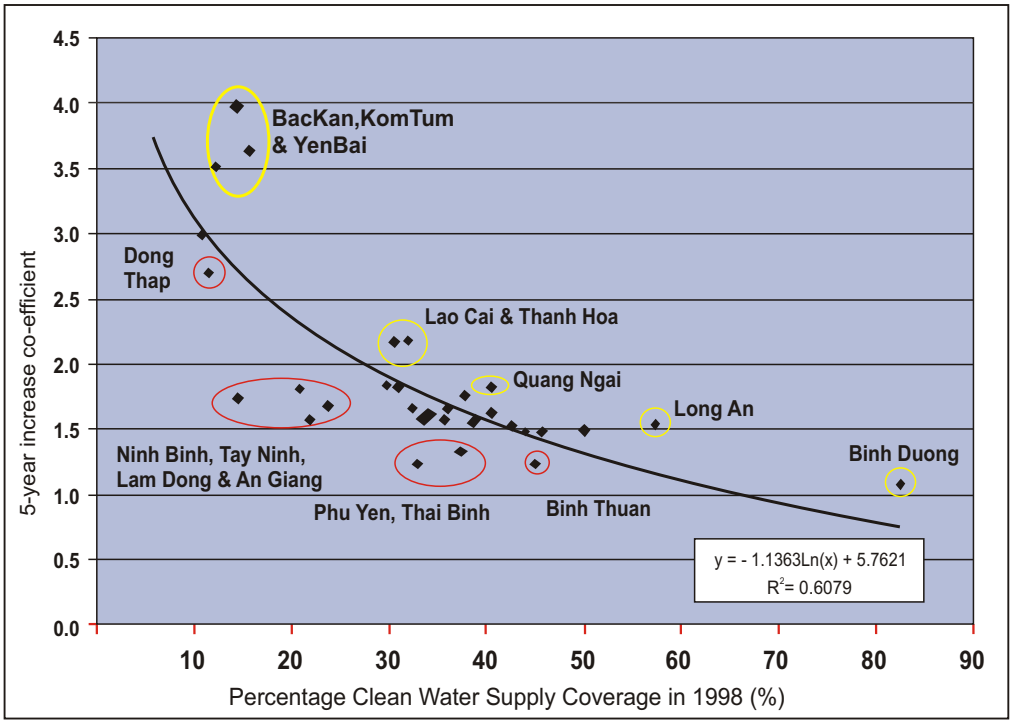
Table 15: Increase in Access to Rural Clean Water (1999 -2003)

No.	Region	Rural population up to 2003	Rural population with access to clean water					
			Up to 1998		Increased in 5 years		Until end of 2003	
			Total	%	Total	%	Total	%
	Nationwide	**60,032,900**	**19,266,000**	**32**	**14,193,000**	**23.6**	**33,459,000**	**55.7**
1	Northern Mountains	9,585,700	2,226,000	23	2,607,000	27.1	4,833,000	50.4
2	Red River Delta	13,794,100	5,266,000	37	2,863,000	20.7	8,129,000	58.9
3	North Central Coast	9,023,600	2,729,000	30	2,107,000	23.3	4,836,000	53.5
4	South Central Coast	6,031,800	1,994,000	33	1,167,000	19.3	3,446,000	57.1
5	Central Highlands	3,312,400	867,000	34	322,000	9.7	1,189,000	35.9
6	South East	4,742,400	1,951,000	38	1,182,000	24.9	3,313,000	69.8
7	Mekong River Delta	13,542,900	4,233,000	33	3,944,000	29.9	8,177,000	60.3

Source: (1): GSO 2003 Annual Statistic; (2): Summary Report on the Implementation of National Target Programmer for RWSS (1999 - 2002) MARD; (3): Implementation of NRWSSS towards development objects - Experiences and Lesson Learnt, Doctor LeVan Can - Director of CERWASS;
Note: Binh Thuan and Ninh Thuan are included in Central Coast Region

CERWASS data suggests a significant improvement in RWSS coverage over this period. Prior to 1999 there were an estimated 19,266,000 people with access to clean water nationwide, or 32% of the rural population. At the end of 2003 there were 33,439,000 rural people with access to water supply, or 56% of the rural population. This represent growth of close to 5% annually. However the uniform increases and the comparatively similar starting points do not match well with the previously analyzed VLSS and VNHS data, which highlight much more marked regional differences and disparities. The chart below is based on CERWASS data from 1998 to 2003 (see Table 16) . The yellow highlighted provinces have had comparatively

Figure 13: Five Year Increase Co-effcient as a Function of 1998 Rural Clean Water Supply Coverage



high rates of increase in clean water supply coverage, while the red highlighted provinces have under performed. The chart shows that rates of increase have tended to be greater for provinces with lower starting points. When the rate of coverage is already high any further increases in coverage are comparatively difficult to achieve. The functional relationship between the rate of increase and the relative starting point may provide insight into achievable rates of increase for the coming period. The CERWASS data indicates that as rates of coverage approach 80 to 90 percent the level of effort required to provide RWSS to the remaining 10 or 20 percent of the population increases greatly. This highlights the inherent difficulty for Viet Nam to reach the absolute targets set out in NRWSSS, which states that 100% coverage will be reached by 2020. In contrast the MDG's talk in terms of relative targets such as "reducing by 50% the number of households without access to an improved water source or a hygienic latrine". Whether MDG style "relative targets" might be more realistic and practical to apply than the NRWSSS "absolute targets" should be a point for future discussion.

In summary, progress towards NRWSSS targets has varied greatly across Viet Nam reflecting differences in the initial starting point, socio economic development of particular localities, level and nature of external assistance and the specific environmental and cultural variables that influence the use of improved water sources and hygienic sanitation, etc. A better understanding of trends and rates of change in rural water supply and sanitation coverage will support the setting of more appropriate water supply and sanitation coverage targets for the coming period. As the preceding analysis shows, there are limitations to the available long term monitoring records on RWSS coverage in Viet Nam. However, the regional changes in coverage provide further guidance for setting provincial coverage targets. The setting of regional and ultimately provincial targets for RWSS coverage will be a major improvement on the previously set nationwide targets that did not adequately account for differences in the relative starting points.

The NRWSSS sets targets for 2010 of 85% of the rural population having access to 60 litres/day of clean water and 70% having access to hygienic latrines. The data available suggests that the water supply targets are likely to be achieved (at least in terms of coverage: there is no data available to assess whether the water is of good enough quality or sufficient in quantity). The same is not true for latrines: current levels of provision and trends are such that there is no prospect of the NRWSSS or the CPRGS targets being reached unless a major change is made to the process through which sanitation provision is promoted and significantly higher levels of resources are devoted to this key issue.

Table 16: Annual Rates of Access to Clean Water Supply (1998 - 2003)

No.	Province	Estimated Access to Improved Water Sources by Year (number of people x 1000)						Total 5 year increase in coverage	Proportion increase over 5 year
		1998	1999	2000	2001	2002	2003		
1	Ha Noi	576	622	668	739	797	856	281	1.5
2	Ha Tay	0	856	953	1058	1177	1296	527	1.5
3	Hai Duong	651	697	743	806	876	959	308	1.5
4	Hung Yen	420	487	569	636	674	696	276	1.7
5	Ha Nam	266	289	347	385	403	420	153	1.6
6	Nam Dinh	685	745	805	855	932	839	349	1.5
7	Thai Binh	629	663	698	733	788	834	206	1.3
8	Ninh Binh	241	257	304	339	374	418	177	1.7
9	Ha Giang	193	210	244	262	284	302	110	1.6
10	Cao Bang	144	165	184	190	215	229	86	1.6
11	Lao Cai	151	177	219	264	293	329	178	2.2
12	Bac Kan	29	36	51	75	89	103	73	3.5
13	Tuyen Quang	190	222	250	284	319	348	158	1.8
14	Son La	0	233	294	343	383	428	194	1.8
15	Hoa Binh	253	276	296	320	351	391	138	1.5
16	Thanh Hoa	1008	1181	1466	1680	1930	2194	1186	2.2
17	TT-Hue	299	326	353	395	448	486	187	1.6
18	Da Nang	60	68	71	73	77	93	33	1.5
19	Quang Nam	454	489	571	650	674	719	265	1.6
20	Quang Ngai	427	467	528	605	691	777	351	1.8
21	Binh Dinh	0	494	563	592	667	718	224	1.5
22	Phu Yen	208	211	220	241	249	259	51	1.3
23	Khanh Hoa	213	230	262	299	321	353	140	1.7
24	Kon Tum	33	52	71	87	106	121	88	3.6
25	Lam Dong	145	168	179	198	219	243	98	1.7
26	Tay Ninh	182	188	204	217	245	287	105	1.6
27	Binh Duong	413	417	433	440	448	450	37	1.1
28	Dong Nai	608	668	733	780	855	904	296	1.5
29	Binh Thuan	0	327	340	352	375	403	75	1.2
30	Long An	627	703	764	840	900	957	331	1.5
31	Dong Thap	155	175	248	299	389	419	264	2.7
32	An Giang	334	354	389	480	566	604	270	1.8
33	Tien Giang	62	141	175	190	203	225	163	3.6
34	Vinh Long	327	361	411	463	517	573	246	1.8
35	Ben Tre	20	0	20	42	60	73	88	3.4
36	Kien Giang	0	537	612	673	738	833	296	1.6
37	Can Tho	511	556	597	662	731	845	334	1.7
38	Ca Mau	464	477	504	522	540	558	95	1.2

Source: Provincial CERWASS reported rates of coverage provided in the evaluation reports on progress in implementing the RWSS-NTP (1999 to 2003)

2.6 WSS Related Diseases

2.6.1 General Overview

Reducing the impact of poor water supply and sanitation on the health of rural populations is one of the main goals of the national programme to improve RWSS and for the major bilateral and multilateral donor RWSS projects. Improvements to RWSS (and associated health and hygiene education and promotion) are a pre-condition for achieving many of the health goals and targets set out in the CPRGS (see Table 1). Good health is a key to poverty reduction, directly affecting the quality of life of poor people and an essential pre-requisite for sustainable increases in income. Poor health is a double burden: it reduces productive capabilities and means families must spend what limited resources they have caring for the sick. It is the most vulnerable, women and children, the extreme poor, the elderly, the malnourished, who bear the burden of poor health the most and are the least able to cope when they strike.

Improvements to RWSS and the reduction of health burdens amongst the rural poor are intricately linked. There are two main types of links between RWSS and the incidence of ill health: water as the conveyance medium of pathogens (bacterial infections) and water providing the habitat for vectors and intermediate hosts of pathogens, such as malaria and nematode (worm) infestations. There are also diseases associated with a lack of water essential to maintain basic hygiene levels and include trachoma and women's reproductive tract infections. To these can be added the significance of water availability in rural areas in determining food security and nutritional status (itself a key determinant of health). Sustainable improvements to health conditions are a key to poverty reduction. Sustainable improvements to RWSS are a key to improving health conditions amongst rural populations.

According to MOH statistics on communicable diseases, in 2003 these diseases represented nearly half the visits to health clinics and hospital. Half these diseases result directly from water and environmental sanitation problems, stressing the importance of increased investment in sanitation and hygiene. The death rate caused by infectious diseases decreased from 53% in 1976 to 16% in 2001. However, the death rate of the poor in rural areas caused by infectious diseases is 22% higher than that of urban areas. Children are the most vulnerable group. The death rate of ethnic minority mothers and infants at birth is much higher than the national average.

Alarmingly, the death rate of infants in the poorest quintile is on the increase. One main factor causing this crisis is inadequate water provision and hygiene, especially in rural areas.

Table 17 gives a basic overview of poverty, water supply, sanitation, and health statistics for each region of Viet Nam. The links between the different variables are clear: poorer regions have lower levels of coverage of clean water and hygienic latrines, more malnourished children and a greater incidence of diarrhoeal illness among children. However the contrasts are not as stark as might be expected, and there are still significant numbers of poor people and undernourished children in relatively prosperous areas.

Table 17: Rural Population: Water Supply and Heath

Region	Income poverty % Rural Population	% Coverage Clean Water (VLSS)	% Poor Households with Hygienic Latrines	% Children under 5 stunted	% Children under 5 wasted	% Children under 5 with Diarrhoea in 4 week period 2003
Red River Delta	27.1	71.1	13.4	24.0	20.8	5.4
North East	52.1	7.7	3.4	32.7	32.3	4.9
North West	52.1	7.7	3.4	31.1	38.6	8.0
N. Central Coast	49.1	21.7	6.6	29.3	27.2	5.4
S. Central Coast	31.3	20.1	16.9	27.9	22.5	8.1
Central Highlands	61.0	4.3	8.0	32.8	35.6	8.2
South East	17.7	45.3	31.4	28.4	21.2	5.9
Mekong Delta	26.6	48.5	8.3	26.9	18.8	6.1
All Viet Nam	35.6	39.6	11.5	28.4	25.1	6.1

2.6.2 Ministry of Health Disease Monitoring Data

To assess the situation of water supply and sanitation related diseases, the Review Team sourced province by province statistical yearbooks published by the MOH from 1999 through 2003, matching with the implementation period of the RWSS-NTP. Published annually and disaggregated in many cases by province, these statistics are the most comprehensive available and the best way to track water

supply and sanitation related diseases in Viet Nam. The MOH data provided to the Review Team was, however, a composite of rural and urban data and in the future the provincial records should be disaggregated into urban and rural cases and these records need to be available at the central level.

Health statistics should be viewed with caution for other reasons. Often people with water and sanitation related diseases will not seek medical care at all or will seek care from a private service provider such as a pharmacy. These visits are not reflected in the MOH records. Commune health station records also do not distinguish between new patients and patients returning for the same ailment. Lastly, there are important water supply and sanitation related diseases not included in mandatory reporting, the most notable of which is trachoma. Economic considerations, socio-cultural differences, and ease of access to government health services will also influence the pattern of health seeking behaviour and associated reporting. Nevertheless, these health statistics remain an important source of data to evaluate the impact of RWSS on health.

2.6.3 Time and Geographical Trends in RWSS Disease Data

The ability to track and understand the changing dynamics of rural health burdens associated with poor water supply and sanitation is critical for the more effective planning and prioritisation of RWSS-related activities (both the extension of coverage through investments in new or improved services and the development and implementation of appropriate and well-targeted health and hygiene promotion activities). Below are a series of bar charts showing the number of diagnosed cases of several important water supply and sanitation related diseases. Included are bar charts showing the number of cases per 100,000 people by ecological region for 5 consecutive years for **Cholera**, **Typhoid** and **Amoebic Dysentery**. As well there are bar charts showing the rate of deaths from **Japanese Encephalitis**, **Diarrhoea** and **Dengue Fever**. Also provided are a number of country-wide maps showing the incidence of selected water supply and sanitation related diseases in 2003. As with the bar charts the maps are based on MOH published health data.

Typhoid is caused by the bacterium *Salmonella typhi*, which lives only in humans. Persons with typhoid fever carry the bacteria in their bloodstream and intestinal tract. A small number of persons called carriers recover from the fever but continue to carry the bacteria. Both ill persons and carriers shed *Salmonella typhi* in their faeces. A high proportion of actual typhoid cases are likely reflected in MOH

reporting, as the disease is relatively serious. This makes it a good indicator to track water supply and sanitation progress. Typhoid is also considered a good indicator as it has a wide geographical range; new cases were reported in all eight regions from 1999 to 2003. Moreover typhoid is not strongly governed by geographical or climatic conditions but by water and sanitation conditions. Using typhoid cases as the preferred indicator of clean water supply and hygienic sanitation, clear improvements can be seen; nationwide the incidence of typhoid has declined consistently from 1999 to 2003, though their remains a high incidence in the North West and the Mekong River Delta. The South Central Coast is the only region where consistent declines in the incidence of typhoid have not been achieved over the monitoring and reporting period.

Diarrhoea related deaths provide a second useful indicator for assessing the general status of water borne diseases. Diarrhoea is geographically widespread, and a reasonably high proportion of cases that result in death are reported. Between 1999 and 2003 there was a consistent decline in the number of diarrhoea related deaths nationwide, particularly in the Mekong Delta, the Central Highlands and the North Central Coast. The most affected regions continue to be the North West, the North Central Coast and the Central Highlands; these regions are characterised by a high proportion of ethnic minority groups and rural poor. The 2002 VNHS found that infants between 0 and 24 months are the most susceptible to diarrhoea, and that 10% of child respondents had had diarrhoea in the four weeks prior to being sampled.

(a) TYPHOID CASES

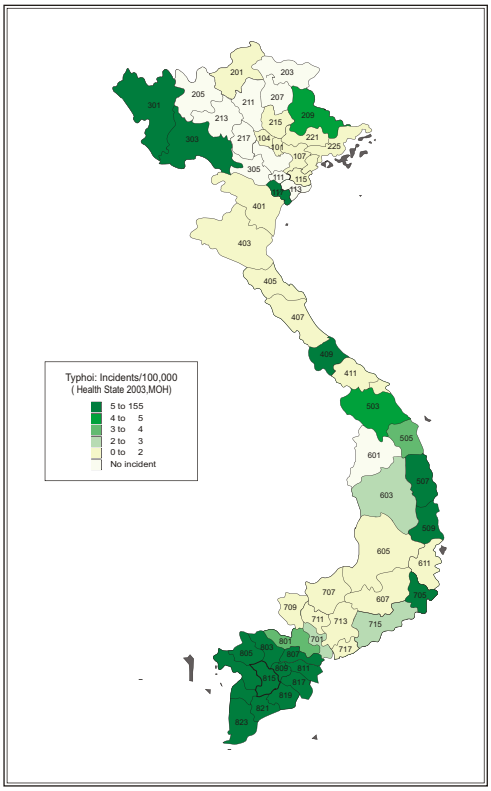
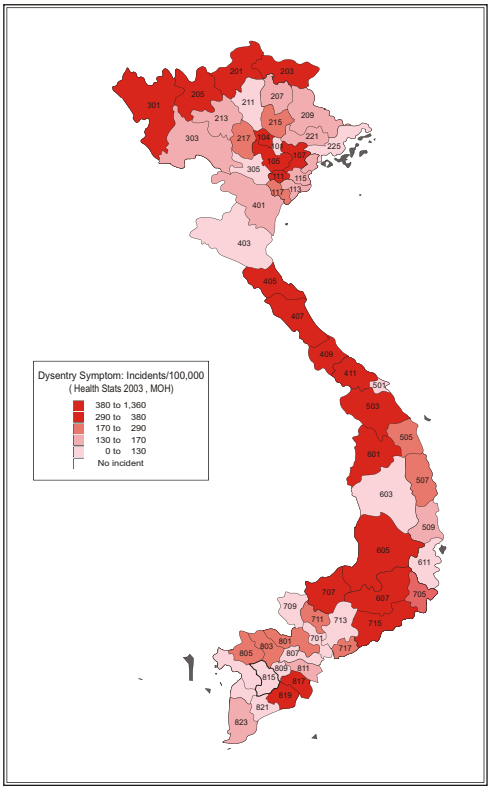


Figure 14:
(a) Incidence of Typhoid Cases,
(b) Incidence of Dysentery Symptoms, and
(c) Incidence of Diarrhoea Cases based on Ministry of Health Records for 2003

(b) DYSENTERY SYMPTOMS



(c) DIARRHOEA CASES

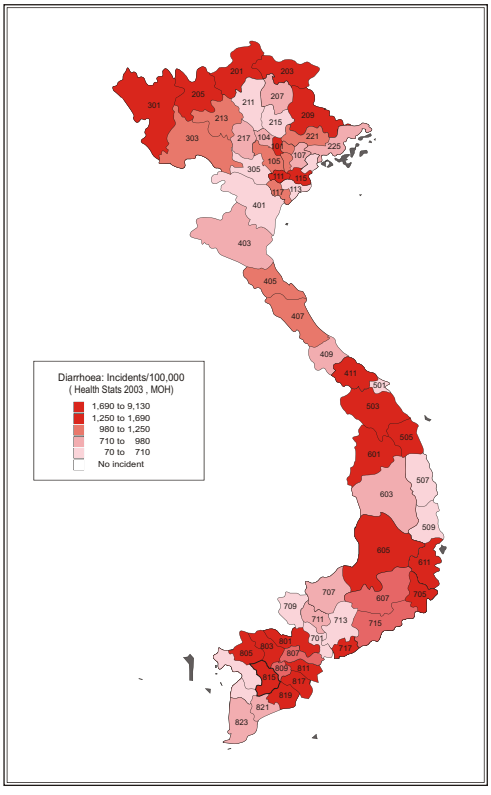
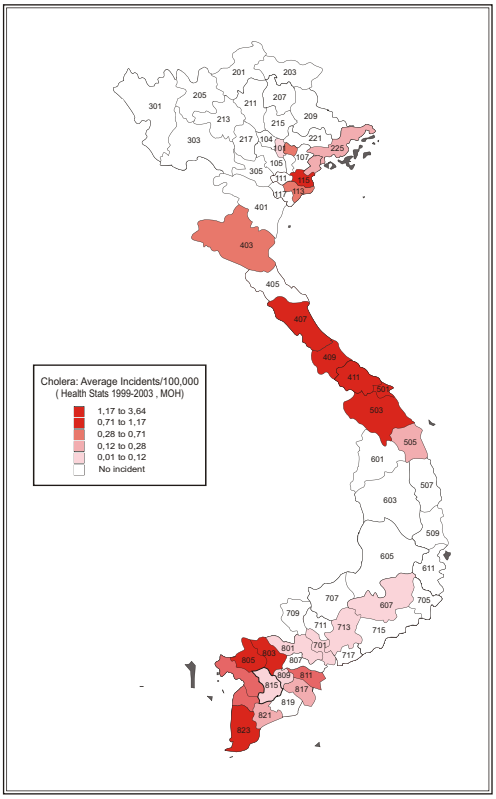
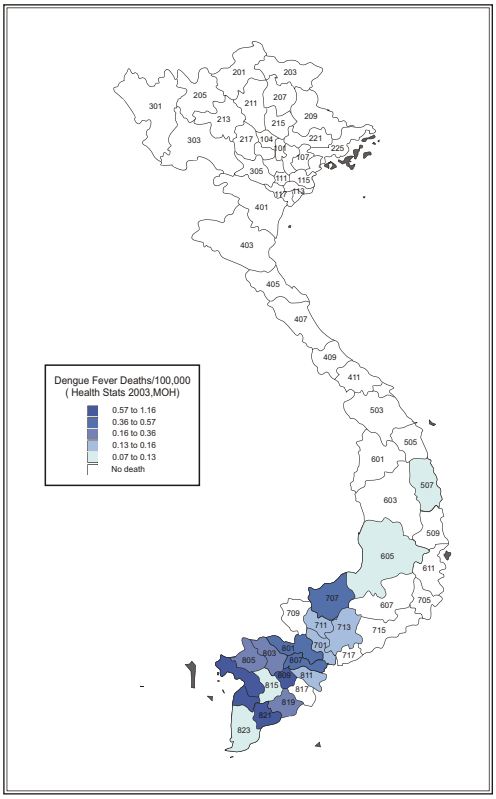


Figure 15: (a) Incidence of Cholera cases and (b) Incidence of Dengue Fever Related Deaths based on Ministry of Health Records for 2003

(a) CHOLERA CASES



(b) DENGUE FEVER DEATHS



Cholera is another serious waterborne disease, which is an acute diarrhoeal illness caused by the bacterium *Vibrio cholerae*. The infection is often mild or without symptoms but can be severe. One in 20 infected persons will experience profuse diarrhoea, vomiting, and leg cramps. This is followed by rapid loss of body fluids, dehydration and shock. Without treatment, death can occur within hours. Nationwide, there was actually an increase in cholera cases between 1999 and 2003. Serious cholera outbreaks seem to be largely limited to the flood prone coastal regions and the major river deltas. This is consistent with the fact that epidemics are generally related to faecal contamination of the water supply, which often occurs in the wake of flooding. The cholera bacterium can also live in brackish rivers and coastal waters. Due to its sporadic occurrence and strong link to specific climatic events like flooding, cholera is not considered a particularly good indicator to measure Viet Nam's overall progress to ensure clean water and hygienic sanitation. However the continuing threat of cholera outbreaks, especially in flood prone areas, underlines the need to better integrate clean water supply and sanitation with disaster preparedness, mitigation and response.

Amoebic Dysentery is a regularly monitored waterborne disease caused by the protozoan parasite *Entamoeba histolytica*. Ingesting food or water contaminated with the parasite initiates the infection. The parasite then colonises the host's large intestine, resulting in symptoms such as colitis, diarrhoea and dysentery. The parasite is then excreted through faeces, continuing the cycle of infection. Although the incidence of amoebic dysentery remains high in certain areas (the incidence rate in the Central Highlands is 3.5 times the national average) MOH statistics indicate a significant and steady nationwide decline. This is another indication that rural water supply and sanitation conditions are improving. However as proper diagnosis of amoebic dysentery requires a microscope and stool examination kit, equipment most commune health facilities lack, incidence may be higher than reported.

Dengue Fever is a vector borne disease that is increasingly being viewed as a water and sanitation related disease. This is because the vector, the *Aedes aegypti* mosquito, often breeds in manmade water containers such as rainwater jars and hand dug wells. In Viet Nam, the pattern of dengue fever incidence is distinctive: all cases between 1999 and 2003 resulting in death occurred in the South. In the South East and the Mekong River Delta, the most vulnerable regions, there was an increase in dengue fever incidence over the period. The morbidity rate associated with dengue fever in the Mekong Delta is 6 to 30 times higher that the morbidity associated with diarrhoea over the period. Like diarrhoea, most of deaths are among children. It is possible to control dengue fever by eliminating wastewater from abandoned containers and releasing mesocyclops (a small crustacean) into drinking water tanks. Mesocyclops prey upon mosquito larvae and are able to keep a water tank entirely free of larvae. Mesocyclops is often present in wells and ponds, and has been accepted in field tests by the local population for use in drinking water tanks.

Japanese Encephalitis is endemic or hyper endemic in every province. It is a vector borne disease, the main vectors being mosquitoes which become infected feeding on the blood of domestic pigs and wild birds. Infected mosquitoes then transmit the virus to humans and animals during the feeding process. Epidemics often occur in areas with large numbers of pigs, which serve as amplification hosts, and the disease is known to peak from May to October. From 1999 to 2002 there was a consistent decline in the number of deaths from Japanese Encephalitis. (However in 2003 there were serious outbreaks in the Central Highlands and the Mekong Delta.) Although there has been a relatively consistent decline in the number of deaths attributed to the virus, there has not be a systematic decline in the number of cases, suggesting that reduced morbidity is due to better treatment and not necessarily better prevention. The links between Japanese encephalitis and rural water supply and sanitation conditions are not well defined, and more research is

needed to evaluate possible links and to formulate preventative strategies that could be integrated into future activities of the RWSS sector.

Trachoma is a chronic follicular conjunctivitis that leads to scarring of the cornea and eventual decreased vision and blindness. It is endemic in Viet Nam. Comprehensive trachoma control programmes, which began in the 1960s, have reduced the overall prevalence of active trachoma from an estimated 17.5% in 1975 to an estimated 7% in 1995[6]. Research sponsored by the International Trachoma Institute (ITI) and their main partners, the MOH and the Institute for Ophthalmology, shows trachoma in Viet Nam has an uneven spatial distribution and a particularly high prevalence of the active disease in children[7]. Moreover trachoma in Viet Nam now tends to be concentrated in clusters of high prevalence of the active disease, especially in the central and northern areas of the country. The links between trachoma and poor hygiene, especially not washing ones face with clean water, are well established. To what extent trachoma incidence can be used as a surrogate indicator of water scarcity remains to be seen. As part of the improved resource targeting process for the RWSS sector it would be worth undertaking a systematic review of district and province hospital records nationwide to pinpoint the communes where active trachoma is occurring and to evaluate whether this information can be used as a useful indicator for improved targeting of financial and technical assistance for clean water supply provision in Viet Nam.

2.6.4 Summary

There have generally been consistent declines in waterborne diseases such as typhoid fever, diarrhoea and dysentery in the past five years. There remain several disparities, however, between regions. The North West and the Mekong Delta, for example, continue to be hot spots for typhoid, underlining the need to prioritise water supply and sanitation interventions in these regions. The Central Highlands, characterised by very low rates of access to improved water sources, continues to have dysentery and diarrhoea rates much higher than the national average. Diarrhoea related deaths in the North Central Coast are also worryingly high. Both the North Central Coast and the South Central Coast have above average rates of dysentery, both amoebic and bacillary, which is indicative of poor sanitation, especially not using treated or boiled water for drinking and cooking.

Cholera outbreaks still affect flood-prone areas, and there needs to be a concerted effort to integrate disaster preparedness and response activities within overall

[6] Anon., Epidemiology survey of blindness and several eye disseases, National Institute of Ophthalmology, Hanoi, 1995

[7] Myatt et al., Using lot quality assurance sampling (LQAS) and area sampling to identijy priority intervention areas or trachoma control activities - Experiences from Viet Nam , Hanoi 2004

RWSS planning. Dengue fever has not yet been brought under control and still seriously affects southern regions, particularly the Mekong River Delta and the South East. The links between Japanese Encephalitis, another vector borne disease, and water supply and sanitation remain unclear; prevention of the disease may, for the moment, be beyond the scope of most RWSS interventions. However trachoma, a disease clearly linked to poor sanitation, is still endemic in localised pockets. More should be done to integrate trachoma monitoring into future sanitation promotion planning, and use the trachoma monitoring to identify water-scarce communities should be further investigated.

Figure 16: Typhoid Fever Cases by Region from 1999 to 2003 (MOH)

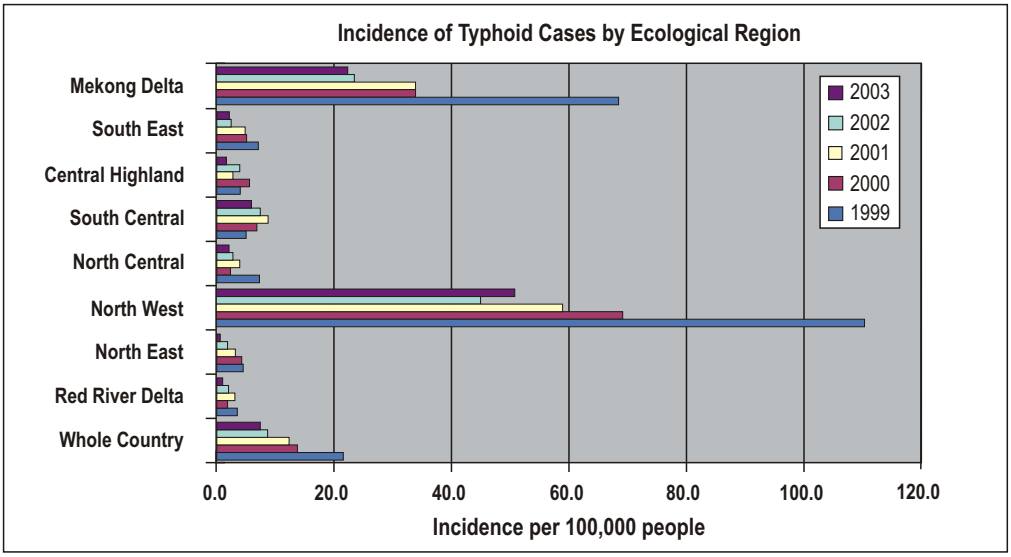


Figure 17: Diarrhoea Deaths by Region from 1999 to 2003 (MOH)

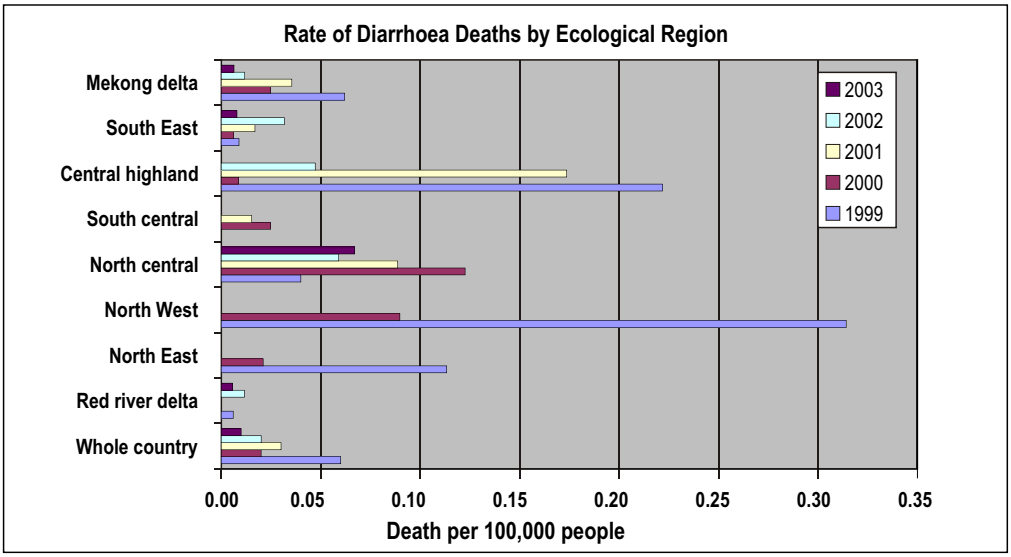


Figure 18: Cholera Cases by Region from 1999 to 2003(MOH)

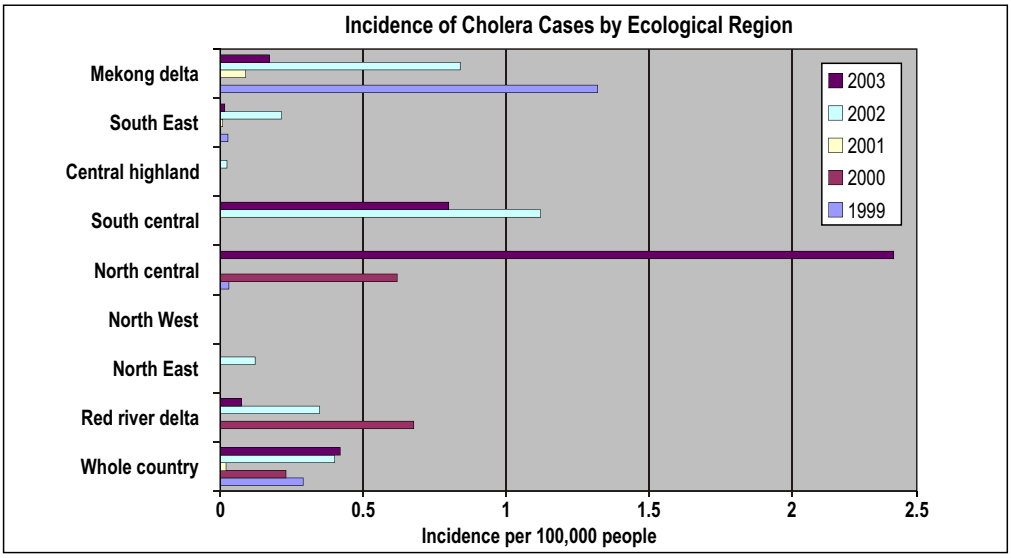


Figure 19: Amoebic Dysentery Cases by Region from 1999 to 2003

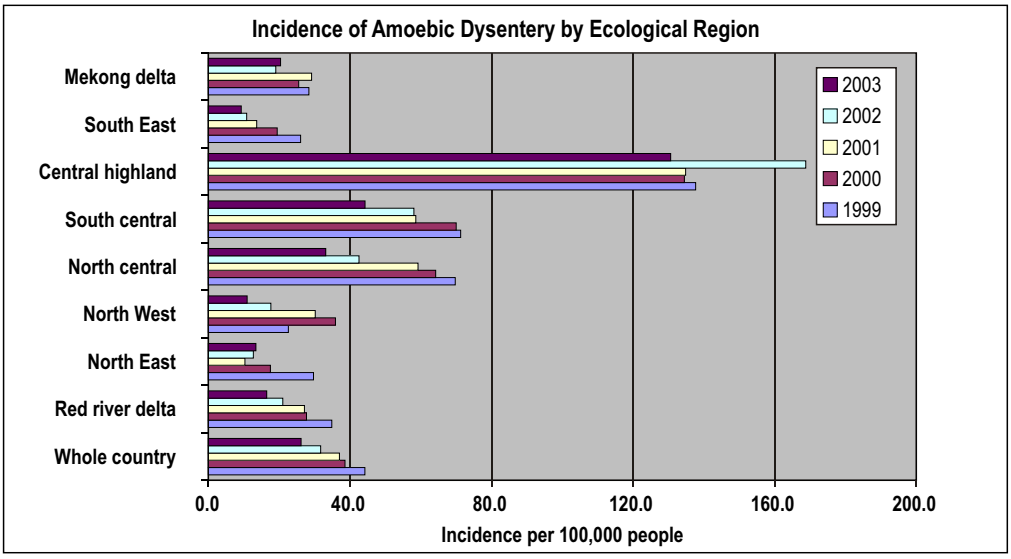


Figure 20: Dengue Fever Deaths by Region from 1999 to 2003 (MOH)

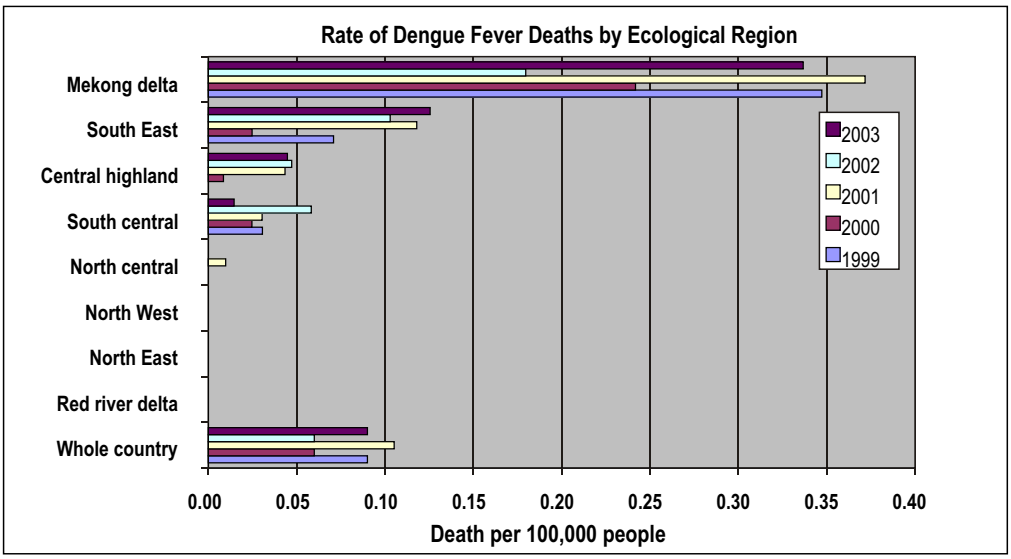
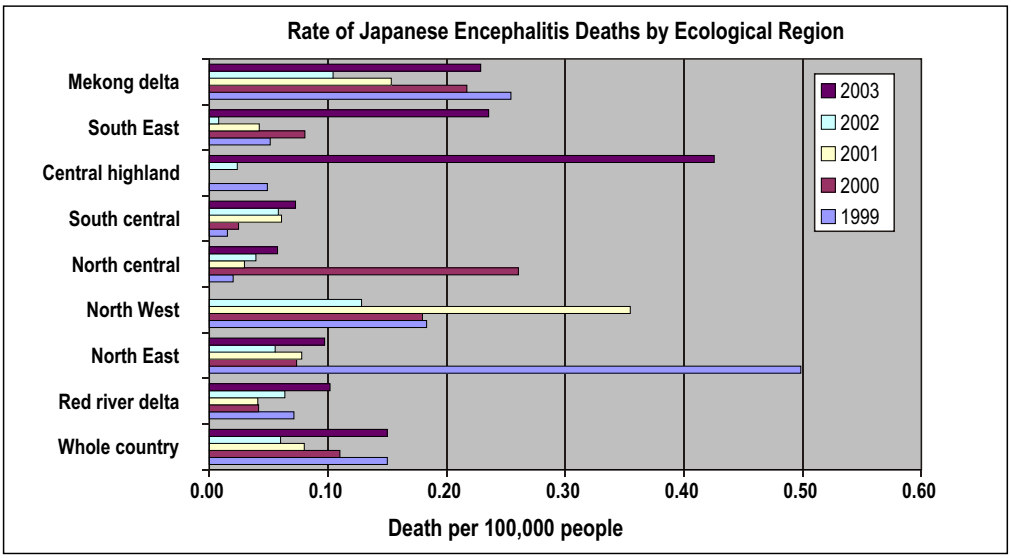


Figure 21: Japanese Encephalitis Deaths by Region from 1999 to 2003 (MOH)



2.7 Perspectives on Water Quality Standards

The CPGRS targets on rural water supply and sanitation coverage are broadly consistent with those of the NRWSSS, although definitions differ slightly. The MDGs, on the other hand, set out less ambitious targets. The MDG's talk in terms of "halving the proportion of the rural population without sustainable access to an improved rural water source", while the CPRGS states that "by 2010, 85% of the

rural population must be ensured access to clean water at 60 litres per person per day". More ambitious still is the NRWSSS 2020, which states that "by 2020, 100% of rural people in Viet Nam shall have access to national-standard clean water supply of at least 60 litres per person per day". This standard is extremely demanding and is unlikely to be practical. (The term "national-standard clean water supply" needs to be revisited as it is not a practical monitoring indicator.)

The government's plan to provide 60 litres per day of water that meets the national water quality standard to all rural people is extremely demanding. The majority of water that people use for washing, bathing, animal raising, and general upkeep of the domestic environment arguably does not need to meet such strict hygiene standards. These standards are also impractical to apply. Only 3 to 5 percent of the rural population has access to water from a central supply facility. This means that upwards of 95% of rural households are using water sources that cannot be practically tested (discussed further below). This was recognised by many INGOs and donors at the National Water Week Workshop in March 2004.

Over-emphasising the need to have safe water for all purposes may result in an overemphasis on piped water. There are numerous examples of piped water supply systems where supply outstrips consumption resulting in required rate of cost recovery that are not sustainable. Overemphasising the provision of safe water for all purposes may also be diverting critical resources away from sanitation, household water treatment and behavioural change.

The MOH has set up a network from the central to the local level for water quality inspection and monitoring. At the central level, the Bureau of Preventive Health Care and HIV/AIDS Prevention of the MOH is responsible for managing and monitoring rural water quality. These efforts are supported by the National Institute of Preventive Health Services and the National Institute of Hygiene & Epidemiology (NIHE), the Institute of Occupational Health and Environmental Sanitation, the Institute of Hygiene & Epidemiology of the Central Highlands, the Pasteur Institute of Nha Trang, and the Institute of Public Health of Ho Chi Minh City. These institutes cooperate with each other to monitor the effect of water and sanitation on public health. With well-equipped laboratories, they are able to provide high quality water testing when required.

At the provincial level, the preventive health service has its own laboratories to monitor water quality. Officials are required to test samples from water supply stations monthly. The preventive health service also investigates and approves

projects for supplying clean water and coordinates with the environmental department to mitigate the negative effects of waste water on health.

In 2002, the MOH issued nationwide uniform water quality standards. Previously, there were three national water quality standards: those of the MOH, MOC, and MOSTE. However, the new standards have only been applied in urban areas and to systems servicing more than 500 people. Provincial Centres for Preventive Health test water in these systems according to three criteria sets, known as sets A, B, and C. Although most provinces are able to test for criteria under Set A, which includes basic factors such as colour, taste, organic acid and pH level, most provinces do not have the equipment to test for the criteria outlined in sets B and C, which look more deeply at chemical and biological content.

2.8 Current Situation of Investment in RWSS

To analyse investment trends in the rural water supply and sanitation sector, the Review Team sourced over 40 provincial CERWASS NTP progress reports. These reports provide detailed accounts of investment in the sector from different sources. However the pattern of investment to the RWSS sector varies greatly, and provincial CERWASS teams have found it difficult to track all investment. The level of household investments has been particularly difficult to track, along with funds dispersed directly from the government's Programme 135, INGOs, and major donors to district people's committees.

Required levels of investment have been estimated previously. At a presentation in March 2004 the General Director of the International Cooperation Department of MARD provided estimates on the level of investment needed to reach the target scenario set out in the NRWSSS. In that presentation it was estimated that the required investment for water supply is 24,841 billion VND and for sanitation is 12,676 billion VND, giving a grand total of 37,497 billion VND. This is equivalent to about $US 2.4 billion[8]. In a presentation by the CERWASS, also in March 2004, the estimate was that to reach national 2020 RWSS targets the required rate of investment for the next 15 years should be 3,000 Billion VND per year (or $US 191 million per year).

Meanwhile from 1998 to the end of 2003, CERWASS estimates the total invested in the RWSS sector to have been 4,795 billion VND (around $300 million). For the

[8] The assumed rate of investment to achieve basic RWSS services used in the calculations was $ US 15 per person

same period the GoV estimated the required investment to meet NRWSSS targets over the period at 16,339 Billion VND (just over $US 1 Billion). According to CERWASS figures, actual investment was less than one-third of the stated need. However it is fair to say that household investment is probably being under estimated, and this will be covered later in the report. In the Chapter on major programmes and projects more detailed information on investment from government programmes and donor projects is provided.

Table 18: Breakdown of RWSS Investment (1999 - 2003)

	Investment Source	Amount (VND)	Percentage of Investment
1	State Government Budget	854 billion	18%
2	Local Provincial Government Budget	500 billion	10%
3	Integrated Project Budgets	565 billion	12%
4	International Donor Budget	787 billion	16%
5	Local contribution & self investment	2,089 billion	44%

Source: National CERWASS presentation @ Water Week Workshop Hanoi March 2004.

2.8.1 User Investment in the Rural Water Supply & Sanitation Sector

Rural households are the single biggest investor in the RWSS sector, and their contributions will only grow as the country develops. As such, a deeper analysis of household spending on improvements to the rural water supply over the past five years is critical to inform future plans and set a strategic direction. Initial analysis of investment records shows that (i) the full potential of user investment in rural water supply and sanitation is far from being achieved in many areas and (ii) future external sources of investment need to be better used to leverage funds from local users.

CERWASS differentiates between "local contributions" and "independent household investment" in provincial financial reporting. "Local contributions" refer to the contribution of households to projects of the government or international donors. From available information, it can be assumed that the greatest proportion of government and donor investment over the past five years has been directed at

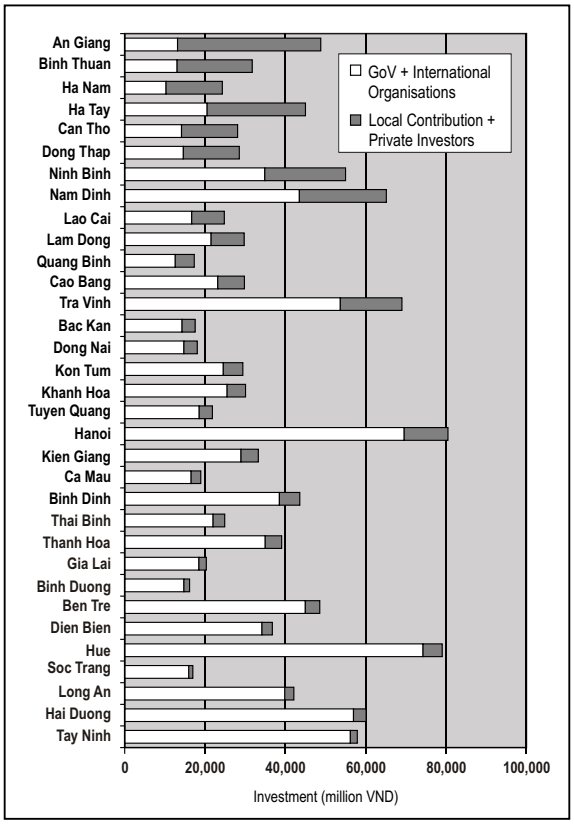
piped water supply systems. In Nghe An and Ha Tinh provinces, for example, provincial CERWASS officials reported that over 95% of government NPT funds were directed at piped water supply schemes during 2003 - 2004. This is indicative of other areas. "Local contributions", therefore, can be logically taken to mean "local contributions to piped water systems." If this assumption holds then Figure 22 provides a proxy indicator on local user investment, relative to government and international organisation investment, on piped water supply systems.

CERWASS figures show that "self investment", or investment in things other than piped water systems, far exceeds "local contributions". In fact most provinces have achieved very limited success in eliciting meaningful contributions for piped water systems. Based on Figure 22 the areas where households have invested significantly in piped water systems are generally those areas in which fresh water is scarce. Many households in the Mekong Delta wishing to end their dependence on surface water feel they have no choice but to invest in piped water (e.g. Dong Thap, An Giang and Can Tho). Similarly, many households in drought-prone central areas are convinced that the best option is piped water (e.g. Binh Thuan). The willingness of households to invest in piped water in Ha Nam and other Red River Delta region provinces is not surprising given the poor quality of local groundwater in some areas. Ha Nam and a number of Red River Delta provinces have elevated iron and manganese in the shallow groundwater, resulting in a high dependence on river and pond water for drinking and cooking. Consequently piped water supply represents the best possible solution and as such local people are willing to contribute a significant proportion of the total cost.

In Nghe An province the CERWASS is constructing eight piped water systems at a cost of 10.5 billion VND, half of which is to be met by local communities. The size of local contributions varies by region and type of system. Households in mountainous communities and coastal communities establishing relatively small systems are expected to contribute around 20% of the project costs, while households in lowland delta areas and coastal areas establishing large scale systems are expected to contribute 60%. In Ha Tinh province, CERWASS is constructing seven piped water supply systems at a cost of just under 12.5 Billion, 40% of which is to be met by local users. The systems will provide clean water to over 32,000 people at a per capita cost of 390,000 VND, of which 158,000 VND is to be met by local users.

The experiences of Ha Tinh and Nghe An provinces show a rate of user contribution to piped water supply systems in the order of 40 to 60 percent is reasonable. This is consistent with the levels of user contribution in water scarce or polluted rural environments in Nam Dinh, Ninh Binh, Dong Thap, Can Tho, Ha Tay, Ha Nam, Binh Thuan and An Giang (see Figure 22).

Figure 22 : Rate of Local Contribution to GoV& Donor Supported Piped Water Supply Systems



On the ADB-funded Rural Infrastructure Sector Project (RISP) the average per capita investment on piped water supply across 20 provinces, serving 1,500,000 people, was approximately 250,000 VND (or $US 16). These schemes were typically 1,000 to 5,000 households, which is large compared to many rural water supply systems. These projects were not implemented in line with the demand driven approach and the user contributions were smaller than for projects implemented under the RWSS-NTP.

In a study of 15 small-town water supply systems in the Mekong River and Red River deltas[9], the size of local contributions was found to be very diverse. The government and donors funded approximately 40% of each project. Rural users funded 16% and the remaining 44% came from other investors, including provincial water supply companies, water supply cooperatives, agriculture cooperatives, other public firms, and private investors. The division of costs was found to be closely linked to the management model and implementing agency. In most schemes funded and managed by provincial CERWASS units, user contributions were comparatively high, though still low compared to household self-investment.

[9] Water and Sanitation Program, May 2001. Viet Nam Small Towns Water Supply and Sanitation Case Study - Preliminary Findings

The chart below is based on CERWASS investment records for provinces in which there has been a reasonable attempt to differentiate between local contributions and household self investment (see Table 19). The chart clearly shows the majority of user investment is being spent on private household improvements and not larger community schemes. Household self investment has been the real driver for the progress made towards clean water supply targets. However there has not been commensurate growth in user investment in household sanitation facilities. This suggests that the problem for many parts of Viet Nam is not one of affordability rather priority.

Figure 23: User Investment on Household RWSS Improvements Compared with Contributions to Piped Water Supply Systems

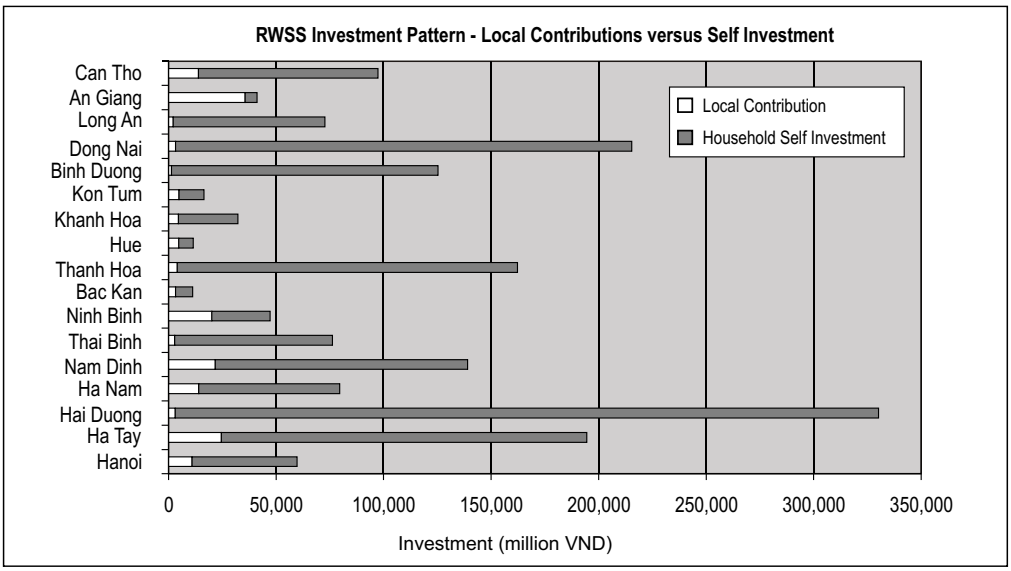


Table 19: PCERWASS Reported Investment in RWSS (1999 - 2003)

(million VND)

Province	Total	State GoV	Local. GoV	Int. Orgs	Local contrib.	Self Invest	Private Comp/ Coops	Other
Hanoi	134,068	513	73,700	30	10,879	48,946		
Ha Tay	213,282	14,754		3,783	24,500	170,000		
Hai Duong	343,166	11,129	500	1,347	3,118	327,078		
Hung Yen	82,390	11,399		1,789	69,202			
Ha Nam	94,489	14,000		610	14,000	65,585		294
Nam Dinh	160,390	14,450	1,100	4,960	21,650	117,420		710
Thai Binh	88,830	11,647	745	180	2,880	73,380		
Ninh Binh	60,557	9,788	200	3,060	20,101	27,073		335
Ha Giang	116,143	75,740	2,400	11,157	26,846**			
Cao Bang	41,604	32,463		2,502	6,639			
Lao Cai	112,342	7,500		5,665	8,099			91,078
Bac Kan	51,539	15,867	13,134	5,150	3,243	8,000		7,131
Tuyen Quang	19,239	13,031		2,915	3,293			
Yen Bai	60,787	11,520	4,090	24,228	20,949			
Phu Tho	101,597	27,800*		6,599	57,198**			10,000
Son La	139,275	88,663*		22,211	28,401**			
Hoa Binh	82,478	13,740	13,999	28,603	3,657**			22,479
Thanh Hoa	209,173	23,033	3,527	18,403	4,111	158,227		1,872
Quang Binh	18,776	10,123	920	3,087	4,756			
TTHue	42,211	13,937	4,200	5,023	4,784	6,777		7,491
Da Nang	28,043	7,047	2,396	2,450	10,078**			6,072
Quang Nam	22,036	12,099	2,000	7,937				
Quang Ngai	142,277	17,992	40	1,500	111,475**		2,300	11,270
Binh Dinh	26,599	17,167*		4,332	5,100			
Khanh Hoa	56,714	9,139	12,429	2,986	2,300	27,660		
Kon Tum	61,579	9,938	14,351	1,200	4,839	11,589		19,652
Lam Dong	26,835	9,331	4,951		8,226			4,327
Ninh Thuan	18,311							
Tay Ninh	20,190	10,236	7,813	417	1,724			
Binh Duong	140,002		14,707	33	1,389	123,874		
Dong Nai	251,360	1,933	26,888	116	3,317	212,000	1,400	7,107
Binh Thuan	74,873	54,892		1,281	18,700		3,132	
Long An	110,854	13,396	19,764	5,339	867	70,448		
Dong Thap	36,764	9,999	11,166	850	10,167		9,600	850
An Giang	59,145	12,485	4,038		3,300	5,450		1,522
Tien Giang	88,556	31,657*			46,655			10,244
Vinh Long	52,300	24,800*		7,200		10,700		
Ben Tre	20,282	14,426*		2,267	3,589		75	
Kien Giang	47,787	7,413	16,688	19,377	4,309			
Can Tho	154,478	5,826	41,638	9,485	13,902	83,553		
Tra Vinh	92,120	1,286	22,123	46,168	15,343			7,200
Soc Trang	54,918	1,122	13,048	39,502	1,026			
Ca Mau	12,718	9,384	89	832	2,413			

** The State GoV contribution includes provincial GoV contribution.*
***Independent household investment lumped with local contribution.*

Chapter

3

Major Projects and Programmes

3.1 Overview

A number of major programmes and projects have been implemented to reach rural water supply and sanitation targets. These include nationwide government programmes and projects funded by the international community (both multilateral and bilateral donors) and small project and ongoing programmes funded through INGOs. While these efforts have been crucial, the single largest investor in improved rural water supply and sanitation over the past five years has been users themselves (see Table 18). The growth in household investment, coupled with the emergence of private sector service providers, has been much more fundamental to the significant achievements of the sector as a whole. (This is discussed further in Chapter 6).

There are two national GoV programmes that include significant support for rural water supply and sanitation: the National Target Programme for Rural Water Supply and Sanitation (RWSS-NTP) and the National Programme 135 for Socio-Economic Development of Particularly Difficult Communes in Mountainous and Remote Areas (Programme 135). The RWSS-NTP is more comprehensive in terms of overall coverage and total investment, but Programme 135 represents a significant level of investment and is more clearly targeted at poorer areas. In addition, other ministries (most notably the Ministry of Health and the Ministry of Education and Training) have programmes in place to provide RWSS services to their own facilities.

As well as providing profiles of government and donor activities in the sector from 1999 to present, this Chapter outlines various constraints and lessons learned. Many constraints were found to be linked to human resources development, institutional frameworks, and organisation and coordination between government departments, mass organisations and donors and financial service providers. There is a natural progression from the assessment of major projects and programmes to the assessment of institutional arrangements and monitoring and evaluation.

3.2 National Target Programme for RWSS

3.2.1 Overview

The RWSS-NTP is the primary tool for the GoV to achieve, and monitor progress towards, the targets set out in the NRWSSS. In terms of both financial and physical implementation, the RWSS-NTP is by far the largest rural water supply and sanitation programme in the country. The analysis presented in this section has been informed by a wide range of consultations and includes the key conclusions and recommendations of the evaluation of the RWSS-NTP undertaken by a multi-sectoral task force of GoV that reported to MARD in December 2004. Although full details of this evaluation were not available at the time of writing, the general conclusions are presented below.

The conclusions reflect the basic character of the RWSS-NTP, which has a strong construction focus. The RWSS-NTP, as the name suggests, is target-driven and not process or strategy driven; the objectives of the programme are a series of coverage targets. Other aspects of the NRWSSS that are defined as critical to its implementation, including the demand driven approach and the use of IEC, have not been effectively translated into implementation modalities under the RWSS-NTP in most parts of the country. Moreover the GoV evaluation team notes: *to date the RWSS-NTP has just focused on water supply and stayed neglectful on rural sanitation issues*. These are key points, perhaps *the* key conclusions, for this Review in terms of describing progress of the RWSS-NTP towards the NRWSSS goals and targets.

Nonetheless the programme has made significant progress to extend coverage to all parts of the country, and facilities constructed through the programme have been instrumental in overall gains. There have been some achievements in other areas, such as awareness-raising, effective RWSS planning, the mobilisation of new funding, and the development of new management models, but these achievements have been erratic and uneven. In most cases they have also been contingent upon the presence of a donor project or unusually innovative and motivated provincial leadership. In most areas, the RWSS-NTP has focused on construction, generally of piped water supply systems.

The multi-sector task force evaluation does give some interesting examples of innovative funding, planning and management models that have been developed in

the period 1999 to 2003 and with at least some level of RWSS-NTP involvement. These are worth quoting in detail:

- Tien Giang provincial government issued 10 legal documents (ranging from directives, decisions, regulations, guidelines etc.), which created an effective legal framework for investment management in RWSS. To 2003, around 90.61 billion dong were invested into the sector, of which 10.3% came from government budget, 29.2% came from stated owned enterprises, 14.9% came from private sector and 45.6% came from local people. This investment went to the establishment of 458 structures, including 81 private owned, 372 collective / cooperative owned, and only 58 State owned.
- Ha Giang developed a Rural Water Supply Action Plan that motivated investment from different socio-economic development programmes. The total investment to the sector was structured as 50% from government budget, 47.24% from other resources and local people, and the remaining from UNICEF (in kind).
- Ninh Binh and Dak Lak have done very well in investment mobilisation and post construction activity, especially in water quality control.
- In Ninh Thuan, a credit scheme was established with money from the government budget available for household piped water supply installation. The loan is interest - free and due after a two year period.
- In Nam Dinh, the Water Supply Sector United Fund was established providing available capital for the sector.
- The People's Committee of Ba Ria Vung Tau implemented a comprehensive investment plan for RWSS and applied strict principles in water quality control and RWSS facility management. A highlight of the plan is the networking of different water supply schemes to achieve better service quality and reduced production costs.
- Son La developed a Water Supply Action Plan (Programme 925) motivating all resources available in the province to the sector. Apart from the RWSS-NTP budget, 7 billion dong was mobilised from different projects and programmes and 6.6 billion dong was motivated from international organizations.

The executive agency for the RWSS-NTP is MARD but responsibility for coordinating the NTP activities belongs to the National CERWASS and the

PCERWASS at the provincial level. For the implementation of the RWSS-NTP, the PCERWASSs may or may not choose to cooperate and collaborate with other government departments and mass organisations. In the NRWSSS the health sector, the women's union and the education sector are all highlighted as key agencies that can support the RWSS-NTP. The information gained from field visits and the views expressed by a wide range of stakeholders suggests, however, that this happens only on rare occasions and most RWSS-NTP funds are spent through PCERWASS channels.

3.2.2 NTP Investment in RWSS 1999 to 2003

Between 1999 and 2003, the RWSS-NTP disbursed 854 billion VND from the State Government Budget, of which 11% was retained at central level and 89% was disbursed to the provinces. Every province in the country received at least some funding from the designated government budget for RWSS-NTP over the period. Table 20 is a summary of the RWSS NTP investment allocation across Viet Nam's eight regions, expressed in terms of total investment and per capita investment. There is more than a three-fold difference in the per capita investment to the poorest region than to the richest region. Poorer parts of the country, especially areas of the Northern Uplands, received significantly higher per capita allocations. This reflects effective poverty targeting and should be consolidated and extended.

Table 20: RWSS-NTP Investment By Region (1999 - 2003)

No.	Region	Investment (million VND)	Per capita Investment (VND)
1	Red River Delta	113,816	8,251
2	North East	214,305	28,556
3	North West	49,578	23,825
4	N. Central Coast	79,918	8,857
5	S. Central Coast	76,706	15,562
6	Central Highlands	46,263	13,967
7	South East	57,671	9,866
8	Mekong Delta	117,658	8,688

Source: National CERWASS

The higher rate of per capita investment to mountainous areas is a positive development, but at the same time does not seem particularly well matched to the

likely per capita investment needs of remote mountainous areas. The INGO community have previously asserted that the costs of RWSS improvements, especially piped water supply, are much higher in uplands than in lowlands. The spending power of people in mountain areas is also much lower than in lowland areas. Lack of market forces, low technical knowledge, and limited entrepreneurship in remote areas also make private sector financing impractical in many cases. The RWSS-NTP's higher per capita investment in mountain areas, though commendable, may still not be taking great enough account of these higher costs.

3.2.3 Constraints & Lessons Learned

As part of the government's review of the RWSS-NTP, provincial CERWASS units were asked to submit reports identifying key constraints. Forty of these reports have been analysed, and a summary is presented in Table 21. The results are revealing. The most commonly cited constraints related to organisational and management concerns, including uncertainties over mandates and responsibilities. Lack of financial resources were also identified by half of the provinces, and 25% cited capacity constraints. There was some awareness of the lack of attention being given to sanitation issues, as well as a clear concern over limitations in the operation and maintenance system, which in turn leads to concerns over the sustainability of investments made.

Table 21: PCERWASS Identified Constraints to the Implementation of the RWSS-NTP (1999 - 2003)

Major Constraints	No. Times
Lack of Legal Directions Defining Organization & Management Arrangements	21
Lack of Investment & Financial Support	20
Lack of Attention to Operation & Maintenance	17
Ambiguity & Uncertainty in Meeting Targets & Measuring Results	14
Low Attention to Solving Sanitation Issues	13
Difficulties in Working with the Poor & Marginalised	12
Low Capacity of Programme Management Staff	10
Lack of Attention to IEC and Community Participation	9

The national trend, and the solution prioritised in the NRWSSS, is toward connecting rural households in to community piped water supply systems. The key issue over this RWSS-NTP is its scope, and in particular the extent to which non-construction aspects of the NRWSSS have been neglected, and in the delivery mechanisms used, with most investments being through government-administered programmes despite the emphasis in the NRWSSS on a move away from this. The programme as it exists provides a strong basis to build on, but there is a need for concerted action to ensure that its scope is extended to include the many issues contained in the NRWSSS that have not so far been included.

Whilst the NRWSSS sets out a comprehensive vision in which attaining higher levels of RWSS coverage are balanced against enhancing community awareness, advancing long-term institutional change, and developing economic and other forms of sustainability, this wider vision has not been carried through to the RWSS-NTP in the majority of provinces. The result is a focus on the extension of coverage at the expense of other issues. Yet there seems to be growing recognition that the key areas for the future, as expressed in the lessons learned and recommendations, are more closely aligned with the vision set out in the NRWSSS. The conclusions of the government evaluation support this assertion, and are outlined below:

Constraints

- Investment from Government budget and other sources remained low (about 6% of the total budget specified in the NRWSSS). This low level of investment resulted in unimpressive performance toward reaching the specified targets.
- There were no clear definitions of “clean water”, “considerably clean water”, “water for drinking and cooking” or “hygienic water” etc. and no clear standards and evaluation criteria for water and water supply facility in terms of both quality and quantity.
- Most provinces have developed provincial RWSS development plans. However these plans are not frequently updated with new socio-economic development figures reflecting the increasing local demand for water supply and sanitation.
- Construction procedures for some RWSS facilities were not consistent. In some places, unfocused investment limited RWSS development. The selection of RWSS technology options was sometime inappropriate to local areas. Most projects focused on building new structures but did not pay enough attention to upgrading existing facilities, or on adequate operation and maintenance.

- Investment and financial mechanism (e.g. financial contribution portion from the government and local people) specified in national regulations are not practical in the socioeconomic development context of many different regions and provinces. This sometimes leads to underestimation of the local financial capacity.
- Most RWSS facility management and operation models are not practical in terms of cost recovery. It will be hard to sustain the operation and maintenance of many systems, and some facilities have already become non-operational.
- The lack of effective waste treatment for both solid and liquid waste in rural areas, especially rural trade villages, remains an urgent issue. To date the RWSS-NTP has focused on water supply and neglected rural sanitation issues. Environmental pollution is a concern in some areas of intensive development.
- Coordination in the planning and distribution of investment is still very loose, revealing much overlapping in the operation of the technical vs. executive units, of governmental management vs. implementation and service units, and of different National Target Programmes. The management role of the NTP is not consistent, resulting in difficulties in managing, supervising and evaluating performance.

Recommendations:

- An evaluation on the five year implementation of the RWSS-NTP should be organized with participation of the entire sector. An implementation plan for the period 2006-2010, which stresses on the coordination role of the government and the importance of increased investment to the sector, should be developed.
- In the next five years, RWSS targets should be more specific in terms of the technology, facility's quality and quantity.
- Significant investment should go to the development of technology options for regions with RWSS difficulties.
- Adjustment of and additions to existing policies and regulations should be considered. Development of practical financial policies and mechanisms to promote socialization of RWSS and sustainable operation and maintenance of RWSS facility should be initiated.
- Rearrangement of the management system from national to community level with clear definitions of responsibility is recommended to ensure the efficiency.

- More attention should be focused on technical training and different capacity building activities in facility management, IEC etc. for RWSS practitioners from national to community levels.
- It is essential to strengthen multiministerial coordination, and promote the role of mass organizations, international relations, experience sharing etc. in RWSS improvement.

The constraints identified and recommendations by the GoV evaluation are in close accord with the findings of this Review. As has been stressed, the RWSS-NTP is of pivotal importance for understanding the present status of the sector. It is also a key base upon which the future development of a coherent and coordinated national RWSS programme should be built. The RWSS-NTP has been far from perfect, but also has many achievements and strengths that can be enhanced and expanded in the future. This is an option that will be discussed in depth with all stakeholders in the preparation of the Strategic Plan in the next phase of this Review.

3.3 National Programme 135

The provision of domestic water as and the control of some waterborne diseases are core elements of programme 135. Programme 135 funds a wide range of activities, including the building of new schools, roads and power systems. From 1999 to 2003, clean water activities accounted for 5.8% of Programme 135 funding, with over 2,000 projects scattered throughout the country. Although total funding for water and sanitation activities under Programme 135 over the period represents only one-third total funding disbursed by the RWSS-NTP, Programme 135 funds were more effectively targeted at the poor. In the poorest districts and communes, Programme 135 funds may have exceeded those of the RWSS-NTP. The contribution of Programme 135 towards the NRWSSS targets is consequently significant. It should be noted, however, that Programme 135 has invested little, if anything, on sanitation a critical problem in many poor communes.

3.4 Ministries of Health and Education

The **Ministry of Health** has many programmes using funds from the government and international donors (UNICEF, WHO, ITI) to improve rural water supply and sanitation. The focus here is on government-funded activities. Starting in 2001, the MOH began implementing RWSS-NTP activities in 20 districts of 17 provinces nationwide. Most of these regions are mountainous and coastal areas characterised by low economic performance and a widespread lack of water and sanitation. Moreover, the level of knowledge of people who live in these regions is still very low. These activities focus on (a) social mobilisation on water supply and sanitation promotion; (b) targeting poverty; (c) low-cost interventions (d) increasing community participation and (e) strengthening the capacity of health staff. The programme's five-year targets are:

- Reaching 50% of household in programme area accessing hygienic latrines in 2005.
- Improving health status and living standard of people in the programme area through changing behaviour and improving surrounding environment.
- Improving KAP of people in the programme area.
- Safe collection and treatment of human waste and garbage from health facilities.

The main activities to reach these targets are (a) support policy and capacity development; (b) primary environmental care; (c) Information, Education & Communication (IEC); (d) the development of model latrines and healthy villages and (e) research and technology development on water and sanitation. As such, the programme is characterized by effective targeting and an integrated approach in which physical investments are balanced against IEC and capacity development. The emphasis on sanitation is particularly noteworthy.

The Department of Student Affairs of the **Ministry of Education and Training** is responsible for health, hygiene and physical education in schools. With UNICEF support, the department has been implementing a health and hygiene education programme for children since 1991. In 1996, health education became part of the regular curriculum. Between 1991 and 2000, the ministry, with support from UNICEF, CERWASS and the MOH, provided water and sanitation facilities to around 6000 schools. In the UNICEF programme the financing pattern was one

third from UNICEF (in kind: cement, iron bar), one third from MOET and the rest from pupil parents.

From 2001, MOET began receiving budget allocations from the RWSS-NTP for water supply and sanitation activities in schools. Many of these activities involve research, demonstration and model building. The total budget allocated from the RWSS-NTP was 200 million VND in 2001, 400 million VND in 2002, and 900 million VND in 2003 and 2004. Yet there remain concerns that existing water and sanitation facilities are not being maintained properly, and that schools do not have adequate operation and maintenance funds. A low level of funding has also been provided for latrine construction.

Figures on the levels of water supply and sanitation coverage were given in section 2.1.3.: these figures show that considerable challenges remain if NRWSSS targets are to be met, and that the existing goal of universal coverage by 2005 will not be obtained. There are also concerns that the existing facilities are not maintained properly, and in particular that schools do not have operation and maintenance funds available. The MOET programme is consequently significant, as it focuses investments where they have a major impact, but the scale of the programme needs a major expansion if targets are to be met.

3.5 Donor Assisted Programmes

3.5.1 UNICEF

A number of donors are actively supporting RWSS, with this support in some cases dating back many years. UNICEF's support to water, environment and sanitation in Viet Nam dates back to 1982. Early on UNICEF's WES assistance was spread across the entire country and the orientation was very strongly towards infrastructure development (DFID, 2003). UNICEF's operation now focuses on developing technical capacity, policy development and managerial skills in GoV organizations including national CERWASS, the MOH, the MOET, mass organizations, communities themselves, along with INGOs, bilateral, and multilateral agencies.

Now UNICEF's WES activities are more geographically and socially targeted. For the period 2001 to 2006 UNICEF Viet Nam is implementing a comprehensive package of WES interventions across 66 districts in 22 provinces. The 66 districts

tend to be situated in remote and mountainous regions, characterised by high levels of poverty. A variety of non-structural measures have become core elements of the programme. This shift in orientation is linked closely to the evolution of Viet Nam's RWSS sector, in particular the development of the NRWSSS. Lessons learnt from the DFID supported CERWASS/UNICEF Water, Sanitation and Hygiene Programme (1999 - 2002) informed the current approach of UNICEF's WES programme.

UNICEF programmes appear to be good value for money[10], and UNICEF activities are often integrated with other programmes such as Programme 135, the Ministry of Health's Intensive Sanitation Project, and the Northern Mountains Poverty Reduction Project. The links between UNICEF and the Ministry of Health are particularly significant, constituting one of the few coherent initiatives towards expanding sustainable sanitation coverage and ensuring that sanitation provision is linked to health and hygiene promotion. A range of other institutions, including local mass organisations, are also involved with this programme.

From July 1999 to December 2002 DFID, together with UNICEF, implemented a rural water supply & sanitation project specifically designed to address the new approaches promoted in the draft NRWSSS. The £2.88m worth of DFID support was initially for 18 months but was later extended to three and a half years. Communes were generally identified based upon the provincial socio-economic development plan and most were 135 programme communes. This particular partnership between DFID & UNICEF's WES programme set out to develop an appropriate RWSS project implementation mechanism consistent with the principles of the NRWSSS, but especially tailored to meet the needs of people living in the poorest areas of Viet Nam.

A recent evaluation[11] of DFID support to UNICEF found that it resulted in RWSS provisions for about 500,000 people[12], mainly ethnic minorities, living in the 14 poorest provinces of Viet Nam. Apparently the DFID/UNICEF contribution accounted for about 18% of capital costs, the rest coming from the central government, provincial government and a large proportion from users who generally contribute in materials and labour, rather than cash. At the end of project evaluation a number of PCERWASS noted that the DFID/UNICEF assistance

[10] Per capita spending on RWSS improvements is about $3 - $5 compared with the MARD assumed rate of investment of $15 per person used to calculate total investment needed (see Section 2.8)

[11] Project Completion Report of UNICEF Core Funding Project: CERWASS/UNICEF Water, Sanitation and Hygiene Programme, March 2003

[12] The use of the term RWSS provisions is rather ambiguous and the evaluation team itself admitted that the figures on beneficiaries are misleading

played an important role in leveraging local user investment into water supply and sanitation. For example in Lao Cai the approach was to integrate the DFID/UNICEF project with Programme 135. By incorporating all projects within one territory meant that the project had multiple financial resources leading to greater impact. In Lao Cai the DPI and DoF are considering new guidelines instructing investment holders of different RWSS projects to follow a consistent approach and promote greater concentration of financial resources in a limited area.

DFID's evaluation of this particular project concluded that the project objective "*to improve recognition of, capacity to deliver, and impact of, health education and sanitation activities as part of integrated rural water supply and sanitation projects*" had not been achieved. Key recommendations stemming from the implementation, and subsequent evaluation, of the project was that it is necessary to:

Develop uniform, but flexible, sector implementation guidelines; and

Address the lack of integration of water supply, sanitation, hygiene & health.

To address this need for uniform, but flexible, sector implementation guidelines the DFID-UNICEF project presented to provincial CERWASS a 5-step approach for participatory project implementation[13] (after WB WSG 2000). In principle agreement was reached with provincial CERWASS that the 5-step approach could form the foundation for a unified sector approach. One of the particular strengths of the 5-step approach is that it could be the foundation of an essential reporting, monitoring and evaluation method to study the impact of the participatory process.

UNICEF has also been a major supporter of **ecological sanitation** development in Viet Nam, including the development of an ecological village in Hung Lo commune, Phu Ninh district, Phu Tho province, during 2001. Hung Lo was chosen because it was viewed as being a representative commune of many regions in northern Viet Nam, given its location in the northern midlands, with similar socio-economic conditions to the rest of the region. UNICEF, Hung Lo People's Committee and local beneficiaries jointly sponsored the project, with the Department of Preventive Medicine (DPM) and Phu Tho Preventive Medical Centre serving as additional project counterparts. The evaluation of this experiment was extremely positive, with dramatic reductions in the incidence of water-borne diseases, improvements to local environmental conditions and a successful IEC campaign. The evaluation

[13] World Bank, 2000. Guidelines for Preparing, Implementing and Operating a Community based Clean Water Supply Improvement Plan

found high levels of satisfaction by villagers, with cleaner latrines, with no smell or flies and satisfaction with the ability to use the treated waste products in agricultural production.

3.5.2 Bilateral Donors

At the moment two main **bilateral donors**, DANIDA and AusAID, work in the RWSS sector in Viet Nam. DFID also supported the UNICEF WES programme, whilst JICA is active in groundwater resource development in both the north of Viet Nam and central highlands. Swedish SIDA supported a successful ecological sanitation pilot between 1997 and 2000 and, through the EcoSanRes programme, continues to support ecosan in Viet Nam (including sponsoring an effective website as well as providing resources for research and training). A number of other donors such as Luxembourg give more limited support, usually as part of a wider programme. The French Agency for International Development has been indirectly involved in rural water supply projects, most recently through the ADB's Rural Infrastructure Sector Project (RISP).

DANIDA has been a great stalwart of RWSS in Viet Nam, supporting RWSS activities at central, provincial, district and commune levels. DANIDA supported the development of the NRWSSS during a study in 1997-1998 and the NRWSSS is now the framework for DANIDA's support to RWSS in Viet Nam. At the central level DANIDA's assistance to the National CERWASS is aimed at supporting wider dissemination and advocacy of the NRWSSS. This is largely achieved through DANIDA's Water Sector Programme Support (WAterSPS) **Sub-Component 1.2 - Support to Implementation of the National Rural Water Supply and Sanitation Strategy**. The duration of sub-component 1.2 will be from 2001 to 30 June 2006. The five and a half year budget for sub-component 1.2 will be DKK 13.9 million. The immediate objective of sub-component 1.2 is '*A strengthened CERWASS able to coordinate the implementation of the NRWSSS*'.

DANIDA is strongly committed to IEC and community participation and they remain one of the key agencies pushing innovation and supporting the CERWASS to develop and distribute IEC materials nationally. Under sub-component 1.2 many guidelines and other materials have been developed with a view to making the National RWSS Strategy operational. There has also been to a range of awareness raising and advocacy activities designed to increase acceptance of the NRWSSS and this has included the convening of many workshops and forums for information

exchange, regular updating of the CERWASS web site and use of the mass media. Despite considerable efforts to date DANIDA's sub-component has had limited success in helping to formalise national level cooperation mechanisms, and efforts will continue to make an inter-ministerial Standing Committee for the National Target Programme for RWSS function. Very important to DANIDA's overall approach to supporting the RWSS sector, there have been considerable human resource development (HRD) activities for CERWASS management and professional staff. Emphasis is on capacity building to have a core group of CERWASS staff that will be able to organize and manage the implementation of the National RWSS Strategy.

Stated priorities for the remaining period of sub-component 1.2 include[14], but are not limited to:

(a) improvement and testing of a simple and reliable national RWSS monitoring and management information system;

(b) appropriate models for permanent RWSS District Advisory Services are described and disseminated to all provinces and RWSS programmes;

(c) development of guidelines for the new GoV credit mechanism along with related training and monitoring in selected pilot provinces;

(d) finalise and disseminate new publication describing the management models and associated IEC tools for establishing community water supply systems;

(e) support to this Review and others as part of an overall process to develop a plan for gradual expansion of the Strategy to cover all provinces;

(f) assistance for the preparation of an overall CERWASS organization strategy and development plan; and

(g) disseminate lessons learnt from implementation of the NRWSSS, including assistance on the production of the CERWASS quarterly Newsletter.

Al lower levels, DANIDA support is provided through **WAterSPS Component 2 - Rural Water Supply and Sanitation**, and focussed on 3 provinces: Nghe An, Ha Tinh, Dak Lak[15]. Component 2 includes policy, strategy and human resource development, along with direct support to individual and shared water supply and sanitation facilities. There are three to five pilot districts in each province. Component 2 has a total budget of DKK 139.8 million, of which the GoV contributes around 10%.

[14] DANIDA 2004. Brief Description of WATERSPS sub-component 1.2: Support to Implementation of the National RWSS Strategy

[15] Dak Nong is a new province in the Central Highlands that includes districts from Dak Lak and so the DANIDA Component 2 will continue to provide RWSS support to this new province

The immediate objectives of Component 2 are:

- To establish sustainable institutional framework for provision of water supply and sanitation services including access to credit facilities and competent staff.
- To establish community managed water supply and sanitation facilities based on user demand and reflecting the needs of women and the poor.
- To increase awareness of the linkage between improved hygiene and sanitation and health and improved hygiene practises.

Component 2 is implemented in partnership with the CERWASS and DARD at the provincial level. As well as working with the CERWASS DANIDA's project approach promotes coordination with a number of other agencies, most notably the health sector and the Women's Union. In Ha Tinh and Nghe An the interaction between agencies, especially in IEC and participatory activities, has been strong. The DANIDA approach places particular emphasis on the role of the district as a sustainable link between provincial agencies and the communities. Districts are particularly important in providing support for the IEC and community participation.

District RWSS advisory services have been established in all pilot districts; these consist of representatives from relevant departments and organisations. At commune level, RWSS committees have been established. At the village level there are volunteer networks with two to four "motivators" per village. In addition, water-user groups have been established in areas where piped water supply systems are planned. Capacity building, including on-the-job training, experience sharing, study tours and workshops, has been provided to village motivators, water-user groups, private contractors and tradesmen, and official staff at all levels.

Information, Education & Communication: Detailed IEC plans are formed based on KAP and PRA surveys carried out in selected communes. After determining appropriate content and factoring in social, technical and financial considerations, the following communication methods are generally used:

- Face-to-face communication through village RWSS motivators, including village health workers, and also through commune staff.
- Distribution of materials, often in connection with face-to-face communication.

- Special events like launching days, music performances, competitions and theatre plays.
- Use of the mass media, including TV and radio programmes, village loudspeakers, articles in newspapers and magazines.

Most of the above activities focus at the community level, but activities in schools are also important.

Technical activities and construction: In the pilot districts in Dak Lak province, most households have chosen to invest in piped water schemes. Meanwhile in the Ha Tinh and Nghe An pilot districts most households have preferred to invest in individual water supply facilities, particularly improved dug wells and rainwater storage. Further information on activities in the three DANIDA-supported province (based on CERWASS reporting from mid-2004) is presented below.

Ha Tinh Province

Targeted districts: Nghi Xuan, Duc Tho, Huong Khe, and Cam Xuyen.

Provincial CERWASS reports that disbursement progress under Component 2 has been very slow. However, the number of constructed individual water and sanitation facilities has been high, thanks largely to villagers' self-investment; 3,623 individual water supply and 4,948 sanitation facilities have been constructed to date. In addition, VND 49,500,000 has been put aside into revolving funds for the construction and/or upgrade of 43 water supply and 9 sanitation facilities. Fifteen schools in Cam Xuyen district and a small number of individual facilities have also been constructed through loans from the Revolving Funds. The use of revolving funds, however, remains small compared with the size of villagers' self investment.

Nghe An Province

Target districts: Anh Son, Dien Chau, Yen Thanh and Quynh Luu.

Original targets for Nghe An included the construction and / or implementation of 2,000 individual water schemes, 7,100 sanitation schemes and 16 piped water systems. In addition, 29 schools and health stations were to have water and sanitation facilities upgraded. The targets on household water supply have been exceeded by 200%. A total of 5,948 individual facilities have been constructed and largely financed by villagers. Schools targets have also been exceeded, with 35 schools reporting improvements to water and sanitation. However, and this is indicative of the situation in the country as a while, only one-quarter of sanitation

targets have been met. Additionally, no piped water supply systems supported in the province to date.

Dak Lak Province
Target districts: Cu Jut, Krong No and Lak.

DANIDA-supported IEC activities in Dak Lak have focussed on communities where piped water is seen as a potential option. The technical quality of these activities has been high, with informative hydrogeological investigations and the development of accurate district water quality maps. Progress to establish piped water systems in Dak Lak is now gaining pace, helped along by DANIDA financing mechanisms that came into effect in March 2004. Through the combined support of DANIDA and the RWSS-NTP, all told there will be 28 piped water supply systems servicing 3,058 households established in 2004 alone. Each of the DANIDA - supported piped water systems supports an average of 179 households, and this makes them small compared to the size of schemes supported directly through the RWSS-NTP in other provinces. Of note, the project also supported the establishment of water supply and sanitation facilities in 30 schools in the province (15 primary schools and 15 secondary schools) to serve a student population of close to 25,000.

Constraints & Lessons Learned: Based on the experiences of piloting the NRWSSS in Nghe An, Ha Tinh, Dak Lak and Dak Nong provinces DANIDA is in the process of finalising a series of evaluation papers corresponding to the four main strategic themes / responses outlined in the NRWSSS:

(a) Information, Education & Communication.
(b) Financial Mechanisms.
(c) Human Resources Development.
(d) Technical, Construction, Operation & Maintenance.

AusAID's current commitments to RWSS total around $US 33 million.

From 2001 to 2006, the Cuu Long Delta Rural Water Supply and Sanitation Project (CLDRWSS), one of the largest rural water supply and sanitation projects supported by any donor in Viet Nam, is the major focus of AusAID assistance in the sector. From 2005 to 2010, AusAID will also support selected NGOs (including AFAP, Plan in Viet Nam and CARE) to carry out long-term rural water supply and sanitation projects in the Central Coast and the Mekong Delta, the regions targeted by AusAID.

Under the CLDRWSS project, which commenced in September 2001 with a total budget of $US 27 million, some 400,000 rural residents of five Mekong Delta Provinces will be supported to gain access to improved water supplies. The project aims to develop replicable and sustainable 'models' for providing water supply to selected disadvantaged district towns and rural communities in Ben Tre, Long An, Vinh Long, Bac Lieu and Kien Giang provinces. All project provinces are low lying and most suffer from limited to extreme flooding towards the latter periods of the rainy season from July to November each year.

The project will work in 40 communes and 120 sites across these five provinces and focus on piped water systems. Most of these schemes will be comparatively small, serving an average of 100 households each. (The largest size of any planned scheme is 400 households.) Other options are also being pursued, where feasible. The project is pursuing innovative approaches to sustainable and dengue-proof rainwater harvesting in areas where piped water is not technically or financially feasible. Sanitation improvements are limited to schools. As yet, the construction phase of the CLDRWSS Project has not yet commenced.

The objectives of the Cuu Long Delta RWSS Project are:

- To improve community based planning, management, participation and maintenance of RWSS facilities;
- To develop the capacity and ability of institutions/ organisations responsible for delivering RWSS services; and
- To develop and implement appropriate and sustainable water supply and sanitation services for poor and rural communities/villages and district towns.

Table 22: CLDRWSS Project Budget Breakdown according to Component

No.	Component Name	Budget[16] ($ US)
1	Water Supply & Sanitation Promotion	1,287,000
2	Institutional Capacity Building	3,043,000
3	District Towns WSS Investment Programme	1,788,000
4	Rural WSS Investment Programme	4,901,000
5	Project Management	2,514,000
		13,533,000

Source: Modified from Original Project Design Document for the Cuu Long Delta Rural Water Supply & Sanitation Project, AusAID 2000

The CLDRWSS project has experienced various constraints during implementation to date, and innovative strategies are being drafted to overcome these. There have been some interesting setbacks in terms of the project's community development approach. Consensus among various stakeholders was that the early use of the approach was *too* community development oriented it did not seek enough input from qualified engineers.

The CLDRWSS project is concerned with building CERWASS capacity to lead more activities. This will enable CERWASS to manage overall aspects of the project alongside their existing programmes. The project originally set out to develop a range of IEC resources for all water and sanitation related activities in the Mekong Delta. However the breadth of the IEC component has been reduced, and the project will now give priority to the development of IEC materials and approaches directly related to the development and maintenance of rural piped water supply systems in the region. The project is also preparing a unified framework of community management options, detailing issues such as enforcement authority and tariffs.

AusAID's support for NGO activities in the field of RWSS will be significant over the period 2005 to 2010. Total funding for NGO activities will be in the order of $ US 6 million over five years and will be channelled through three Australian INGO's. The AusAID-funded INGO projects are contrasting; with AFAP pursuing synergies with the CLDRWSS project in the area of community based dengue fever prevention; CARE pursuing a traditional program of village level RWSS improvement in partnership with the PCERWASS in Soc Trang and Ca Mau; and Plan in Quang Ngai will be supporting the district Health Station to manage village

[16] The exchange rate at the time of project design was $AUD 1 to 8,505 VND compared with the current exchange rate in 2004 that is closer

health workers and other volunteer motivators to use participatory and promotional communication methods on issues related to safe water, sanitation, hygiene and health. In parallel Plan in Quang Ngai will support DARD at district level to take the lead on facilitating community based planning for water supply improvement. The Plan project seeks a clear separation of powers between DARD and DOH and emphasises the use of modest incentives rather than full blown subsidies as a way of leveraging local funds.

3.5.3 Multilateral Donors

The **World Bank** and the **Asian Development Bank** have generally focused on water supply in urban areas and small towns. However the World Bank is now preparing the Rural Water Supply Infrastructure and Health Improvement Project, which will be the single largest internationally-funded rural water and sanitation project in Viet Nam when it commences mid-2005. The World Bank will evaluate rural water supply and sanitation projects in terms of whether they (a) are encouraging beneficiary participation and a demand-responsive approach, (b) test and refine financing arrangements, and (c) promote competition and private sector participation in the sector.

The Rural Water and Sanitation Infrastructure and Health Improvement Project (RWSIHIP) will focus on 12 Provinces in the Red River Delta area. (Initially the project will work in Thai Binh, Nam Dinh, Hai Duong and Ninh Binh.) It is felt that the positive economic conditions in these provinces offer comparative advantages, especially in terms of refining practical ways of user-based payment of investment and recurrent costs. The total budget of the project is approximately $US 130 million, including a $US 100 million ODA concessionary loan. Preparation work is being funded by DANIDA who have expressed interest in co-financing the project.

The almost completed World Bank's **Mekong Delta Water Resources Project** includes a rural water supply component with a dedicated budget of $US 5.1 million. This money is distributed across six Mekong Delta provinces. At the time of the mid-term review[17] in June 2003, about 138,450 people from 27,690 households were expected to benefit from the clean water supply component. The project's rural water supply component also includes a women's sanitation and health campaign

[17] Viet Nam: Mekong Delta Water Resources Project (Cr. 3198) IDA Mid-Term Review Mission, June 2003, Annex 5: Review of Rural Water Supply Component

and a credit scheme for women to invest in sanitation. (The budget for these activities is around $US 440,000.) The inclusion of a revolving credit scheme for women to invest in sanitation is an example of the demand driven approach in action whilst at the same time supporting gender equity in rural water supply projects. The promotion of health alongside structural RWSS improvements is another positive innovation on this project.

The World Bank's $US 87 million **Community Based Rural Infrastructure Project** is expected to commence during 2005 or 2006. The CBRIP will provide small grants to poor communes to build, upgrade or replace worn out public infrastructure. Communities themselves will identify the infrastructure to be replaced. The project will run for six years in at least 540 poor communes of 13 provinces in the North Central Coast, the South Central Coast, and the South East. Project communes have been selected by the government agencies responsible for mountainous areas, ethnic minorities and social affairs. Individual communes will receive grants of between $US 20,000 and $US 60,000, depending on population size. Up to three separate grants will be provided to each commune, with the granting of later funds based on the use or earlier funds. The maximum investment for water supply improvement through the CBRIP has been set at $US 100 per household.

Table 23: Community Based Rural Infrastructure Project: Summary of Target Provinces

Province	No. of Communes	Province	No. of Communes	Province	No. of Communes
Thanh Hoa	115	Quang Ngai	82	Ninh Thuan	18
Nghe An	121	Binh Dinh	24	Binh Thuan	16
Ha Tinh	81	Phu Yen	18	Lam Dong	40
Thua Thien Hue	40	Khanh Hoa	33	Binh Phuoc	28
Quang Nam	89				

The World Bank's $US 132.5 million **Northern Mountains Poverty Reduction Project** (NMPRP) will target around 1 million residents of 368 of the poorest communes of 44 districts of six northern provinces (Bac Giang, Hoa Binh, Lao Cai, Phu Tho, Son La and Yen Bai). An estimated 85% of target beneficiaries are ethnic minorities. Project assistance will come in the form of investments in rural roads, markets, irrigation and water supply systems, schools, health centres, and other areas of community development. The clean water supply activities are included

under the project component for irrigation, water supply and agriculture. This component has a budget of about $US 36 million. The Ministry of Planning & Investment and the Ministry of Agriculture and Rural Development (including provincial departments) are the main implementing partners responsible for project management. Major responsibilities for implementation of the project will be delegated to commune and district officials. The government has also reportedly agreed to significant INGO involvement in pilot communes.

According to the Project Appraisal Document of September 2001, the NMPRP will build clean water delivery and storage systems for some 63,000 households, more than 30% of the project area's population. All of these will be new facilities. At lower elevations, some 9,500 hand-dug wells or tube wells would be built for one to two households each. At higher elevations, around 700 piped gravity systems would be built for groups of around 50 households each.

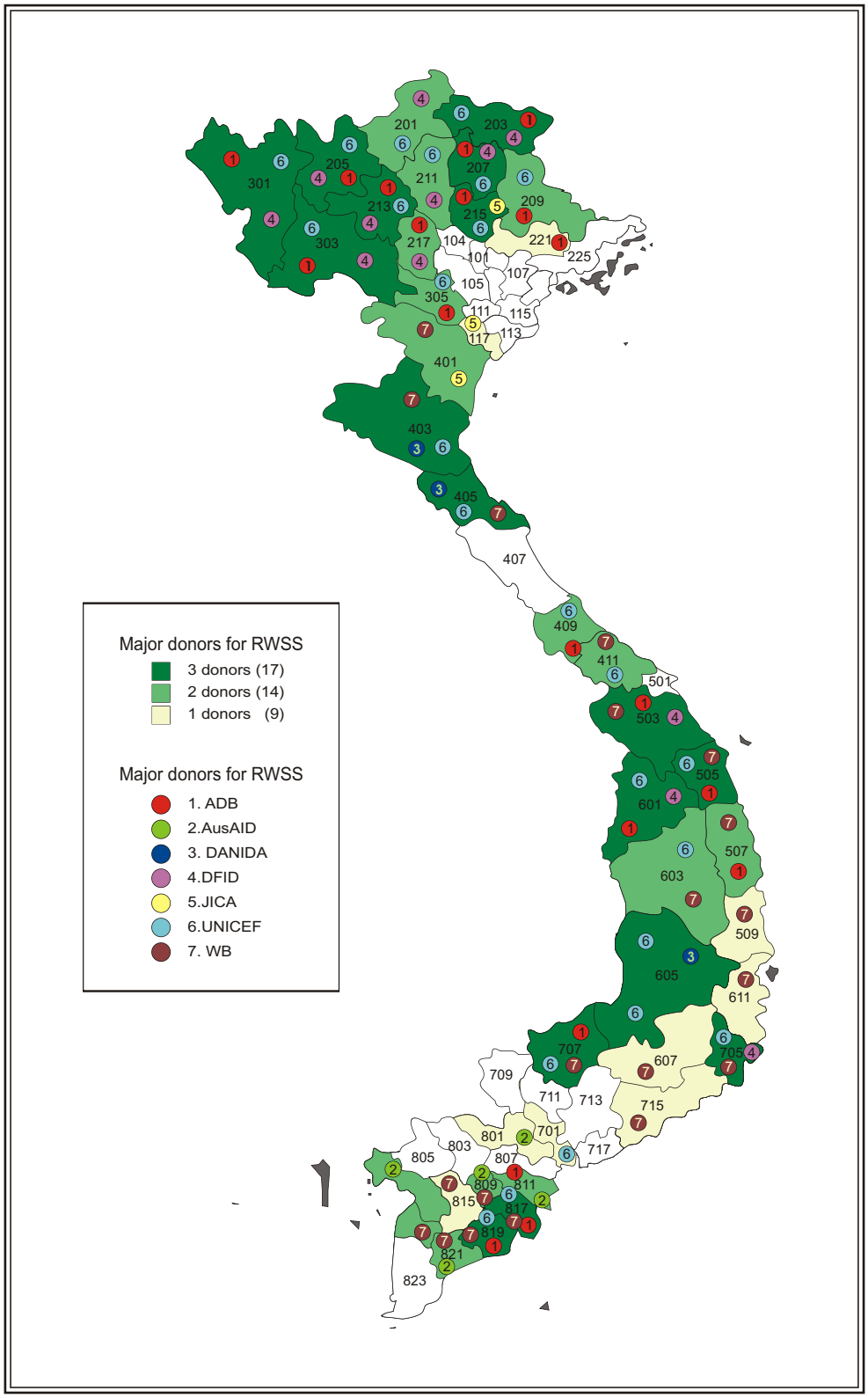
The **Asian Development Bank** recommenced lending to Viet Nam in 1998. One of the first projects funded by the ADB was the $US 150 million **Rural Infrastructure Sector Project** (RISP). For the last six years the RISP has been the main vehicle for ADB support to rural water supply in Viet Nam. The RISP has been implemented in 23 provinces, constructing 120 water supply systems for around 1.5 million beneficiaries. Total investment in rural water supply activities from 1998 to 2004 was $US 24 million. Individual sub-projects were required to cost from $US 0.5 to 4.0 million, making them large enough to justify external funding but small enough to be managed by provincial authorities. Scheme size was 1,000 to 5,000 households.

The future of ADB involvement in the rural water supply and sanitation sector will come in the form of the **Central Region Sustainable Livelihood and Rural Infrastructure Project** (CRSLRIP), which is to be implemented in Thanh Hoa, Ha Tinh, Nghe An, Quang Binh, Quang Tri and Quang Nam provinces. The anticipated size of the loan is in the order of US $60 to 80 million, with implementation to begin in 2006. The ADB have committed to adhere to the principals of the NRWSSS Strategy in the project's design, collaborating with bilateral donors and INGOs.

For the CRSLRIP, as with the World Bank's CBRIP and NMPRP, there are several unrealised opportunities for synergy in the provision of rural water supply and sanitation. Recently the ADB in Viet Nam has been collaborating actively with INGOs to enhance community participation in the design and implementation of

projects. However, as with the World Bank projects, more attention should be paid to ensuring beneficial overlaps. INGOs should take greater initiative to work in districts and commune targeted by these major bank projects. Through geographical overlap there is the potential to influence commune level spending towards improving water supply and sanitation conditions in line with the national strategy and providing complimentary activities, especially around software, community development, training and various forms of sector specific capacity building.

Figure 24: Map of Major Donor Funded Projects for RWSS in Viet Nam



3.6 NGO Activities in RWSS

The INGO community is very active in the RWSS sector in Viet Nam. Many INGO programmes are small but some are quite substantial and, taken together, they represent a significant presence in the sector. This is true in terms of the total value of investments, as well as the value of the innovation, creativity, and relationships that many of these projects bring. INGO programmes are typically characterised by the development of long-term community relationships and relatively high levels of participation. Most include specific poverty targeting objectives, either through the places where they worked or through the criteria for beneficiary selection. They are also generally more holistic than those of the larger agencies, making clearer links between water and sanitation and wider development issues.

A comprehensive picture of INGO investment in the rural water and sanitation sector is difficult to obtain. There are over 40 NGOs are active in the sector and activities are often part of wider programmes categorised under broader themes. According to a survey by the INGO working group, total investment by INGOs in RWSS in 2003 was around $US 3.1 million, with most individual programmes having budgets of between $US 50,000 and $US 300,000. Most of the INGOs with large projects were included in the survey. Geographical coverage was comprehensive, with INGO activity in 40 out of 63 provinces. (Distribution is shown in the map below).

Almost all of these projects included the installation of water supplies, from hand pumps to piped water schemes. Almost all included IEC and training as central components, and many included micro-credit or saving schemes. Around half included a sanitation component, though the scale of this component was often not large. A few addressed water quality by investing in testing and treatment. Most INGOs were effective at working closely with local communities and linking with local government. In some cases, they have encouraged very successful coordination between local officials from different agencies and jurisdictions. Unfortunately, however, these experiences have tended not to filter up to higher levels, and INGOs are poorly integrated into broader nationwide water supply and sanitation systems.

In short, INGO programmes are effective, innovative and often good value for money. They are particularly effective at involving local communities, developing sustainable partnerships, and linking rural water supply and sanitation with the

wider development process. But the tendency to work in stand-alone programmes means that the comparative advantages that INGOs have are not translated into wider programmatic approaches. This is partly the fault of INGOs, for not slotting themselves into a wider frame, and partly the fault of higher authorities and larger international actors, for not giving them the opportunity to do so.

Collectively the INGOs together have tremendous experience both in different regions of Viet Nam and in different types of RWSS technology. Some noteworthy NGO led activities that are expected to be active for the coming 5 year period and that will provide a valuable point of call for learning within the sector on specific technical, social and health related issues include:

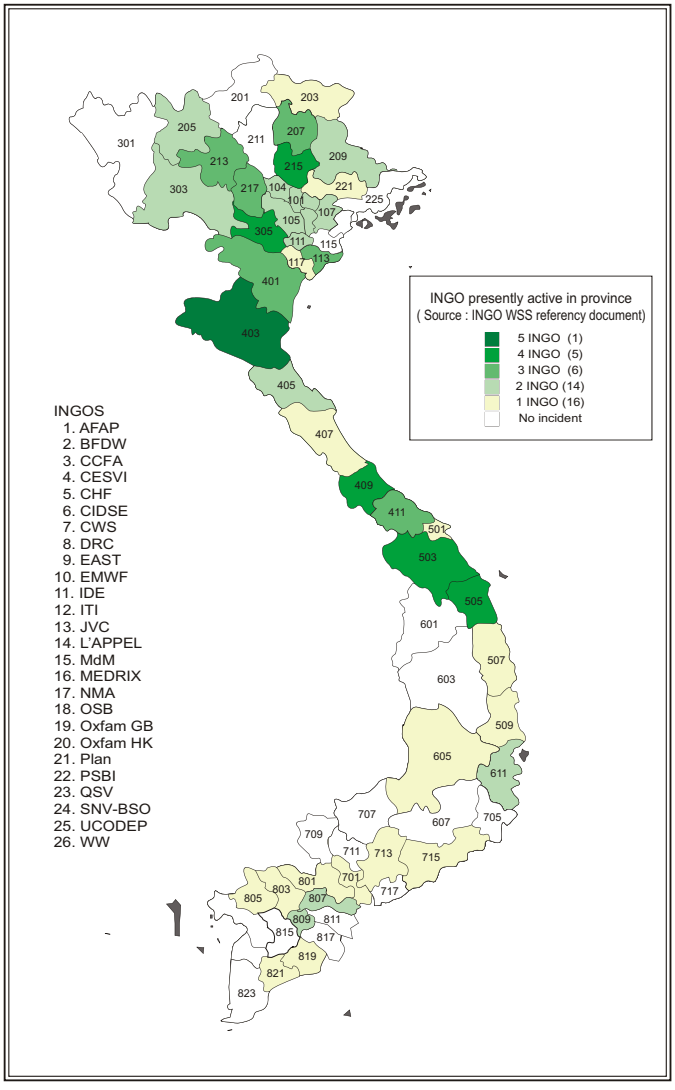
- The **International Trachoma Institute** (ITI) with their activities for trachoma prevention is set to expand to 30 districts in 15 provinces.
- **SNV-BSQ** is preparing to expand it's biogas project to 50 provinces.
- The **Australian Foundation for the People of Asia and the Pacific** (AFAP) is working on a community based model for dengue control in the very severely effected Mekong Delta region.
- **International Development Enterprises** (IDE) is pioneering sanitation marketing and hygiene promotion in the central coast region.
- **IDE** is also piloting silver colloidal lined ceramic water filters in the Mekong Delta region.
- **Plan Viet Nam** is developing a new project with AusAID funding that seeks to develop a replicable safe water marketing programme for effectively promoting safe water storage and disinfection in flood affected areas of the Central Coast.
- **Oxfam GB** is developing replicable approaches to the effective promotion of sanitation and water supply improvement in residential clusters in flooded areas of the Mekong Delta.

These and other NGO activities are at the forefront of the NGO communities many novel approaches to the RWSS sector, which are helping to address critical sanitation, hygiene and health related issues in rural Viet Nam. Opportunities for replication of approaches by other NGOs, the major donor projects, and government programmes are very good.

Table 24: Estimated Total Results for NGO Funded Activities in RWSS in 2003

	Number of beneficiaries	Households benefiting	Village	Schools	Health Centres	Hospital	Lab	Town
'Portable' water supplies	906,531	45,803	297	399	87	4	1	2
Safe sanitation	272,853	29,173	597	411	33	4	0	0
Hygiene Education	1,720,955	456,969	3,666	683	361	19	0	7
Total	2,900,339	531,945	4,560	1,493	481	27	1	9

Figure 25: Map of INGOs Working in the RWSS Sector in Viet Nam



Chapter

4

Policy and Institutional Issues

4.1 Overview

This Chapter looks in some detail at a range of issues associated with the policy, legal and institutional environment in which the development of RWSS takes place. These institutional issues are of critical importance in determining how investments in improvements to rural water supplies and sanitation are planned and implemented, how much these investments cost and who pays for them and, as important, who is responsible for operation of the facilities once they are built. Getting a supportive institutional framework for the sector is a key issue in meeting the challenges for extending coverage and ensuring sustainability that were identified in Chapter 2. As we shall see, there are a wide range of institutional capabilities that can be built on, but these capabilities are severely fragmented and lack coherence and coordination. There are also some key gaps in the policy, legal and institutional framework that need to be addressed if the resources available for RWSS improvements are to be used efficiently. There are three generic challenges in this field, all of which find many parallels in other sector and other parts of the world: RWSS in Viet Nam is hardly unique in the problems it faces. The three generic challenges facing the sector are:

Fragmentation and a lack of coordination between different institutions involved in the sector. This is true within the government system: there is little or no coordination between the different ministries (MARD, MOH, MOET etc) involved in RWSS. It is also true between the government, donors and NGOs working in the field. Finally, there is only cursory engagement by any of these agencies with the private sector.

Subsidiarity: there is an urgent need to ensure that the structure of decision-making in the sector is re-organised to devolve authority down to the lowest appropriate level, in line with core government policies on decentralisation and socialisation (see below). In particular, there is a need to build more effective links between the centre and provincial levels, to ensure that provinces have the capacities and resources to meet their mandates under decentralisation. There is also a need to provide effective models for institutional processes within provinces so that there is coherence in the actions at province, district, commune and community levels.

Participation: although there are some models of good practise on community

participation available, in particular from donor-assisted and NGO projects (see below), these models have not been mainstreamed into the system in most provinces and levels of participation in RWSS are poor. This is problematic for both the planning of the construction and operation of RWSS facilities and the development of a better understanding of related issues such as health and hygiene.

These three key generic issues are developed through the rest of this Chapter and in the following chapter on the private sector. They are ones that will be addressed in discussion for and the preparation of the Strategic Plan for the sector that will be developed after this report is completed. There are a number of models of good practise available from both within Viet Nam and internationally. These will be used to guide the development of recommendations on these issues.

4.2 Policy and Legal Framework

4.2.1 Legal & Policy Framework for Development & Decentralisation

Viet Nam's Comprehensive Poverty Reduction and Growth Strategy (CPRGS) was approved in 2002 and is intended to be a practical action plan for poverty reduction and economic growth within the broader framework of 10 Year Socio-Economic Development Strategy and 5 Year Socio-Economic Strategy. It has two strategic objectives (i) creating an environment for growth and (ii) sectoral policies and measures for the poor. It contains specific provisions for RWSS: to ensure that 60% of rural and 80% of urban population have access to clean and safe water and 50% rural population have access to sanitary toilets by 2005 and 85% of rural population have access to clean and safe water and 75% have access to sanitary toilets by 2010.

There are two Hunger Eradication and Poverty Reduction (HEPR) programmes that identify the poor and/or remote communes. The Committee for Ethnic Minorities in Mountainous Areas (CEMMA) implements Programme 135, which is responsible for identifying remote and ethnic communes facing significant constraints in the development process. The Ministry of Labour, Invalids and Social Affairs (MOLISA) implements Programme 133, which is a social safety net for poor households.

Embodied within national policy and programmes is the broad concept of '**socialisation**'. The concept is defined clearly in the NRWSSS : *"Socialisation of*

RWSS is to promote and to organise people, to create the legal basis for the mobilisation of active participation and contribution of all economic sectors and all communities in financing, construction of facilities, production of equipment and spare parts, in providing repair services and in management and operation of facilities" (page13). Socialisation involves the mobilisation of all resources in the community to resolve development priorities. These priorities are decided through demand driven processes. Once priorities are decided, implementation depends on the participation and contributions from all sectors in the community including individuals, households, corporate bodies and private enterprises. The focus of 'socialisation' is to increase local ownership and management of investments for the long-term. This method is a significant change from the subsidy era when central planning dictated investments and financial arrangements. 'Socialisation' is a central approach outlined in the NRWSSS, but there have been significant barriers that have prevented turning the concept into practise and the extent to which the implementation of key programmes such as the RWSS-NTP have followed the principles of socialisation has been extremely limited.

During the last decade, economic growth with poverty reduction has become central in development law and policy-making in Viet Nam. To improve the impact of policy, Viet Nam initiated a **decentralisation** process. Decentralisation improves accountability by linking revenue to expenditure. While there is no specific law on decentralisation, the process has been focused on seven main areas:

- Budget management
- Provincial Investment Planning and Regional Planning
- Grassroots Democracy
- Management of natural resources, land and public assets
- Management of public services
- Management of state-owned enterprises
- Personnel and civil servant management

Reforms in these areas create the conditions for strong economic growth in the provinces while also including the priorities of the community in decision-making. With more efficient investments, returns are improved. Increased transparency and accountability improve the confidence of local investors in local markets.

Reforming provincial planning processes results in investments that make the most use of available resources for the greatest benefit to the community, especially the poor.

There are examples of provinces and cities that have been more successful than others in implementing the different aspects of the reform process. Successful provinces include Binh Duong, Ho Chi Minh City and Da Nang, which have strong economic growth supported by a friendly business environment and a focus on poverty reduction. In contrast, the reform process in Hanoi has been slower and less effective. For example, Government of Viet Nam officials maintain a tight control over the land market, which restricts economic development, especially compared to Ho Chi Minh City. Some reasons for this include, firstly, officials vary in their perceptions of how much administrative flexibility they actually have to shift financial resources among expenditure categories and to deviate from national service delivery norms. Officials in some provinces perceive their roles as merely being agents of the central state; others perceive themselves as representatives of their localities.

Secondly, the degree of local flexibility and discretion varies among local administrative units because the economy, public policies, and the structure of government itself are all in transition. Some local officials take advantage of the ambiguity to exercise more discretion in budgetary allocations and service provision, but many are cautious because they fear that higher level officials will declare their actions illegal or unwarranted. Thirdly, some department officials take a more active role providing technical assistance to the People's Committees and in seeking to influence local decision making. Other officials are more interested in developing their relationship with their line ministry.

Crucial in the decentralisation process is the involvement of the commune level in the planning process, which, despite legal requirements, has had very limited involvement: this is a critical gap for the implementation of RWSS in particular, as these facilities are inherently small scale and localised in character. This gap is despite concerted efforts by central government to develop a supportive legal and policy framework for greater decentralisation and subsidiarity in decision-making. Some recent important changes in law that impact on the provincial planning process are discussed below.

The **Grassroots Democracy** Decree 79/ND-CP, issued in 2003, aimed to increase community participation in local decision-making, especially planning and

budgeting. Grassroots Democracy provides a legal instrument for community priorities to be presented to local decision-makers for inclusion in the planning process.

Several other pieces of recent legislation have also increased the role and responsibilities of provincial authorities in a number of other areas. This includes, crucially for this Review, Guideline 2215 to provincial Departments of Planning and Investment for "*Rolling-out the development of the provincial socio-economic plan taking into account the Comprehensive Poverty Reduction and Growth Strategy"* issued by MPI in April 2004. The objective is to apply an integrated approach in developing the socio-economic development plan to ensure pro-poor policies that promote sustainable economic growth while ensuring social development and equity.

Recent legislation is increasing the role and responsibility of provincial administrations in a number of ways. The Revised State Budget Law came in force in January 2004. This new law simplifies but strengthens the legal arrangements between central and local levels. Under the revised law, the provincial People's Council approves the provincial budget, and those of its subordinate levels. Previously, the National Assembly approved provincial budgets. The revenue from more taxes is shared between central and provincial levels. This has reduced the number of provinces from 56 to 49 that receive budget support from the centre.

The law gives more explicit powers to provincial People's Councils such as the power to develop priorities for local investments, decide and approve allocations to different sectors to implement investment decisions, and transfer funds to local levels. To improve transparency and accountability in the provinces, central authorities issued the "one-door" legal reforms in 2003 to simplify local administrative procedures. The aim of the reforms is to reduce the excessively complicated procedures utilised by local authorities. However, the reforms have not been implemented in all provinces yet, and many of the poor and non-poor are not aware of the legislation or remain unsure of ways to access local authorities. In addition, many procedures, such as land registration, cooperative and business registration and household registration books, remain under the control of the district administration.

Finally, in June 2004, the Prime Minister issued Decree 8/ND-CP outlining reforms in state management between central and provincial governments. The objective of the decree is to further clarify the roles, responsibilities and control of central and

provincial levels of government and improve coordination between the levels of government. The decree prioritises reforms in budget management, land and natural resource management, the management of state owned enterprises and public services.

4.2.2 Laws and Policies for Rural Water Supply and Sanitation

The Government of Vietnam (GoV) identified the need to improve villagers' access to clean water and sanitation and issued legislation that provides special assistance to disadvantaged groups in the community. The main focus of national laws related to RWSS is to create the conditions for the implementation of the NRWSSS. Recent legislation provides support for demand driven approaches, water supply schemes and plants, access to credit and water quality. This includes Decree 52/1999/ND-CP, issued in 1999 and amended in 2003 with Decree 07/2003/ND-CP on the management of investment and construction. The objective of Decree 07 is to improve the decentralisation of investment management and construction. Provincial PC can authorise the district PC to appraise and decide investments less than VND 3 billion. The district can authorise commune PC to decide and control the implementation of projects less than VND 1 billion. However, in practise, all rural water supply and sanitation projects are small-scale and under the decision making authority of the district and commune levels.

During mid-2004, the GoV issued two important decisions. Decision 62 creates the conditions for households to access credit from the Bank for Social Policy, while corporate bodies and enterprises implementing RWSS can borrow Development Assistance Funds in compliance with the Government's regulations on Investment and Development Credit. The credit limit for one household is 4 million VND with pilot activities located in 10 provinces. A significant consequence of this law is that cooperatives can access loans through their membership. Decision 134 promotes assistance for ethnic minorities. An important part of this legislation is the provision of 300,000 VND/household or 0.5 tons of cement to assist ethnic households' access to clean water and sanitation. Central authorities will support minority villages with 50% - 100% of the total construction cost of the small-scale water supply works or piped water schemes.

Decree 24/1999/ND-CP was issued in April 1999 and regulates the mobilisation, management and utilisation of people's contribution to construct rural infrastructure in communes and district towns. The Decree outlines the central role and

responsibilities of the commune PC, including the mobilisation and utilisation of user contributions based on the approval of the commune People's Council. After project approval for construction, the commune PC prepares a plan for the management and utilisation of funds for the infrastructure and establishes a board to supervise implementation and financial arrangements.

The most important document guiding the development of water supply and sanitation in Viet Nam is the August 2000 **National Rural Clean Water Supply and Sanitation Strategy** (NRWSSS). The specific development objectives of the Strategy are:

> Improved health through reduced water and sanitation related diseases by improving water supply and latrines and promote hygienic practises of the people.
>
> Improved living conditions through better access to water and sanitation, narrowing down the gap between urban and rural areas.
>
> Reduce, to the lowest level, untreated human and livestock excreta which cause environmental pollution and reduce organic pollution of water resources.

The NRWSSS aims for the sustainability of RWSS development through demand-driven approaches. This policy calls for users to be part of the decision-making process, to help pay for development, and to be responsible for operations and maintenance. Education and awareness-raising are also integral parts of this strategy. Regarding cost-recovery, the NRWSSS calls for the user to cover all costs of construction and operation of rural water supply and sanitation facilities. The Government will work to provide loans at a favourable interest rate. There is a strong focus on socialisation of RWSS provision. The Government will also provide grants to the poor. Finally, the NRWSSS further calls for the implementation of technologies suiTable for local conditions.

The NRWSSS holds the target that 50% of rural households will have a hygienic latrine and 80% will have access to "domestic quality" water supply by 2005[18]. By 2020, the target is for all households to have a "clean water supply" and hygienic latrines as well as practise good hygiene. The target rate of clean water supply is 60 litres per person per day by 2020.

[18] The NRWSS defines "domestic quality" water as suitable for domestic uses, but requiring treatment before drinking "Clean water supply" is defined as water suitable for drinking without further treatment

Implementation of the NRWSSS is based on four issues. The first is to make use of IEC and community participation. This is used to build awareness and knowledge of WATSAN issues. This will in turn build demand for improved WATSAN services. The second is through a financial mechanism to provide affordable loans or grants. The third focuses on the state management function regarding WATSAN. This approach calls for increased decentralisation of implementation and utilisation of the private sector. Finally, implementation focuses on research and implementation of appropriate technologies. This includes the improvement of traditional technologies and promotion of advanced technologies.

One of the most important tools for rural water supply and sanitation development is the **National Target Programme** on Rural Water Supply and Sanitation. The objective of the Programme is to increase the number of rural people who have access to clean and hygienic water making a contribution to the improvement of their health and living conditions, improve service provision and improve the rural population's awareness of environmental protection.

The laws and policies promoting poverty reduction, decentralisation and access to rural water supply and sanitation provide a comprehensive framework for the development of RWSS. Developing clear and specific responsibilities for each level of government will promote more effective implementation of the National Target Programme. Transparent and accountable administrative processes in the communes and districts will encourage increased private investment in RWSS. The result will be increased competition between state and private sectors and within sectors, which will result in better access to RWSS for more people in the community, including the poor and other disadvantaged groups. What is an issue is the extent to which these laws and policies are effectively implemented. This issue has already been addressed in relation to the progress made in the sector in Chapter 2 and is further discussed below.

4.3 Institutional Capacities, Responsibilities & Coordination

4.3.1 Responsibilities

A issue in the RWSS is coordination between the many different organisations involved in the sector. This coordination is an issue at different levels. Firstly, there is coordination between different branches of government. Secondly there is

coordination between central government provincial and lower authorities. Thirdly, there is coordination between government and other stakeholders: donors, NGO and the private sector. As we shall see, there a range of challenges in relation to all there of these types of coordination; challenges that represent some of the most formidable barriers to improved performance in the sector.

The first level of poor coordination is the fragmentation found between the responsibilities, planning mechanisms and actions of different central government agencies. There are several national-level government agencies that are involved in the development of rural water supply and sanitation in Vietnam.

The Ministry of Agriculture and Rural Development (**MARD**) is responsible for coordinating relevant ministries and People's Committees for implementation of the NRWSSS. Under MARD is the Centre for Rural Clean Water and Environmental Sanitation (**CERWASS**) to which MARD has delegated the responsibility for the management of RWSS-related planning and technical issues and project preparation. MARD implements its programmes through departments at the provincial level (DARD) and services at the district level (ARDS).

The Ministry of Health (**MOH**) manages drinking water quality and is responsible for setting and monitoring water quality standards, through the General Department of Preventative Medicine and AIDS Control. The MOH works through local level healthcare organisations to promote good hygiene and develop and disseminate standards for drinking water and hygienic latrines. The MOH develops regulations on the use of human excreta as fertilizer. The NRWSSS states that the MOH will hold the main responsibility for developing public awareness on hygiene and health.

The Ministry of Natural Resources and Environment (**MONRE**) is responsible for the State management of water resources. It develops laws, ordinances, decrees and other legal documents to support implementation of the Law on Water Resources.

The Ministry of Finance (**MOF**) is responsible for developing water resource taxes and fee policies. The MOF is also responsible for administering funds that have been allocated to government projects. The Ministry of Planning and Investment (**MPI**) is responsible for coordinating government budgets and donor-assisted projects. MPI implements its policies and programmes through provincial level departments (DPI).

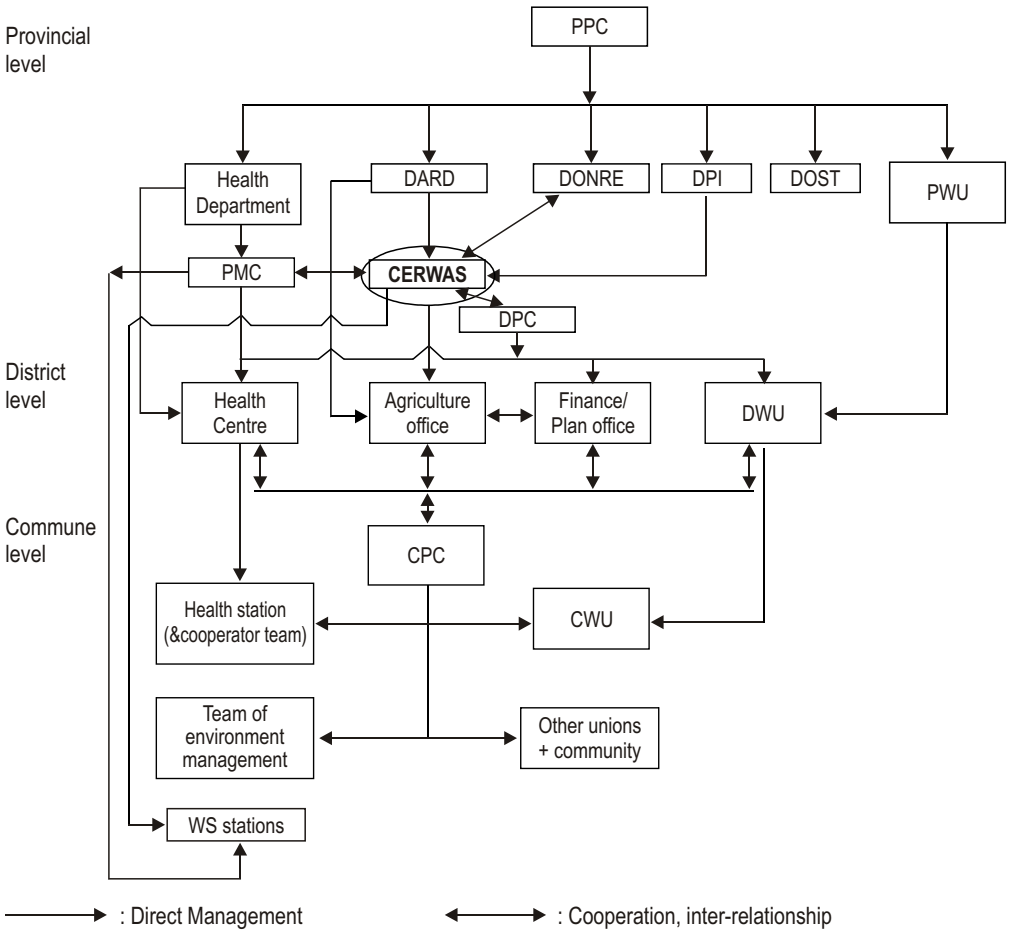
Some other government agencies also have programmes related to RWSS development and operation: most notably the Ministry of Education and Training: (**MOET**), the Committee for Ethnic Minorities in Mountainous Areas (**CEMMA**)

that implements Programme 135 and the Ministry of Labour, Invalids and Social Affairs (**MOLISA**) who are responsible for the implementation of Programme 133.

The National Steering Committee for Clean Water, Sanitation and Environment is responsible for the coordination of line ministries, the organisation of the implementation of strategies, master plans, programmes, projects in areas including water, sanitation and the environment. Every year, the Steering Committee organises the promotion week for water, sanitation and the environment.

People's Committees at the various administrative levels are the main governmental agency involved in RWSS decision-making. At the provincial level, the various Ministries are represented through departments created under the Provincial People's Committee (PPC), including CERWASS under DARD (PCERWASS). This pattern is mostly repeated at the district and commune levels, although some departments may not be represented at lower administrative levels. The structure of institutional relationships at the provincial level is set out in Figure 26.

Figure 26: The Structure of Responsibilities for RWSS at the Provincial Level



The institutional structure of the RWSS sector is consequently extremely complicated. There are a range of institutions involved and a number of different programmes that are part of national efforts to achieve the NRWSSS and the targets on RWSS in the CPRGS. It is consequently not surprising that the issues of (a) coordination between different institutions and (b) the capacities of institutions to fulfil their mandated tasks have emerged as major areas of concern amongst many stakeholders. Both issues were repeatedly raised during consultations made in this Review.

4.3.2 Central and Provincial Level Coordination Processes

There have been some efforts to establish coordination mechanisms. The GoV established the Programme Steering Committee to facilitate the implementation of the NRWSSS and the NTP. The Steering Committee is responsible for coordinating and monitoring the implementation of activities by the related ministries, branches and provinces. However, the Steering Committee's activities and impact are very limited. Members hold more than one position and ministries continue to implement works without coordination with other ministries or the provinces. Provincial Steering Committees were also formed, but coordination between related agencies and branches is similarly very limited.

CERWASS acts as the secretariat for the NTP and the NRWSSS and is also responsible for monitoring the allocation of financial resources to the rural water supply, sanitation activities and monitor that activities are within the objectives of the NRWSSS and the NTP. In practise, CERWASS mainly monitors and provides advice on budget allocation within the NTP, and coordinates RWSS activities throughout the country. However, many donors and INGOs do not report RWSS activities to CERWASS which limits its coordination role.

PCERWASS prepares RWSS strategic plans and organises the implementation of projects. However, in practise, many activities are conducted without the knowledge and management of PCERWASS. One PCERWASS director once said "Whoever has control over project funds, pays attention and keeps information about projects". It is clear that at both national and provincial levels, the coordination of activities in the RWSS sector is a critical issue. In particular, there has been no concerted effort to establish the scope for a more coherent and differentiated role for different agencies that reflect their expertise. For example, the local level network and professional capabilities of MOH mean that they have a

comparative advantage in relation to health and hygiene issues, the PCERWASS are stronger in technical fields, NGOs are often more effective at community-level development and so on.

The development of effective mechanisms, to ensure better coordination and a more harmonised approach through which different agencies can work together based on their specific expertise and capacities, is a key priority for the future development of the sector. The specific character of such mechanisms will be explored in depth in the second phase of the Review. At present, the development of mechanisms at the provincial level, where actions are implemented, is both the most important starting point and the place where the potential for coordination is perhaps the greatest.

4.3.3 Investment Models and Ownership

Investment in RWSS can be divided into two types: (a) small scale works based at the household level such as wells, water tanks and toilets and (b) piped water supply facilities. The household funded and built facilities are carried out without the involvement of local management bodies. In many rural areas, the limited information available indicates huge levels of private investments in RWSS. The investment and management pattern for piped water supply systems is shown in Table 25.

Table 25: Investment and Management Models for Piped Water Schemes

	Facility Owner	Management and operation unit	Tendency
Water supply cooperatives	Water supply cooperatives	Water supply cooperatives	Increasing
Cooperation Group	Cooperatives Group	Cooperatives Group	Increasing
Private enterprises	Private enterprises	Private enterprises	Slightly Increasing
District/commune people's commnittees	Commune PC	Management and operation unit Town water supply stations	Increasing
PCERWASS	PCERWASS	PCERWASS	Unclear
	Commune PC/villge	Management and operation unit	Unclear
State-owned Enterprises	State-owned Enterprises	State-owned Enterprises	District towns

The PCERWASS are authorised by the provincial people's committees to act as the managers, coordinators and implementers of projects within the scope of the National Target Programme. In some provinces, the district PC establishes District Project Management Units to implement projects and directly contract service and construction companies. The commune PC are members of the project management units. In provinces with ODA projects, PCERWASS or the district or commune PC could be responsible for implementation of the project, under the support and monitoring of the common Project Management Unit (PMU).

Cooperative groups managing RWSS investment projects are more evident in South Viet Nam. The model was developed with the technical assistance of PCERWASS in response to local demand. Tien Giang has promoted this model extensively. The cooperative groups self-manage the water supply systems, including service rates and contributions for maintenance, repairs or expansion of the works. The system appears to have a high level of sustainability. In some communes, the agricultural cooperative also functions to provide water and electricity supply. Commune scale cooperative groups can mobilise funds from different sources including group members and the state budget.

According to Decree 52/1999/ND-CP, the steps for investment preparation are very time-consuming and costly. This is not suiTable for RWSS projects where all water supply works are of small scale and decentralised. Some are less than 1 million VND and, in general, 50%-60% of the construction cost is contributed by villagers. Additionally, small-scale works tended to be grouped together into one contract to increase the financial incentive for bidders in the contract process. This impacts on the quality of the construction, the timeframe and increases the contributions required by users. A more flexible set of procedures to encourage these more localised management models should be developed and authorised by the GoV.

4.3.4 Management Models and Ownership

The piped water supply system management model includes cooperatives, the cooperative groups working under the administration of the commune PC, the water supply companies, private enterprises and PCERWASS. The most popular organisational models are the operation and management team under the administration of the commune PC and cooperative groups established by local people.

One outcome of funding through the National Target Programme has been the establishment of commune-level operation and management teams in many

provinces over the last 5-7 years. After construction, PCERWASS and the district PC hands the system over to the management of the commune PC. Many communes establish operation and maintenance teams, whilst some communes developed commune water supply stations or service teams. The commune PC remains the owner of the system; however, in many communes efforts are being made to establish water supply cooperatives to separate service activities from administration. These cooperatives are the owner of RWSS works and are responsible for management and operations, water rates and selection of the operators and managers.

Case Study - Management models in Phu Tho Province

The NTP-RWSS is the only financial source for RWSS development in the province. So far, more than 50 water pipe systems have been constructed. PPC appointed PCERWASS the owner of these systems, and after construction, the management of the systems was handed over to the commune PCs. Water fees are collected monthly, and there has been 100% collection rate.

PCERWASS monitors the operations and management of the piped systems and provides technical assistance when required. It has established a database to store data and information on issues including technology data, water quality, water management and water tariff collection. To improve the quality of service and ensure sustainability in the province, PCERWASS has a plan to study other management models and examine their strengths and weaknesses of each model. Management models in Phu Tho can be divided into 3 categories:

Number of HH serviced	Designed capacity m^3/day	Number of systems	Technology		Management model	Water tariff VND/m^3
			Gravity system	Piped system		
From 10 to 150 HHs (often 50-80 HHs)	From 20 to 60	22	22		Community	Free (no water meters)
From 10 to 150 HHs (often 50-80 HHs)	From 20 to 200	12		12	CPC Agri. Cooperative Electric & Water Cooperative	1500-1600 (based on water meters)
From over 200 to 700 HHs		17		17	CPCs, DPCs Cooperative Stock Com. (1 system)	1200 - 1600

Tien Giang is one of the leading provinces in the development of water user groups (or cooperative groups). The water user group model was extensively promoted during the national workshop held in Hai Phong in May 2001. The model specifically develops cooperative groups that operate, manage and maintain rural water supply systems. The model has been piloted in other provinces such as Dak Lak and Dong Nai.

Box 2: Piped Water Supply Management Models in Tien Giang Province

In Tien Giang, there are 4 models. The cooperative group can be considered the most effective model. Cooperative groups are self-managed by local people, and water prices and income management can be monitored. However, this model requires the selection of qualified, enthusiastic and responsible management staff. The commune government should create the conditions for cooperative groups to operate effectively and these groups should utilise their legal status under the law to ensure financial security.

(Report of PCERWASS Tien Giang, Hanoi Workshop in March 2004)

Private companies invest in RWSS works and control management, operations and water trading activities under the Enterprise Law. A feature of this model is that it is economically efficient. Small-scale water supply stations are usually owned by one household and provide water to hundreds of households. In practise, it can be considered a household business rather than private-owned enterprises.

Each of the models above had advantages and disadvantages, and it is necessary for local people to decide which model is appropriate for their local conditions and background. There is a need for clarity on the regulatory role of local authorities (especially PCERWASS) in relation to the construction and operation of water supply facilities. There are concerns that in many cases the PCERWASS has too much involvement because it organises construction, arranges operation and management, and regulates. Separating service provision and regulation is a key institutional issue for the future.

4.3.5 Decentralisation in RWSS Investment & Project Implementation

Decentralisation has resulted in the provincial planning of investment and management of the WSS works and control over the allocation of funds, and development of provincial regulations and policies. PCERWASS has developed a significant role in this process, especially the implementation of the National Target Programme and ODA projects.

However, the capacity of district and commune officials to manage and decide investments using a transparent set of criteria remains low. One result is that projects have been delayed due to slow appraisal at district level. The exception is districts which have support from donors and INGOs to guide the implementation in the communes. Capacity building areas that need attention are investment selection, operation and management and support in investment procedures, project appraisals, bidding processes, IEC activities and advice on consultancy services.

At present, *consultancy services in water supply and sanitation* are still limited. It is essential to encourage the development of consultancy services, especially those at provincial and district levels. The NRWSSS outlined the establishment of district advisory service centres to support small-scale water supply systems, but only a few provinces have achieved this goal, and these are within the framework of DANIDA programmes.

Commune authorities are the executing agency of project implementation, requiring them to understand the process and procedures involved in investment programmes, construction, and consultancy organisations. The commune authorities need the capacity to facilitate local participation in the formation of different types of community groups and cooperatives. They are also responsible to monitor the water supply activities of the commune water suppliers, determine the water price and make contractual decisions. Few communes have this capacity. Commune officials need access to information on RWSS organisations, financial sources, the local consultancy market, technical solutions, and lessons from other communes on investment options and the management of RWSS.

4.4 Institutional Capacities for IEC

Information and educational communication (IEC) is an important part in the development of rural water supply and sanitation. The NRWSSS places particular emphasis on the development of IEC activities as a priority area of action: *"IEC activities are vital for the success of all development strategies and the main future role for government is to focus on implementing IEC and management activities rather than directly involving in construction of RWSS facilities…IEC activities will be large-scale and take place at all levels, with special attention given to the levels of commune and village"* (page 15). This strong emphasis on IEC as a core role for government in the implementation of the strategy is the basis for assessing progress.

The National Steering Committee and the National Target Programme (RWSS-

NTP) sets aside a portion of its budget for IEC activities. The scale of funding involved, however, is not sufficient to achieve the ambitious agenda set out in the NRWSSS unless additional resources are available. Donors also prioritise this area, with key donors such as AusAID and DANIDA having substantial programmes in their project areas. The same is true for NGO programmes, where even greater emphasis is placed on IEC.

The result is that in donor and NGO funded areas, villagers' awareness on clean water and environmental sanitation has significantly improved. Whilst some activities have been undertaken in other parts of the country, the resources and institutional capacities available are limited and it is clear that the same level of awareness has not been generated. In some projects, IEC has improved people's awareness and promoted behavioural changes but also access to regulations on the investment process, the roles and responsibilities of the community in the investment, management and operation of the works, as well as ways to access funding resources.

IEC activities ideally require the involvement of a number of organisations, but to date effective cooperation has been very limited. The result has been that agencies do not coordinate their IEC activities, which has made it difficult for information disseminators at the commune and village levels. Sometimes contradictory information has been released by different agencies. Coordination among the organisations in information dissemination needs to be improved, functions and responsibilities of individual units clarified and a suitable financial mechanism adopted. At present, CERWASS is responsible for designing and carrying out IEC activities as part of RWSS projects. Staffs from the Prevention Health Care Centres and the Women's Union, often experienced IEC professionals, are in many cases members of IEC teams under donor or NGO projects.

In Nghe An, DANIDA has assigned the Preventative Health Care Centre as responsible for IEC activities in the RWSS project and in charge of the activities' financial budget. This is an innovative change in the project design that hopefully can bring about good results. Overall, there is a strong case for the MOH to take a more prominent role in IEC activities, both centrally and on the ground. They have, through the Preventative Health Care Centres, a far stronger local level institutional capacity with appropriate expertise and a recognised role in the community on such issues. IEC in relation to water supply and sanitation can also be linked to other parts of the preventative health programme, firmly establishing it as a key health issue amongst local communities.

Overall, there is good experience in a range of projects and programmes on IEC for this sector and the types of approaches needed to have an effective impact are well understood. Whilst these positive experiences exist, the extent of understanding of key health and hygiene messages is extremely uneven, and is poor in many areas that have not benefited from donor or NGO programmes. It is certainly clear that the development of IEC as a core part of government efforts in RWSS has not transpired to the extent set out in the national strategy, as indicated by the quotes above.

Expanding IEC efforts to a national level, including defining the most appropriate institutional structure for this and ensuring that adequate financial and institutional resources are available for a sustained effort, is a key priority for the future development of the sector. This includes ensuring that the distinctive conditions and cultural conditions of different parts of the countries (and especially in upland areas, where the problems are most severe and minority groups are particularly important) are enshrined in both the preparation of IEC materials and the development of delivery mechanisms.

The mainstreaming of IEC in a national programme so that it reaches all parts of the country and all sections of the community also entails a level of realism over what is achievable given the limited institutional and other resources available. Some of the models developed in the conditions where intensive programmes can be implemented based on high levels of donor resources and technical inputs are certainly excellent examples of what is possible, but are difficult to duplicate in circumstances where these intensive levels of inputs are not available. One approach that needs to be further developed is to identify what are the minimum needs for different people and places in relation to IEC and then to ensure that these minimum needs are met (including defining the institutional processes through which this can be done). What is clear is that the issue of IEC is one that must be more effectively integrated into national-level programmes, for without this then expanded coverage will not realise the intended development benefits.

4.5 Participation in RWSS

Fundamental to the NRWSSS is a demand-driven, user-responsive approach through the active participation of rural communities. This is seen as part of the wider process of decentralisation and increased involvement of rural populations in different aspects of development. It is also seen as essential if awareness of the

health and hygiene implications of poor water, sanitation and hygiene practises is to be addressed.

Most international financial institutions, multi- and bi-lateral donors and INGOs have adopted participation and empowerment models for the extension of RWSS. Community development is a tool to create awareness and demand for WSS and to enable informed choice of technical and management options. Resources have been dedicated to the mobilisation, organisation and empowerment of communities in the expectation of achieving and sustaining the objectives of the NRWSSS.

Pilot programmes supported by donor agencies have begun implementing the NRWSSS in selected provinces of Viet Nam. Provincial CERWASS are supported in pilot projects experimenting with participatory methods and processes in three provinces of the Central Highlands by DANIDA, and in five provinces of the Mekong Delta by AusAID. Several international non-governmental organisations (INGOs) reported the use of similar approaches. In this respect, two donor-supported programmes piloting IEC and participatory community methodologies (e.g. PRA) with the respective PCERWASS in selected provinces are of particular interest:

i. MARD-DANIDA Water Sector Programme Support (WAterSPS) with four major components.

ii. GoV-AusAID Cuu Long Delta Rural Water Supply and Sanitation Project in five provinces of the Mekong Delta.

Site visits by members of the Review Team to the two pilot projects demonstrated the efficacy of a variety of participatory methods used to engage generally poor rural communities and households in informed debate around the selection of appropriate WSS options. Project personnel in the Central Highlands project are now further engaging communities in debate around sustainable operational and financial management of the schemes once installed. In the Mekong delta project, community management options are under active consideration pending the imminent start of major construction activities, but these have yet to be discussed with communities.

GoV - DANIDA Rural WSS Project in Central Viet Nam: component 2 of the WAterSPS is the Rural Water Supply and Sanitation (RWSS) pilot programme is now in its third of a five-year funding and technical support period. The overall objective is to "*improve living conditions for rural communities through demand-*

responsive support to domestic water supply and sanitation provided in a socially and financially sustainable manner". The programme in Dak Lak, Ha Tinh and Nghe An provinces adheres closely to the National Strategy to test the demand driven and user responsive approaches. This project is regarded by CERWASS as a pilot project for nationwide replication, though it is not clear how this replication was to take place: as with many other pilot activities, the mechanism for integrating the models developed into the mainstream of national programmes have not been developed as an integral part of the pilot. The efficacy of the province-based pilots is enhanced by DANIDA support to national CERWASS, and there is certainly a level of awareness of the outcomes of these pilots at that level.

National CERWASS does not have (and has not taken effective actions to develop) the institutional channels through which wide-scale replication could take place. The strategy set out in the NRWSSS identifies pilots as a key part of the activities of the first five years of the strategy implementation. This is particularly true for the development of participatory approaches, which in turn are critical for realising the demand-led approach of the strategy. These pilots have developed models but, as has been said, these models are yet to be replicated or integrated into the nation-wide implementation of RWSS activities.

GoV - AusAID Cuu Long Delta Rural WSS Project: the Cuu Long Delta Rural Water Supply and Sanitation Project (CLDRWSSP) based in Vinh Long, works in five provinces[19] with the goal of reducing poverty and improving overall living standards and health of 500,000 rural poor people by assisting them to gain sustained access to improved water and sanitation services.

In both the DANIDA and AusAID projects, provincial CERWASS counterparts have adapted methods widely used internationally for participatory development and empowerment. These include social and topographical mapping, wealth ranking, focus groups, non-formal education using site-specific IEC, Participatory Rural Appraisal (PRA) and Rapid Rural Appraisal (RRA) designed to engage consumers at the grassroots in discussion and debate in the selection of appropriate RWSS options. The agenda in these participatory methods is empowerment, which in the WSS sector derives from:

- the ***creation of awareness*** of the benefits of clean water and sanitation;
- ***education*** of communities about appropriate, available options;

[19] Bac Lieu, Ben Tre, Kien Giang, Long An and Vinh Long Provinces in the Mekong Delta

- increased ***access to information*** about WSS, health and hygiene;
- ***capacity for communities to act on their own behalf*** in the selection and management of small WSS schemes.

Other significant donors to RWSS include UNICEF with a tradition of support to Vietnam's WSS sector over 20 years, and a coordinating role among UN agencies. This includes the joint UNICEF/DFID Water Sanitation and Hygiene Programme, implemented between 2000 and 2002. The project focused on poorer areas of the country, and in particular the Northern and Central Highlands and emphasised participatory approaches, particularly in IEC. The Project Completion Report concluded that different provinces implemented different approaches and had different levels of understanding of and commitment to the NRWSSS. The report's conclusions that: *"lessons from the field, particularly from UNICEF activities, and supported by the team's findings, indicate that where the participatory approach has been largely followed, projects appear to have a greater probability of long term sustainability"* have widespread applicability and demonstrate the importance of developing effective mechanisms for community participation in the RWSS sector.

The mass organisation of most importance to RWSS programmes is the Viet Nam Women's Union (VWU). With administration at central, provincial, district and commune levels and a network of volunteers and representatives at the village and hamlet levels, the VWU is an advocate for women, an effective force for their mobilisation nationwide and the promulgation of empowering information and a competent executor of programmes for the benefit of women and children. The VWU has extensive experience in the administration of revolving loan funds and micro-finance for support to women who may otherwise be excluded from formal credit.

At commune and village levels, often women are the initiators in the process to develop water user groups, and borrow funds from the Women's Union to contribute to construction. Women participate in the water user groups or cooperatives like other members. For these reasons some donors have extended funds to the VWU at national, province and district levels in support of the provision of credit to poor households for social enhancement including RWSS. The Social Policy Bank may in the future be able to assume this responsibility, but meanwhile the VWU offers a viable nationwide mechanism for administering micro-credit savings and loan schemes for RWSS.

INGOs such as CARE Vietnam, World Vision, International Development Enterprises (IDE) and others are also involved in community development including RWSS, usually at the commune and poor village and hamlet levels. INGOs have formed a Working Group on Water and Sanitation co-ordinated by Church World Service (CWS) to share experience and coordinate their efforts in line with the NRWSSS. The INGO experience provides additional lessons for larger agencies in the use of participatory methods, group mobilisation, training and organisation, from which larger organisations can learn, especially in working with the most vulnerable and needy. These include:

- The benefits of working as a multi-disciplinary agency addressing the wider needs of poor communities.
- The focus of activities on a small group of needy residents.
- Developing a close working relationship with beneficiaries over time builds knowledge and mutual trust and confidence.
- More cost-effective delivery than traditional approaches.

As such, there is a range of experiences in the development of participatory mechanisms in Viet Nam, many of them with very positive results. These models have not been implemented in a systematic manner at a national level, however, and the explicit objectives in the NRWSSS on community participation have largely not been met. The approach, to develop pilots in a series of provinces, has the potential to be effective, but this will only happen when the implications of these pilots in terms of resource allocations, institutional capacities and, above all, the development of new decision-making systems are worked through into the system in all provinces.

4.6 Conclusions

There are gaps in the policy, legal and institutional environment that significantly impact on the implementation and development of RWSS. In particular, there is not a reliable mechanism to coordinate between ministries or in their relationship with the provinces. National responsibilities for (and responses to challenges concerning) RWSS remain fragmented, which limits the quantity and quality of WATSAN coverage. The NRWSSS outlines a comprehensive range of targets, objectives, and a practical approach but ministries with input into RWSS continue to

base their activities in accordance with sectoral plans. These plans are prepared by internal staff and outline strategies to achieve specific goals and targets assigned by MPI. Plans are shared between ministries and comments shared, but there is no review committee to ensure that each of the ministry's sectoral plans form part of a concerted effort to implement the NRWSSS.

This becomes more convoluted at the provincial level. Departments are obligated to implement the targets and goals assigned by the line ministry but they are also responsible to implement provincial targets and goals assigned by the PPC. Often PPC targets and goals are derived from institutes and organisations belonging to MPI working with DPI. Departments are also committed to the targets outlined in the NTP for RWSS. There is no review mechanism at provincial level that specifically monitors these sets of targets and goals to develop a coherence and demand-responsive strategy. The result is that departments implementing plans, such as DARD and DoH, are not coordinated and responses are fragmented. There is overlap in activities, while many areas are not covered, resources are wasted, and opportunities lost.

Policies to improve subsidarity and decentralise decision-making to the province level have been implemented inconsistently. There is a significant gap between capacities at central and provincial levels. Over the last decade, central authorities have developed financial, managerial and technical capacities because of interactions with the international institutions, for example: WTO, World Bank, ADB and donors. However, interactions with provincial level remain based on centrally planned targets and goals. Provincial level has not had the opportunity to develop resources and capacities to implement decentralisation or the principles embodied in national strategies, such as the NRWSSS. The result is that they are less responsive to prevailing conditions and not utilising demand driven processes to decide WATSAN investments.

Provinces need effective models to develop institutional processes for the long-term. Presently, many provinces issue inconsistent regulations or develop *ad hoc* arrangements that only resolve problems for the short-term. Allocating resources often follows areas where staff has capacity and budget, such as small-scale piped schemes, which is to the detriment of other areas. For example, WATSAN advisory services at the district level are an important part of implementing the NRWSSS, but in most provinces, the service network has not been established. In the communes, commune and village leaders are aware of RWSS problems in the community, however, the commune level does not contribute to planning processes that

consolidate local priorities into a coherent RWSS strategy. Importantly, commune officials need access to information on RWSS, financial sources, investment options besides piped water schemes, and need capacity strengthening in effective financial, technical and managerial systems.

The NRWSSS emphasises demand driven approaches as a central principle in the socialisation of RWSS. Grassroots democracy provides a legal framework for the collection of community priorities; however, there is inconsistent application in the provinces, districts and communes. A main problem is the lack of organisational models to support villagers' demands. A group of villagers may decide to establish a cooperative group and invest in developing RWSS but can not access credit.

As identified here, at all levels of administration, there are gaps in the RWSS market caused by the lack of capacity and resources in the public sector. The private sector provides an effective way to resolve many of these problems. However, development of the private sector has been limited by barriers in the provinces. Barriers and opportunities in the development of the private sector are examined in a following Chapter. The institutional structures, processes and challenges outlined in this Chapter lie at the heart of the future development of RWSS. The key conclusions that can be drawn from this are:

Overall, the policy and regulatory environment is supportive in both the specifics of the RWSS sector and the overall development approach, though there is a need for a review to ensure greater coherence.

The most important challenges lie in putting this large set of policies and regulations into practise.

This involves a more integrated and comprehensive approach to enacting the provisions of the NRWSSS.

It means a more coordinated approach amongst the programmes and actions of the many ministries and agencies involved in RWSS.

It entails far more effective links between the centre and the provinces.

Above all, it means the development of capacities at the provincial level, both in terms of the capacities of individual agencies and the establishment of models to integrate the efforts of these different agencies into a coherent whole.

Chapter

5

Financial Mechanisms

5.1 Introduction

One of the four strategic approaches embodied in the NRWSSS is the '*Renovation of Financial Mechanisms and the Mobilisation of Various Funding Sources*'. This Chapter examines the range of financial mechanisms potentially available for the development of RWSS in Viet Nam. These mechanisms dictate how stakeholders and beneficiaries access financial resources for the development of new facilities and the operation and maintenance of existing facilities. As will be shown the challenge of financing rural water supply and sanitation is not only about finding funds it is very much about spending funds on sustainable activities.

According to the NRWSSS mobilising contributions from users is fundamental to the demand driven approach and moreover users should pay for the construction, management and operation of water supply and sanitation facilities. To this end, the government has provided significant funding, especially through the RWSS-NTP, for the construction of piped water supply systems and various household level water supply and sanitation facilities for poor and vulnerable households and public institutions such as schools, health centres and markets. In theory the grants provided through the RWSS-NTP for RWSS improvements are suppose to only constitute part of the total investment with the remainder coming from users. As shown in Section 2.8.1 in general the financial support from GoV for RWSS improvements has not been able to attract matching funding from local users.

To date the lion's share of available funds through the RWSS-NTP and various donor project have been directed at water supply improvement and overwhelming evidence shows that sanitation and hygiene are lagging far behind. The assessment of rural water supply and sanitation coverage presented in Chapter 2 shows that Viet Nam is way behind in terms of meeting sanitation targets and that the current approach applied under the NRWSSS and the RWSS-NTP is not having the desired impact. In the evaluation of the RWSS-NTP many PCERWASS complained that inadequate attention, especially in terms of financial support and technological developments, was being given to sanitation issues as part of the RWSS-NTP.

To some extent this reflects the fact that sanitation lacks a clear sectoral identity. This leads to fragmentation. Mandates for different elements of sanitation lie within different ministries, and responsibilities are extremely unclear. The resulting

confusion and lack of investment has led many provincial CERWASS units to claim sanitation targets are simply unachievable. This is compounded by the fact that, although the starting point for access to hygienic sanitation was much lower than the starting point for access to safe water during preparation of the NRWSSS targets, both targets are equally ambitious.

Funding shortfalls for sanitation improvements clearly need be made a priority perhaps *the* priority if there is any hope of 2020 targets being met. A recent World Bank review of water and global sanitation trends identified a funding shift from subsidies and grants for sanitation facilities to sanitation promotion and leveraging resources (Mehta & Knapp, 2004). Experience suggests that leveraging efforts need to be focused on households and communities, with larger-scale investments to follow in the medium- to long-term. As was seen in progress to water supply targets, the willingness of households to contribute financially to small-scale projects has immediate and tangible benefits. Fundamental to programmes that leverage user contributions for sanitation, the next big challenge, is the availability of favourable credit to low income and poor households.

To attract greater funding from local users the GoV is now piloting a RWSS credit facility through the Social Policy Bank in 10 provinces. Early indications are that this RWSS credit facility will be expanded nationally in 2005. In conjunction with the RWSS-NTP[20], it will become a major component of government efforts in the sector. In some provinces local authorities have already prioritised RWSS to the point that dedicated credit facilities with favourable loan conditions are being successfully operated for the benefit of rural water users (e.g. Ninh Thuan and Nam Dinh). Under both the grant and credit facilities the mass organisations in communes and villages often have an active role in organising and managing access to credit and grants. Other government lending institutions, such as the Development Assistance Fund (DAF), focus on providing favourable credit access to private and public enterprises constituted under the law.

Socialization of the RWSS sector refers in part to the mobilisation of funds from rural communities and the private sector. As shown in Section 2.8 rural communities are already the single largest investor in the RWSS sector, and progress towards various targets have come largely as a result of this self-investment. Meeting the mounting financial shortfalls to the RWSS sector will require even greater socialisation of the sector and mobilization of funds from users. An overarching

[20] Some senior government officials indicated that it is possible that the structure of this NTP could change for the start of stage 2 of the programme in late 2005

strategy for mobilising funds from different sources is the use of financial, social and political leverage upon individual households, private sector investors, polluters, local authorities and donors.

Financial leverage is commonly understood to mean the use of public or donor funds to attract more household, community and private resources promoting spending by spending. Social and political leverage are also significant techniques to mobilise funds that should be applied in parallel with finance-based leveraging. An example of political leverage on finance is the use of strictly enforced polluter pays laws and regulations. Social leverage involves neighbourhood pressure and can be fostered through social marketing and promotional communication strategies that raise the social status of improved RWSS. Leveraging strategies are vital to ensure that the market prioritises areas that have lacked focus, such as sanitation and transitional technologies[21].

This section examines the extent to which particular strategies contribute to, or detract from, greater leveraging of finance to the RWSS sector. As will be shown the concept of political leverage is well understood by local authorities and some major successes in mobilising financial resources to the sector have been attributed to strong involvement of local authorities. Social marketing is the use of commercial marketing principles to achieve social objectives. Marketing however is still relatively new to Viet Nam and party cadres within the government system are not familiar with and/or may be suspicious of the application of such commercial strategies. Direct financial leveraging and the matching of funds has also proven to be problematic during the initial implementation of the RWSS-NTP. In part this reflects the traditional dynamic in which government has paid for infrastructure improvement. Pragmatic co-financing policies (e.g. Tien Giang) may be one useful strategy to promote user contributions if not then the 'blank-cheque' syndrome may perpetuate.

A number of recent government policies have provided opportunities to develop the necessary financial mechanisms that will support greater leverage upon financial contributions from water and sanitation users. The Water Resources Law and other laws relating to environmental protection if strictly enforced can provide an effective pressure on financial flows. At the commune level there are accreditation systems such as the '*Cultural Village*' and the '*Village Fit for Children*' that can and have been used as socio-political motivators to drive household investment in RWSS.

[21] Water and Sanitation Program, "The Challenge of Financing Sanitation: for Meeting the Millennium Development Goals", March, 2004

Policies particularly relevant to achieving more effective direct-finance leveraging are those concerned with decentralisation, socialisation and the sharing of resources between the State and the private sector. However, significant barriers limit this leverage. Organisational models to develop RWSS in the communes are limited and not suiTable in all conditions. The capacity of officials in financial management is low, especially in the communes. Financial information centres are usually based in provincial centres with little or no information at lower levels.

Building capacity of local cadres, and supporting information flows about financial sources and management models, requires urgent attention. Moreover developing skills, and back-stopping the authority, of local cadres to directly apply and/or foster a wide range of social, political and financial leveraging strategies are all fundamental to unlocking user funds and promoting greater socialisation of the RWSS sector.

5.2 Sources of Finance

There is a range of sources of finance available to individuals and institutions seeking to make investments in RWSS in Viet Nam. These sources include public and private funds, and funds from formal and informal channels. This section gives an overview of the major financial sources identified through the course of the sector review, based on the following classifications:

1. Rural water user's self investment and contributions.
    a. Self-investment in household improvements.
    b. Contributions to community-wide improvements
2. Government of Vietnam
    a. Grant programmes like RWSS-NTP and Programme 135
    b. International bank loan projects
    c. Social Policy Bank-managed RWSS credit facility
    d. Development Assistance Fund
3. International donor and NGO funded projects.
4. Private sector investment
5. Commercial lending institutions

A brief description of each of these funding sources is provided here. The relative size of each source is presented, along with major beneficiaries and conditions of access. Constraints, limitations and barriers associated with each source are then explored. Present and future impact is measured in terms of efficiency of financial flows, effectiveness in meeting the needs of the poor, and the extend to which funds leverage funds from other sources, especially users.

5.2.1 Rural Water Users Self Investment & Financial Contributions

1a) Self Investment in Household RWSS Improvements: As the single largest investor in RWSS improvements, rural users are *the* driving force for change. Most rural users invest in small structures and equipment such as wells, rainwater tanks, latrines and various facilities for managing animal waste. Contributions to multi-household water supply systems implemented with GoV and donor support account for only a small proportion of total user spending in the sector (Section 2.8).

1b) Contributions to Community Wide RWSS improvements: In this case, the term "user contributions" is almost synonymous with financial or in kind contributions for the establishment of piped water supply systems. User contributions to piped water systems are divided between the larger up-front costs of initial construction and the smaller, but much longer term, costs of operation and maintenance. This analysis considers both of these costs.

The most successful model for mobilising community contributions to piped water systems to date has been the Cooperative Group model. A Cooperative Group is a group of people formed and registered in accordance with the Civil Code of Viet Nam[22]. Financial operating procedures for Cooperative Groups (also referred to as Water User Groups) are described in the Handbook on Establishment of a Piped Rural Water Supply System, prepared by the National CERWASS. Household contributions to the cooperative group vary. In Tien Giang, for example, cooperative group management boards have mobilised approximately VND 800,000 to 1 million from each household wishing to be part of a water supply scheme.

A weakness of the Cooperative Group model is that under the Civil Code Cooperative Groups have reduced legal status in relation to investment ownership

[22] The Civil Code of Viet Nam is a legal tool to enhance civil transactions and to create a favourable environment for the socio-economic development of the country. Articles 120 - 129 deal with Cooperative Groups.

and eligibility for bank loans. In Tien Giang and other provinces the provincial authorities have put in place necessary legal arrangements for Cooperative Groups to have greater levels of control over funds provided through the RWSS-NTP and other PPC-managed funds. However this is not the case in all provinces and indeed many provinces regard the Commune as the lowest level of investment owner, meaning that community based groups are removed from the main decision making process. This is potentially one of the most significant constraints to mobilising funds from Cooperative Group members as transparency is reduced and member confidence in the financial integrity of systems is less than if a popularly elected local group is responsible and accountable to the local community. (Cooperative Groups should not be confused with a Cooperative formed in accordance with the Cooperative Law).

Despite difficulties in accessing finance through the GoV financial and lending institutions more than 200 Cooperative Groups have successfully implemented and operated piped water supplies in several provinces. However in most cases the Cooperative Groups did not need to seek loans and relied on community reserves and generous relatives (Salter, 2003). Without adjustments to provincial policies the Cooperative Group model may be difficult to replicate widely as not all communities have sufficient capital to independently finance schemes without loans. One model, suggested by the VWU, which might work for very small schemes, is to link loans to each individual member instead of to the Cooperative Group itself. The VWU uses this method for collective investments such as pig rearing schemes. DANIDA and the VWU expect to pilot a system of individual household loans as a way of financing small piped schemes as this is not dependent on changes in the legal status of Cooperative Groups[23]. Potentially the Social Policy Bank-managed RWSS credit facility could be used in this way to finance piped water supply schemes.

During implementation of the RWSS-NTP, CERWASS focused considerable resources on the establishment of piped water supply systems. Piped water systems were made a priority under the NRWSSS, and they have received the bulk of government funding in the sector to date. In the Prime Minister's Review of the RWSS-NTP, many PCERWASS units cited a lack of financial contributions from users as a key constraint to the further development of these systems. Moreover a lack of user contributions for piped water supply system establishment has been

[23] Draft Lessons - learnt Report on Finance Mechanisms in RWSS October 2004. Water SPS component 2.3: Rural Water Supply and Sanitation in Nghe An

accompanied by a lack of interest in, and willingness to pay for, operation and maintenance, raising concerns over the sustainability of past investments through the RWSS-NTP. Weak cost recovery to cover the ongoing cost of piped water supply systems is not limited to GoV programs but is also common among the various types of Donor-funded projects.

The RWSIHIP socio-economic survey of households across eight communes in four provinces of the Red River Delta found that an affordable water tariff needs to be no more than 3 to 5 percent of monthly household income. In addition to their own surveys the RWSIHIP sight the ADB funded Second Provincial Water Supply Project (1996) in which 93% of households are willing to pay 3.5% of their monthly income for water charge. In a study of small town water supply systems in the Red River Delta and Mekong River Delta regions (WSP, 2001) it was found that households were spending 0.1 to 1.0 percent of monthly household income. The WSP study concluded that the tariffs were too low to cover depreciation and that users could afford high water tariffs than were being charged. In the same WSP study the household surveys carried out in the small towns indicate that the connection fee is **not affordable for the poorest inhabitants**.

5.2.2 Government of Viet Nam Sources

The sector financing strategy set out in the NRWSSS is based on a combination of grants and loans. The main vehicle for GoV funding to the RWSS sector since 1999 has been the RWSS-NTP. Second only to the RWSS-NTP has been Programme 135[24]. During implementation of the RWSS-NTP the bulk of government funds have been provided as grants for RWSS improvements, particularly for piped water supply systems. It was not until 2004 that the GoV piloted a credit scheme for poor households to invest in their own rural water supply and sanitation improvements.

2a) Government Funded Grant Programmes: The NRWSSS identifies a number of key target areas for preferential financial treatment from the GoV including: the poor, vulnerable and social policy households; piped water supply systems; and public institutions like schools, health centres, markets etc.

RWSS sector investment figures presented in Section 2.8 show that there are a number of provinces in Viet Nam where communities are actually willing to invest 35 to 50 percent of the total cost for establishment of piped water supply systems.

[24] Both of these government funded grant programmes are described in Chapter 3 on Major Programmes and Projects

Meanwhile in a detailed analysis by Tien Giang PCERWASS the experience there has been that for piped water supply systems there is a need for financial support from the State Budget and Donors equivalent to approximately 30 to 35 percent of the total investment; in turn requiring a user contribution in the order of 65 to 70 percent. The Review Team suggests that user contributions for water supply improvements in the order of 40 to 60 percent of total capital cost is perhaps a useful benchmark for provinces to apply in the future administration and disbursement of grant funds available through the RWSS-NTP. It would be necessary to apply lower rates in the case of some of the very disadvantaged ethnic minority communities in the mountainous North, Central Highlands and Mekong River Delta regions.

One of the most significant limitations of the RWSS-NTP is that decisions on investment are based upon provincial master plans. These master plans are limited by the quality and reliability of the statistical information used to derive them. Moreover systems for updating and sharing relevant socio-economic and environmental data are still quite rudimentary in many provinces. It has been consistently argued that funds need to instead be disbursed to the province and district level based on the development of sector plans that identify water supply demands down to village level are urgently needed (DANIDA 2004; Tien Giang CERWASS 2004). Preparing RWSS master plans at the district level based on accurate information from village level survey provides the kind of resolution needed by provincial planners to direct financial and technical resources where they are most needed. Moreover in the case of clean water supply, communities that experience the greatest difficulty in sustaining year round clean water supply, will as a general rule identify clean water supply as one of their top development priorities and in turn the willingness to co-finance GoV and Donor funded RWSS projects will be inherently higher. Rather than rely upon IEC as a tool to mobilise financial contributions for clean water supply it is arguably better to *limit* grants for water supply to just water-scarce communities.

As part of its 2004 self evaluation, PCERWASS identified the following constraints to effective fund mobilisation:

lack of direction from provincial people's committee;

lack of community participation, especially in terms of planning the cost recovery mechanisms;

emphasis on targeting the poorest and most marginalised communities;

too much focus on high technology rather than appropriate technology;

lack of attention to IEC as a way of stimulating users willingness to pay;

many people are not convinced of the potential health benefits of piped water;

low capacity of commune and district staff for financial management; and

complicated procedures and regulations on construction that inflated prices.

2b) International Bank-Funded Loan Projects: the various WB- and ADB-funded projects for rural water supply tend to follow a model of rural development centred around community development funds. On these projects there is relatively high degree of decision making at the district and commune level. Information on the rate of financial assistance available through these projects is limited and it is difficult to evaluate the extent to which they leverage local resources and foster willingness to pay. These projects represent a significant concentration of funds in a relatively small area with a high degree of autonomous community decision making. Effective leveraging of funds from the bank projects to the RWSS sector will depend upon the active involvement of water supply and sanitation motivators, with the necessary participatory and promotional communication skills to effectively engage with and influence the values and priorities of communities and local governments that are the target of these projects. This is potentially a key area of synergy between NGOs and the large bank-funded rural development projects, and preferably with the support of national and local authorities.

Inefficient allocation and use of funds through the GoV funded grant programmes and donor projects remains a concern for many individuals and agencies involved in the rural water supply and sanitation sector (e.g. MDG, 2004; INGO, 2004). At present the local systems and progressed for project planning, design, construction and follow up remain antiquated, and with so any steps involved they are particularly vulnerable to waste and leakage of financial resources. In consultation with various bilateral projects and INGOs, and based upon past reports and review of the sector, the Review Team learned that the problems include individuals personally benefiting, waste from inappropriate designs, cost being siphoned off for other purposes, subcontracting out of construction but still collecting fees, and official stamps given by correct authorities for a price.

2c) Social Policy Bank managed RWSS Credit Facility: A very significant development in the RWSS credit facility with favorable loan conditions. The credit scheme is being implemented through the Social Policy Bank in cooperation with

CERWASS. It is now reaching the end of the pilot phase, which was conducted in 10 provinces nationwide[25].

The expectation is that the credit mechanism will be opened to other provinces by 200. Virtually in parallel with the main trial of the new RWSS credit facility has been a pilot trial of a similar programme by DANIDA working in their three pilot provinces (Dak Lak, Nghe An and Ha Tinh) Early evaluations from DANIDA's trial in Nghe An[26] and an evaluation by the Credit Department of the Social Policy Bank[27] have been sourced and reviewed to draw early lessons.

Prime Minister's Decision No. 62/2004/QD-TTg on Credit for Implementation of the NRWSSS is based on the Decree 78/2002/ND-CP regarding credit for poor people and other social target groups and pursuant to Decree 106/2004/ND-CP on Government Credit for Investment and Development. The purpose of Decision No.62/2004QD-TTg is to make available credit for projects in support of the NRWSSS, including projects for construction or renovation of clean water supply systems or rural sanitation systems such as latrines, latrines with biogas facilities, animal farms, and waste water treatment from trade villages. For enterprises wishing to invest in construction or upgrading of rural water supply and sanitation projects, loans should be taken from the Development Assistance Fund with interest supports after investment or credit assurance according to Decree 106.

Eligible beneficiaries must be (a) legal inhabitants of rural areas (b) without a clean water source and sanitation structure that meets national standard, and (c) a member of an official Credit & Savings Group and presenting in the proposed list for loan of the group (certified by the commune People's Committee).The loans will be available through the Social Policy Bank with a maximum loan for each for each RWSS structure of 4 million VND per household. Very important under this scheme the loan owner does not have to have any kind of guarantee/collateral except to be a member of the credit and savings group. During the pilot phrase of 60 months with the extension period of no more than 6 months. The interest rate is pursuant to the decision of the PM but for the pilot phase was set at 0.5%.

In term of the loan procedure the Social Policy Bank entrusts the Women's Union to establish and operate credit-saving groups in line with Decision No. 783/QD-HDQT dated 29/7/2003. In terms of the loan application procedure:

[25] The pilot provinces have been Son La, Hai Duong, Nam Dinh, Ninh Binh, Nghe An, Khanh Hoa, Binh Thuan, Dak Lak, Tien Giang and Kien Giang

[26] Rural Water Supply and Sanitation in Nghe An, Draft Lesson Learnt Report on Finance Machanisms in RWSS (October 2004) - Water SPS

[27] Evaluation Report on the Implementation of the RWSS Credit Scheme in 10 pilot provinces. Credit Department of the Social Policy Bank (December 10, 2004)

Households belonging to credit-savings group submit a proposal including cost estimate for RWSS facility.

The credit-savings group meets with the socio political organisation to select household and then submit to commune People's Committee for approval.

The Social Policy Bank review, give approval to final list and then work with the credit-savings groups to sign the credit contracts with selected households.

An approved Loan Announcement is sent to the CPC, different socio political organisations, credit-savings groups and the households.

The credit scheme programme was implemented in all 10 pilot provinces, specific results are shown below:

Total loan value given is 81,286 million dong.

Total principle recovery value is 3 million dong.

Total debit (up to 30/1/2004) is 81,281 million dong, accounting for 66.08 % of the targeted value.

Total of 21,568 households is included in the loan scheme.

Average loan value is at 3.7 million per household.

Total of 26,436 structures has been supported by the loan scheme, including:

- 15,026 water supply structures.
- 11,031 latrine structures.
- 379 other structures.

Significant constraints identified during the initial piloting of the Bank for Social Policy RWSS credit facility have been identified and require urgent attention:

a. The inter-agency official document regarding the implementation of Decision No.62/2004/QD-Ttg has not been signed between the Social Policy Bank and CERWASS (assigned by MARD). This delay is due to the National CERWASS. This is a very urgent issue because the loan requirements of the Social Policy Bank clearly state that applicant needs to present the cost estimate of the structure which is not to exceed the total cost estimate of the design models provided by MARD (and MARD has assigned CERWASS for this task). CERWASS, however, has not made available these design models and the associated cost estimate yet. Therefore, each province used different versions of standard design models. This resulted in unreliable cost estimate in some places. The Social Policy Bank only gives out loan based on market prices.

b. Field investigations showed that some branches gave out the maximum loan amount in one single disbursement when the construction was not finished and the final cost is not available yet. This is also due to the fact that CERWASS does not have detailed instructions and guidelines. In addition, there were no acceptance check documents for the construction of some households. Who will be responsible for checking to see whether these structures meet national standards or not?

The Women's Union is a socio-political non-government organisation which has a presence down to the village level. Currently the VWU has a nationwide programme entitled “Economic Development Support to Women". Credit-savings groups are one of the activities of this nationwide programme. The first women's credit-savings groups were established in Viet Nam in 1988. High levels of social control combined with well-developed book keeping and financial control have resulted in very high repayment rates (close to 100%). A credit-savings group may comprise 25 to 30 members, and it is the responsibility of the local Women's Union to encourage women to join. Women's groups take on loans with one-half of the group obtaining loans and the other half of the group eligible for loans once the first loans are repaid. There is the potential for poorer households to be excluded from loans managed by credit-savings groups, particularly if there is concern about weak ability to pay resulting in longer duration for a given loan to be rolled over to other group members.

These credit-savings group activities are to provide village women with necessary financial resources, skills and knowledge to enhance income generation. A typical model of management for a credit-savings group is a head of the group, a group monitor (deputy head) and a book keeper-cashier. The group members agree on their specific group regulations. The VWU and the finance organisations (banks) enter trust agreements where the VWU guarantee the loans for the women, as poor women do not have collateral. Hence it is the VWU's responsibility to ensure payment. The VWU will not administer grants as they are inconsistent with their policy, and at present there does not seem to be an existing system for administrating grants.

As stated above, DANIDA is piloting a revolving loan mechanism with the VWU that is more or less similar with the overall orientation of the Social Policy Bank credit facility. Loan conditions are different. Interest is paid by the poor and non-poor at 0.6% per month and by the very poor at 0%. The repayment is over a two

year period with a principal repayment grace period of six months. The loans are at the HH level and therefore have been used mainly for sanitation, rainwater harvesting and well construction.

Initial results show that the revolving loan mechanism is a viable and effective mechanism for providing credit for individual household (HH) water and sanitation systems. DANIDA and the VWU in Ha Tinh and Nghe An are planning to pilot a system of finance for small piped water supply schemes based on revolving loans to individuals within a water user group. This is being piloted as a way of overcoming the fact that WUGs are not a legal entity for the purposes of borrowing money and in many places are not allowed to be the investment owner. DANIDA's own evaluation identified the following benefits of the revolving fund:

Low interest rates with possibility of income generating loans to encourage households to take loans and facilitate the payback.

VWU's earlier experience in micro-finance projects, understanding of local conditions and direct contact to households through the commune WU.

Clear description and delegation of duties and responsibilities with performance incentives motivate grassroots level staff to work effectively.

As of April 2004, the DANIDA sub-component 2 in Dak Lak, Nghe An and Ha Tinh had each provided approximately 1,000 loans, of which about 300 in each province were provided to the poorest group. However there is evidence that some very poor families are reluctant to take loans for water and sanitation. It is reported that only one third of the poorest are willing to take the loans. Apparently the VWU addresses this problem by making parallel income generating loans available for productive purposes. DANIDA is now gathering further information necessary to assess the extent to which VWU loans reach the poorest. Depending on the results of this analysis it should be decided whether to:

1. Leave the financial mechanisms for households via the VWU as they are.
2. Test longer repayment periods so extremely poor households get an extension of their grace period until they move into the next DOLISA category.
3. Pilot new repayment periods. If it is not found to be successful, implement grants for households on a pilot basis.

In making a case for greater public and donor financing to the RWSS sector, an important element will be to develop a monitoring framework that helps to capture performance achieved with public and donor funds. Experience of DANIDA,

VWU, CERWASS and the Social Policy Bank in administering grants and loans for rural water supply and sanitation improvements, and the strategies for monitoring progress and ensuring funds are spent as intended may provide insights in this regard. Although in the short term there are indications that strengthening the monitoring systems of the VWU and Social Policy Bank are needed to ensure that funds are spent as intended. CERWASS at provincial level have a responsibility to ensure that locally appropriate menus for RWSS technologies are developed and easily accessible to bank staff, credit-savings group organisers and the general public. Moreover the role of the CPC should be defined more clearly and ideally expanded beyond simply approval of loan requests to include a role on monitoring.

2d) Development Assistance Fund (DAF): The Development Assistance Fund (DAF) is now the main vehicle for policy lending in Viet Nam[28]. DAF's main functions are to mobilise medium and long-term funds and receive and manage the capital resources of the state that are allocated in the form of development investment credit. Efforts to improve the quality of the DAF system are under way. In April 2004, a new regulatory framework was approved for DAF. It puts this institution under the supervision of the Ministry of Finance (MOF). It restricts its discretion to support projects, by reducing the number of eligible sectors and emphasizing socio-economic returns as a guiding principle. The new regulatory framework also spells out conditions for DAF support and introduces risk mitigating mechanisms such as the mandatory co-funding of projects and the reliance on interest rate subsidies for commercial loans.

During the piloting of the DAF component of the Decree No.62/2004/QD-TTg, a total of 17 piped water supply schemes have been financed. The total loan value up to 30/11/2004 was 62 Billion VND ($US 3.95 million). All of the provinces taking advantage of the DAF credit are situated in the South of Viet Nam including four Mekong Delta provinces, two South East provinces, one province from the South Central Coast and one province from the Central Highlands. DAF credits to the Mekong Delta far exceed lending in the other regions. Thirteen of the 17 water supply projects are located in the Mekong Delta region, with a combined loan value of approximately 31 Billion VND- half of the total loan value. DAF users have included private enterprises, local enterprises, Provincial Water Supply Companies (Cong ty cap nuoc Tinh) and Provincial Water Supply & Wastewater Management

[28] World Bank Report No: 28916-VN on the International Development Development Association Programme Document for the Third Poverty Reduction Support Credit

Companies (Cong ty cap thoat nuoc). The smallest loans through the DAF have been in the order of the 300 to 900 milion VND ($US 19,000 to $US 57,000).

For the moment the knowledge among the private sector, small and medium enterprises, cooperatives and other legal bodies about the availability of funds through the DAF remains low. More needs to be done in terms of IEC to link relevant organisations investing in RWSS sector to this financial source. The WB-funded RWSIHIP will be something of a test case as it will work to link the DAF and other financial sources to organisations planning to invest in piped water supply.

5.2.3 International Donors and NGO Funded Projects

As a source of finance the international donors and INGO projects accounted for 16 percent of all funds directed to the RWSS sector during the period 1999 to 2003. Where present the international donor and INGO projects work intensively with a select number of communes and districts. Due to the high concentration of funds international donor and INGO projects are vulnerable to creating unnatural market conditions. The very high rates of subsidy that are possible on these projects can have negative impacts on the local private sector, especially if care is not taken to ensure that local service providers directly benefit. Moreover dependency on large subsidies from international donor and INGO projects can reduce willingness to pay and engender a culture of passivity in relation to RWSS improvement[29]. Often the use of funds from international projects requires approval from district and/or provincial government. Being governed by provincial pricing books and the 'red stamp' culture makes such projects vulnerable to inefficient use of funds and leakage. These projects often lack flexibility in that communities outside the immediate project target area are often not eligible for project financial support even if they express greater demand than communities within the project area. Finding ways to increase the overall impact of funds provided through international donor and INGO projects should be a priority.

[29] Plan Viet Nam, 2004 Rapid Rural Appraisal Situation Analysis of Six Communes in Quang Ngai Province Viet Nam-Australia NGO Cooperation Agreement Program.

Box 3: Leveraging User Funds through Social Marketing, Financial Incenteves & Knowledge of Water, Sanitation, Hygiene & Health

One way forward for International Donor and INGO funded projects is to move away from high levels of direct subsidy and to use funds in a way that stimulates greater willingness to pay. International Development Enterprises (IDE) have led the way in this regard with their early work on marketing hand pumps (Ikin & Baumann, 2002) and later on sanitation. Instead of financing construction IDE spend most budget to develop commercial quality social marketing campaigns. These campaigns fuel demand for the services and technologies of hand pump and latrine related supply networks. The result is a rapid growth in end-user financing of domestic hand pumps, tube-wells and latrines. Other INGOs are now following a similar track, integrating social marketing and promotional approaches with the use of modest incentives (e.g. Plan Viet Nam in Quang Ngai; UCODEP in Phu Tho). Similar to the work of DANIDA all of these NGOs have in common the fact that significant project resources are used to train, resource and build capacity of the village health workers, mass organization cadres and other volunteers to be effective communicators and facilitators capable of engaging people in discussion and analysis of water supply, sanitation, hygiene and health issues.

5.2.4 Private Sector Investment

Both **Private Enterprises** and **Cooperatives** are legal entities established in accordance with the Corporate Law meaning that they are expected to pay corporate tax at a rate of 32%. Legal economic entities establishing increased presence in the rural water supply and sanitation sector as primary investors include Joint Stock Companies, Limited Liability Companies, and public utilities. For small water supply systems and water supply systems that are largely financed by users, this rate of tax is unreasonable of cooperatives and is potentially financially unsustainable and unattractive for private enterprises. In Tien Giang province it has been found that for a private enterprise to make piped water supply economically viable the scheme size really needs to be no less than 1,500 households. Some private investors raise capital from users, but provide a reduced water tariff until such time as the user 'investment' is repaid (Salter, 2003).

5.2.5 Commercial Lending Institutions

DANIDA has had experience of using the Viet Nam Bank for Agriculture & Rural Development (VBARD) as a source of credit for households to invest in improved water supply and sanitation. VBARD was expected to be the main financing channel for RWSS on the DANIDA pilot projects in Dak Lak, Ha Tinh and Nghe An but in practice its new commercial approach has not been found to be compatible with the lending needs of the project's target group. The interest rate (over 12% per year) is too high and the period of repayment has been too short. DANIDA has learned that for non-productive uses households are not willing to take loans that have high interest rate with relatively short payback period.

Complicated loan application procedures through banks discourage rural households from applying for loans and for very poor households there are issues around collateral that make it difficult or impossible to take loans. Another major problem with the commercial banks is that for the preferred model for community managed water supply, following the Cooperative Group model set up under the civil code, the operators cannot easily obtain bank loans because ownership is not clear and they are not considered legal entities. Any future attempt to direct finance through the existing banking system would still require external support to promote RWSS and the mechanism itself, as the banks themselves probably cannot take this upon themselves.

5.3 Conclusions

Financial mechanisms have been used to prioritise the development of piped water supply schemes to the detriment of sanitation. There are many reasons for this including responsibility for it is divided in different ministries, such as MOH, MOET and MARD, CERWASS's capacity and technical preference, and the trend for households to self-finance sanitation and utilise local private entrepreneurs and trades people. The result is that sanitation targets are not achievable and opportunities lost to improve the health of villagers, especially disadvantaged groups. Sanitation and hygiene are the key areas where major health improvement impacts can be achieved.

The trend in government policy towards financial mechanisms is to provide access to favourable credit terms with fixed amounts and repayment periods for a range of stakeholders and users. So far, the implementation of these policies has revealed some major problems. There is very limited monitoring of household loans by bank officials who are not familiar with conditions in each commune and are not technically trained. Commune officials do not have the responsibility to monitor loans. Villagers only get access to the information about loans if the province has developed information flows. In some provinces, information is kept at the provincial level and lower levels lack access, which is a lost opportunity for villagers. Capacity of local officials in financial management is low and they have little incentive to develop demand driven processes that would increase the leverage of resources dedicated to RWSS. Officials lack the capacity to target many of the disadvantaged households that critically need access to loans and grants to improve clean water and sanitation. Cooperative groups cannot access loans, yet they provide a sustainable and practical model to develop RWSS.

Householder contributions have focused on construction and there has been a lack of investment in operations and management. Additionally, investment has concentrated on construction of new water schemes and not invested in the repair and maintenance of existing schemes. Lending institutions consider these trends a critical problem. If after a few years of operations, the quality and reliability of the service is reduced, then users will not pay water fees, and borrowers will be unable to repay loans.

Self investment by users has not been reached, especially in terms of the potential for medium and low income households. Their involvement in the sector and the mobilisation of financial commitments from a large segment of the rural population is being inhibited by a lack of access to credit with favourable loan conditions. Encouraging greater levels of self investment in sanitation facilities, especially hygienic latrines, is being limited by the lack of credit but perhaps equally importantly by the lack of effective sanitation promotion and marketing combined with the use of modest financial incentives and a more effective programme of awareness raising on the health and hygiene benefits of sanitation and hygiene.

Experience so far in leveraging financial resources from end users has had mixed success. A number of international donor and INGO projects in Viet Nam have demonstrated that significant funds can be leveraged from end users. However the scale of these projects has been small. Projects that have been comparatively successful in leveraging resources from communities to invest in sanitation improvements in rural Viet Nam include but are not limited to Ucodep in Phu Tho, IDE in Thanh Hoa and Quang Nam, DANIDA in Nghe An and Ha Tinh, etc.

The combined experience of these projects and others is that leveraging resources from households and communities sufficient to meet the initial high investments for RWSS improvements requires **better links with wider financial systems** including housing finance and micro community based finance systems. I DE has emphasised the use of **social marketing approaches** and the introduction of **low cost sanitation models** and a **strengthened small scale private sector** as a way of making sanitation and water supply more of a priority with consumers as well as help make affordable models readily available. Meanwhile Ucodep has experimented with decreasing rates of **construction incentives** combined with social marketing methods as a way of leveraging significant user investment. On piped water supply the private sector has considerable potential but, in practise, has difficulty accessing loans. The barriers and opportunities in developing the private sector are examined in the next Chapter.

Chapter

6

The Role and Potential of the Private Sector

6.1 The Status of the Private Sector

The private sector[30] is becoming a major focus of attention in a sector that finds itself struggling to cope with the demands set by ambitious national targets with limited resources. The private sector is viewed as a way to scale-up RWSS activities, through their contribution of manpower, investment, and service provision. But there is currently poor institutional understanding about the private sector; their scale, activities, and most importantly, how to best work with them to expand their involvement. However, while the private sector is presently the main provider of small-scale water and sanitation for villagers, there are significant barriers for developing private business activities in the provinces.

Developing private sector involvement in RWSS is a key principle of the National Rural Clean Water Supply and Sanitation Strategy (NRWSSS). The strategy promotes the 'socialisation' of RWSS and encourages organisations and individuals to participate in developing the rural clean water supply and hygiene. It promotes the development of policies which have the general aim to phase out the GoV's direct involvement in building and operating RWSS facilities. Polices include transparent tax regimes, a regulatory environment that creates a level playing field for the development of the private sector and incentives that attract entrepreneurs to the sector and encourage them to increase investments: *"in order to encourage organisations and individuals to participate in developing the rural clean water supply and hygiene"* as part of Decision No. 104/2000/QD-TTG that approved the NRWSSS. This Decision emphasises that the *"strong development of the private sector, creating conditions for abolishing subsidy mechanisms and for socialising RWSS"* is needed for the sustainable development of the sector. Similarly, the general approach of the strategy (page 13) states that:

> *"Socialisation of RWSS is to…create legal basis for the mobilisation of active participation and contribution of all economic sectors and all communities in financing, construction of facilities, production of equipment and spare parts…Government encourages private sector to*

[30] a dictionary of economics defines the private sector as, "that part of the economy in which ecomonic activity is carried on by private enterprise as distinct from the public sector. The private sector includes the personal sector and the corporate sector "

invest in and construct RWSS facilities…The market for RWSS services will be developed under the government's orientation."

Advancing private sector involvement in the sector is consequently a key component of the strategy, and in particular is the means through which the overall goal of phasing out government's direct involvement in building and operating RWSS facilities is to be achieved. This strong focus on the private sector has, however, not been followed through in the implementation of the strategy. In particular, in most provinces there has been little or no involvement of the private sector in the implementation of either the NTP or the main donor-assisted programmes except as contractors to construct government-funded and planned facilities. Nor is it an issue that generally captures the attention of many stakeholders in the sector at the national level: the extremely limited information available on private sector involvement reflects this. Defining mechanisms to advance private sector participation (and especially the involvement of small entrepreneurs) was identified as a key strategic issue in many discussions undertaken as part of this Review.

If the definition of private sector includes all the business entities that are involved - large, small, informal, and formal, then their combined activity likely exceeds that of Government, Donor, and Civil Society combined. This is true both in terms of the physical numbers of water and sanitation services and technologies provided, as well as total financial transaction, which is provided by a fee-paying consumer base. Public and private involvement in the development of the private sector varies across provinces and depends on factors such as the natural conditions, the political will of leaders to create a conducive business environment, provincial strategic planning processes and institutional arrangements, issues such as access to finance and capacity and, most importantly, local demand and willingness to pay.

Reconciling social and economic goals influences the role of the private sector, which has limits in responding to only social goals. Regulation and the application of regulations are the mechanisms to ensure access to good quality water and sanitation to the community. However, regulation needs to balance these social needs with establishing and maintaining a business environment that ensures entrepreneurs invest in the sector and make a profit margin which encourages their continued presence in the market and increase their investment[31]: put simply, the private sector will not develop where there are not adequate incentives for it to do so.

[31] Dan Satlter, "Tapping the Market: Private Sector Financing of Rural Water Supplies in Cambodia and Viet Nam", WPS Hanoi: 2003

The private sector responds to local demand, which is focused on the availability, reliability and price of water. The quality of water is often not a significant factor. Water is generally accepTable to users as long as it appears clean with no smell or obvious taste. The chemical composition of the water is not an issue until some physical effects occur, such as sickness. It is essential, however, that adequate safeguards exist to ensure that a minimum level of water quality exists: this is one of the key regulatory issues for the future of the RWSS sector in Viet Nam.

In the water supply sector, private enterprises can be broadly categorised into two groups. Firstly enterprises that provide services and technologies for consumers to source, purify, store, or pump water themselves hand pumps, rain water storage jars, well-drilling services, pipes and filters, water purifiers, etc. Secondly, enterprises that sell water directly to end users piped-water scheme operators, and informal suppliers that transport water and sell it 'door-to-door', usually by the cubic meter. For sanitation, a similar division could be made village masons or construction companies employed for the construction of latrines or piped-sewage and treatment systems, and enterprises that are contracted to manage waste treatment, or periodically pump septic tanks.

Thus the private sector encompasses a broad range of product and service provision, which in some cases is financed by end-users themselves, and in others, by institutional resources through contracted services. These variations need to be considered when designing strategies to work with the private sector. It is simply not possible to define a one-size-fits all approach. The simplest arrangements are where institutional resources are used to contract private sector for construction. However to work through private sector when consumers are paying for the services is more challenging hand pumps, latrine construction, water storage providers etc. In this case, the private sector is not in need of direct financial support, but rather marketing strategies that encourage end-user investment and expand their consumer base.

A key issue for the future development of the sector is how to establish an effective relationship between government agencies and the private sector in which the roles of each are clearly differentiated. There is some limited experience in this (see box 6 on Quang Nam Province), but further sustained efforts to develop these synergies are one of the issues of most pivotal importance for the future development of the sector.

Box 4: Small-Scale Private Sector Regulation in Quang Nam

In Quang Nam province, IDE and PCERWASS undertook a programmeto promote the purchase of domestic water sources through a marketing programme, and in parallel develop capacity to respond to the increased demand for hand pumps on drilled tube-wells. After the launch of the marketing program, the demand grew rapidly and the five drilling teams of PCERWASS were unable to cope, and were not located in the rural areas where the demand was emerging. IDE and CERWASS established, trained, and certified a network of 44 private sector teams to manage the workload and continue to provide hand pumps on an unsubsidized basis. The licensed private sector reported all their sales on a monthly basis to CERWASS who made occasional quality inspections. This system has the following advantages. It enabled the expansion of service provision to meet a rapidly increasing demand; CERWASS maintained a knowledge base of all the pumps installations, CERWASS were able to manage quality control, and the private sector used the licensing to legitimize their businesses and help them to promote their quality services in their local areas. Over a period of four years, 8,200 pumps were installed in Quang Nam province through the CERWASS certified private sector.

Source: IDE, 2004

6.2 Scope and Method of Field Evaluations

This Chapter of the report explores in depth the contention that increased private sector involvement would result in substantial improvements in the efficient development of RWSS and help achieve national goals outlined in strategies such as the NRWSSS and VDGs. This involves examining the barriers and opportunities for private business to enter the market. Local demand and potential for the development of the private sector varies across provinces and depends on factors such as the prevailing physical conditions, the legal and regulatory environment and financial arrangements. There is little information on this issue, so rapid field assessments of the role of private service providers was undertaken in five provinces: An Giang, Dak Lak, Quang Tri, Vinh Phuc and Bac Ninh. These provinces represented 5 of the 8 regions in Viet Nam: Mekong Delta, Central Highlands, Central Viet Nam, Northern Midlands and Red River Delta.

To collect provincial data and information about the private sector, meetings were held with provincial departments including the Department of Planning and Investment, the Department of Agriculture and Rural Development and the Centre for Clean Water and Environmental Sanitation. Mass organizations, such as the Women's Union and Farmers' Union were consulted. Decisions about districts and communes to carry out the fieldwork were made in consultation with the provincial People's Committee (PPC). The PPC also provided information about present RWSS priorities, regulatory and policy directions for the private sector in the province. Managers and staff of private sector enterprises were interviewed. Meetings were held at district level to identify the role and activities of private sector actors. Specific data and information for each research site was collected from the

district and commune PC. Meetings were held with commune officials to explain the objectives of the study, identify local private sector activities, discuss the role of the commune in developing the private sector and identify barriers and opportunities, and select villages for the study.

In each province, fieldwork was conducted in 1 district, in 2 communes and 3 villages within each commune. One rich income village, 1 average village and 1 poor village were selected. In each village, small group discussions were conducted with groups of rich villagers, women, farmers and the poor. Comprehensive interviews were held with between 6 and 12 households in each village.

The Review Team examined reports and other materials related to the role of the private sector in RWSS. These reports and materials were collected from ministries, donors and INGOs. The Review Team also examined reports regarding the status and advancement of the private sector in Vietnam, in general. Interviews were conducted with representatives from donor organisations, RWSS project leaders and staff, INGOs and government offices, such as the Bank for Social Policy and the Development Assistance Fund. The conclusions of these studies are presented here.

6.3 Taking Stock of Policies Related to RWSS

Presently, many of the policies, programmes and laws related to RWSS are under review by both government and donor sponsored teams. The GoV is preparing for the 2006-2010 socio-economic development plan, the main strategy document outlining policy directions and priorities. Results from donor sponsored teams are providing policy advice to GoV institutions and helping donors reorganise their programmes to have the greatest impact. The GoV and donor sponsored Joint-Review Team is utilizing results from these teams to help develop a Strategic Plan for the sector and a MoU. Early indications from the Review Teams indicate that present implementation modalities have not delivered planned outcomes.

Firstly, the National Target Programme (NTP) for RWSS is the primary tool for the GoV to achieve, and monitor progress towards the targets set out in the NRWSSS. Two Review Teams, including one inter-ministry team and one team of national consultants commissioned by MARD, are in the process of assessing the NTP. Additionally, PCERWASS from the 64 provinces provided detailed assessment reports on results and constraints in implementing the first stage of the NTP. Initial results indicate that sanitation targets were not made a priority and development in

this sector has been marginal. Implementation has been target driven at the expense of other principles in the NRWSSS such as enhancing community awareness, advancing the private sector, long-term institutional change and developing economic and other forms of sustainability. According to the Review Teams, there will be substantial changes to the second stage of the NTP due to begin in late 2005[32]. These include significant changes to institutional structure, the inclusion of detailed instructions on how to implement the programme to achieve the comprehensive targets outlined in the NRWSSS, and develop regulations that encourage financial investment and the 'socialisation' of the sector. Interestingly, the role of the private sector was not presented in the reviews' recommendations, even though it holds the greatest potential to develop the sector[33]. Officials and other stakeholders are not familiar with the role that the sector could play in programme implementation.

Secondly, officials at national level indicated that NTP135 was under consideration to support the development of RWSS. The programme is focused on developing village and commune infrastructure in remote areas. They believed that integrating government investment in RWSS with 135 would ensure that investment in RWSS was poverty focused and increased opportunities for the development of the small-scale private sector. Officials expected the policy changes to create an environment for small business supporting local masons and entrepreneurs in poor and remote communities, the areas most in need of RWSS.

However, findings from a recent national review of 135 sponsored by the Ministry of Labour, Invalids and Social Affairs (MOLISA) and UNDP showed significant problems in implementing the programme. For example, despite the programme's intention of decentralizing decision-making to the commune, most districts still manage the planning, implementing and monitoring of programme activities. In 2003, only 385 out of 2,362 (16%) of the poorest and remote communes in 20 of the 49 provinces under the programme were 'investment holders' of the infrastructure project[34]. Where management has been devolved to the commune, expenditure plans still require approval from district and provincial levels, which may change the plans during the approval process. The limited capacity of officials and village leaders is often referred to limit the pace of decentralisation. However, little effort has been made to improve this situation. Less then 1% of the programme's budget was allocated to cadre training. Each commune in the programme receives 500

[32] Some senior GoV officials indicated that it is possible that the NTP will be terminated but did not say the structure of the programme that would be its replacement.

[33] MARD, "Review Team Preport on the Results of 5 years Implementation of the NTP for RWSS", Hanoi: Dec. 2004

[34] MOLISA & UNDP, "Taking Stock, Planning Ahead ", Hanoi: Nov. 2004

million VND/year. Communes with larger populations, or with more of the poor, receive the same amount as communes in less difficult circumstances, even though they have greater infrastructure needs.

Thirdly, the 1999 Enterprise Law solidified the official recognition of the rights of all citizens to do business by explicitly stating that, "Citizens are entitled to conduct all business lines that are not prohibited by laws"[35]. It provides a legal foundation for the private sector that clearly defines the rights and authorities of the state and investors. The Law provided an essential framework for establishing enterprises and investments in RWSS. However, there are limitations. These include SOEs and private enterprises are regulated by different legislation, which results in different ownership forms treated differently, and insufficient and weak shareholder rights. The Law will be reviewed in 2005 and it is hoped that changes will help to resolve the contradictions that are presently limiting the development of private sector enterprises in RWSS.

The GoV will utilise these findings to adjust the programme for the upcoming five-year Socio-Economic Development Plan, but unless significant changes are made to the modalities used to implement the programme, it is difficult to perceive that it will greatly improve the realisation of NRWSSS principles, especially relation to expanding opportunities for the private sector to become a more significant player in the development of the sector. This expanded private sector participation has great potential and is fully in accordance with the key NRWSSS principles of demand-led approaches and the increased socialisation of the sector. Enhancing the realisation of these principles has been identified as a key goal by all stakeholders in the consultations undertaken as part of this Review, including senior GoV decision-makers. To date, although the limited evidence available demonstrates the existing importance of small scale private sector activities in the sector, these activities have in general operated completely in isolation from the main GoV and donor activities in the sector. Actions to change this and integrate the private sector in any future core national programme are a key priority for the development of the sector.

6.4 The Private Sector in Viet Nam

In 2002, total capital of enterprises in Viet Nam was structured; 58% from SOEs, 28% from foreign enterprises and 14% from private Viet Namese businesses. The

[35] CIEM, "High Time for Another Break through", Hanoi: Nov. 2004

private sector is more labour intensive than state or foreign companies. Of about 34 million people working in the non-state sector, 32 million are in household businesses and agriculture. Formal private companies and SMEs employ only 500,000 or 1.5% of the labour force[36]. The private sector is still quite limited and consists of:

1. Household enterprises, often of micro-size, mostly involving small-scale trading, household farming and services.
2. Domestic private firms, mostly small and medium-sized enterprises often called the "the formal private sector" and mainly involving household farming, small shops and food processing.
3. Foreign enterprises.

6.4.1 Private Sector Involvement in RWSS

Organisations in the private sector include non-state joint stock companies which operate at the provincial level and sometimes tender for contracts in neighbouring provinces. These companies provide consultancy services, construction, and sell materials and water Limited liability companies operate within districts, communes and villages. These companies focus on construction of small-scale piped schemes.

Cooperatives operate within communes and serve villages, and often manage the piped water schemes or tender for small contracts. They seldom provide consultancy or sell materials. Some production groups/brigades still remain and are remnants of the collectivisation era. Informally, villagers in the commune decided to continue their cooperation and operate in areas, such as work teams of masons or builders.

Cooperative groups are legally constituted under the Civil Law Code and operate at village level. Households contribute funds to the group for construction of the scheme. These groups also often provide labour during scheme construction and manage the piped scheme after completion. Mutual aid groups are informal arrangements between neighbours who want to resolve RWSS for mutual benefit without the expense of hiring labour. They are informal groups and operate without money changing hands. Neighbours cooperate and devise a work plan for mutual benefit.

[36] UNDP, "Country Evaluation: Assessment of Development Results-Viet Nam ", UNDP Evaluation Office, 2004

Household enterprises focus on the sale of materials for construction and small scale contracts. Household enterprises living close to district towns also often sell hardware, such as latrines and hand basins. Other households provide skilled trades, such as masons and well drilling. Individual households also self-finance and construct to resolve RWSS issues. For commune owned schemes, a tendering process is used to decide local management of the scheme. Cooperatives, cooperatives groups and household enterprises tender for the service contract with the commune PC. Below is a set of Tables from data collected from 4 provinces that outlines the status of the private sector in RWSS.

Table 26: Private Sector Involvement in RWSS by Activities in Quang Tri

Criteria	Joint Stock Co.	Ltd Liabil Co.	Joint Vent.	Coop.	Product Teams	Coop. Groups	HH & Mutual Aid Groups
Production of materials and equipment	X	X	O	X	O	X	X
Supply of materials and equipment	X	X	O	X	X	X	X
Technology and know-how transfer	X	X	O	X	X	O	X
Consultancy and market promotion	O	O	O	X	O	X	X
Credit, security, real estate services	O	O	O	O	O	X	X
Construction contracting	X	X	O	X	O	X	X
Sub-contracting	X	X	O	X	X	X	X
Maintenance services	X	X	O	X	X	X	X
Water Scheme Management	X	X	O	X	X	X	X
Health care services	X	O	O	O	X	X	X
Construction & maintenance	X	X	O	X	X	X	X
Information, education and communication (IEC)	O	O	O	O	X	X	X
Water schemes construction	X	X	O	X	X	X	X
Sanitation works	X	X	O	X	X	X	X

Source: National RWSS Review Survey, October 2004
X: involvement in the activity 0: non-involvement in the acitivity

Table 27: Private Sector Participation in RWSS in Quang Tri

Non-state joint stock companies	3
Limited liability companies	2
Non-state joint ventures	0
Cooperatives	1
Service, production and business teams	3
Cooperative groups and associations	11
Households and other small-scale self-management private businesses	NA but very popular

Source: National RWSS Review Survey, October 2004

Table 28: Private Sector Involvement in RWSS by Activities in Dak Lak

Criteria	Joint Stock Co.	Ltd. Liabil Co.	Joint Vent.	Coop.	Product Teams	Coop. Groups	HH & Mutual Aid Groups
Production of materials and equipment	X	X, 90%	X	X	O	X	X
Supply of materials and equipment	X	X, 80%	X	X	X	X	X
Technology and know-how transfer	X	X	X	X	X	O	X
Consultancy and market promotion	O	O	O	X	O	X	X
Credit, security, real estate services	O	O	O	O	O	X	X
Construction contracting	X	X, 80%	O	X	O	X	X
Sub-contracting	X	X	O	X	X	X	X
Maintenance services	X	X, 50%	X	X	X	X	X
Water Scheme Management	X	O	O	X	X	X	X
Health care services	O	X	O	O	O	X	X
Construction & maintenance	X	O	X	X	X	X	X
Information, education and communication (IEC)	O	X	X	O	O	X	X
Water schemes construction	X	X	X	X	X	X	X
Sanitation works	X	X	X	X	X	X	X

Source: National RWSS Review Survey, October 2004.
X: involvement in the activity , O: non-involvement in the activity

Table 29: Private Sector Participation in RWSS in Dak Lak

Non-state joint stock companies	12 but 2 focused 100% on RWSS
Limited liability companies	30
Non-state joint ventures	1
Cooperatives	18
Service, production and business teams	3
Cooperative groups and associations	35 focused 100% on RWSS (estimated 15,000 groups in province
Households and other small-scale self-management private businesses	NA but very popular

Source: National RWSS Review Survey, December 2004.

Table 30: Private Sector Involvement in RWSS by Activities in Vinh Phuc

Criteria	Joint Stock Co.	Ltd Liabil Co.	Joint Vent.	Coop.	Product Teams	Coop. Groups	HH & Mutual Aid Groups
Production of materials and equipment	X	X	X	X	O	X	X
Supply of materials and equipment	X	X	X	X	X	X	X
Technology and know-how transfer	X	X	X	X	X	O	X
Consultancy and market promotion	O	O	O	X	O	X	X
Credit, security, real estate services	O	O	O	O	O	X	X
Construction contracting	X	X	O	X	O	X	X
Sub-contracting	X	X	O	X	X	X	X
Maintenance services	X	X	X	X	X	X	X
Water Scheme Management	X	X	O	X	X	X	X
Health care services	O	O	O	O	X	X	X
Construction & maintenance	X	X	X	X	X	X	X
Information, education and communication (IEC)	O	O	X	O	X	X	X
Water schemes construction	X	X	X	X	X	X	X
Sanitation works	X	X	X	X	X	X	X

Source: National RWSS Review Survey, October 2004, X: involvement in the activity, O: non-involvement in the activity

Table 31: Private Sector Involvement in RWSS by Activities in Bac Ninh

Criteria	Joint Stock Co.	Ltd Liabil Co.	Joint Vent.	Coop.	Product Teams	Coop. Groups	HH & Mutual Aid Groups
Production of materials and equipment	X	X	O	X	O	X	X
Supply of materials and equipment	X	X	O	X	X	X	X
Technology and know-how transfer	X	X	O	X	X	O	X
Consultancy and market promotion	O	O	O	X	O	X	X
Credit, security, real estate services	O	O	O	O	O	X	X
Construction contracting	X	X	O	X	O	X	X
Sub-contracting	X	X	O	X	X	X	X
Maintenance services	X	X	O	X	X	X	X
Water Scheme Management	X	O	O	X	X	X	X
Health care services	O	O	O	O	X	X	X
Construction & maintenance	X	X	O	X	X	X	X
Information, education and communication (IEC)	O	O	O	O	X	X	X
Water schemes construction	X	X	O	X	X	X	X
Sanitation works	X	X	O	X	X	X	X

Source: National RWSS Review Survey, October 2004; X: involvement in the activity , O: non-involvement in the activity

The Tables above present research findings that outline trends in the development of the private sector in 4 provinces: Quang Tri, Dak Lak, Vinh Phuc and Bac Ninh. These findings indicate that provinces vary in their capacity to attract FDI for RWSS. For example, in Quang Tri and Bac Ninh no joint ventures operated in the market, while Dak Lak and Vinh Phuc have attracted much FDI but focused on the supply of quality hardware materials and technology transfer. Reasons for this include Vinh Phuc's close proximity to markets in Hanoi and fast rate of industrialisation have created a demand for clean water supply, and in Dak Lak, rising incomes from coffee production combined with IEC from the NTP and DANIDA have increased local demand for quality materials and water service.

Credit, IEC and health care are predominately small scale and handled within the commune by cooperatives, cooperative and mutual aid groups and households. Consultancy for system design is predominately in the public sector domain. Production and supply of materials is conducted by large, medium and small enterprises. The large enterprises at provincial level sell wholesale hardware products and materials, while the medium and small scale enterprises in the districts retail hardware and materials. Commune level businesses concentrate on selling raw materials for construction. Water scheme management is carried out by large, medium and small scale business. Large and medium scale companies managing the provincial and district centres, while the cooperatives, cooperative and mutual aid groups and household enterprises managing the small-scale schemes in the communes. Cooperative groups tend not to participate in the technology transfer market. In contrast, household enterprises are active in the market. It appears cooperative groups are active as consumers of new technology but there are barriers for these groups developing a role in the supply market.

6.5 Barriers and Opportunities in Development of Private Sector in RWSS

6.5.1 Natural Conditions

Barriers: natural conditions provide a variety of sources of water such as rainwater, groundwater and streams and rivers. Users utilise which ever source will give the greatest benefit at a particular time. For example, during the wet season in An Giang, villagers used rainwater for the house and stored water in jars for use later. During the dry season, villagers relied on river water for the house. The result is an unstable water market. It is difficult to establish a fixed price regime for water in areas where users have the opportunity to easily change their source of water. Investors are not guaranteed reliable returns because users could decide at any time not to buy water from them, instead using rainwater or groundwater, which was the case in Vinh Phuc and Bac Ninh. This also has health implications. Water quality is not guaranteed or monitored. Private investors in schemes don't want the extra expense and there is not the local demand. Extra expense will increase the price of water, which increases the propensity of users to switch sources.

Users using household sources of water, such as wells and water jars, are extremely vulnerable to health problems. For example, in Bac Ninh and Vinh Phuc, users rely on simple methods to check the quality of water. Users drop a green banana or tea leaves into the water. If the clear water changes to a black inky colour, then the water is polluted and unusable in the house. This quick test indicates traces of some health affecting chemicals but not all. Research in Vinh Phuc indicated that in the 2 communes under study nearly 100% of women had some form of gynaecological complaint with most cases related to the use of polluted water. Other provinces also had high percentages.

Box 5: Small Business Saves on Water Costs in An Giang

A small business household producing rice wine at Thanh My Tay commune, Chau Phu district, An Giang province - utilises both clean water supplied by the provincial Water Company and water from the canal. This household has 9 people with 6 working in the business, and the demand for water is high. To reduce expenditure, they pump water from the canal into a storage tank where it is cleansed using alum. This source of water is used for bathing, washing, etc. The clean water from the piped scheme is only used for cooking.

For rice wine production, they use the cleansed river water to wash the rice, and then use water from the piped scheme during the fermentation process. This cuts costs quite significantly.

Source: National RWSS Review Survey, October 2004.

In Vinh Phuc, wells are dug to a maximum of 30 meters where there is a solid rock pan. This water is often polluted, causing significant health problems and the source is dry for 3 to 4 months a year. During the dry season, villagers draw water from the river for the house or ask for water from households that have wells that are not dry. Recently the provincial Department of Agriculture and Rural Development (DARD) organised a drilling rig equipped with new technology and capable of drilling through the rock to sink 3 wells in 1 commune in the study area. In the 3 test sites clean water was found at 80 meters. The problem is that entrepreneurs are not able to mobilise the finance to purchase the new drilling equipment, the economic risks are high, there is a lack of local government support for the private sector, and the high cost of each well (2 million VND) would prohibit most households from making the investment without access to credit.

Box 6: Need to Provide Private Sector Operators Access to New Technology

In Viet Tien commune, Vinh Phuc province, Mr. Trung has been drilling wells for local villagers since he left the army in 1992. His initial equipment cost 6 million VND. Presently, it takes him 1 day to drill a 30 meter well and he employs three people to operate the equipment. His gross income for the day is 120,000 VND, which means he and his workers make 30,000 VND each for the day's work. He lamented that this was not enough to pay bank interest on his loan.

Mr. Trung needs to access credit so he could purchase a modern drilling rig so he could manage operations himself and drill to 80 to 100 meters for clean water.

Source: National RWSS Review Survey, October 2004

Opportunities: prevailing natural conditions in two communes in Ben Tre provided private traders the opportunity to establish and manage small-scale piped systems that draw clean water filtered through the sand dunes along the coast. Clean water is provided cheaply to the community with the poor receiving financial support from village leaders and local authorities.

In contrast, in Kien Giang villagers need to drill from 200 to 300 meters for water that can be used for washing clothes and bathing but unsafe for drinking. The cost for a well and the limited benefits restricts household investment but it provides the economic opportunity and conditions for private entrepreneurs to establish small-scale businesses. Villagers must decide whether to use contaminated water for living or pay for water from owners of the few clean water wells or from water delivered by boat or motor-bike. The unavailability of multiple sources of cheap water also has created the conditions for the establishment of small-piped schemes in many communes and towns. Entrepreneurs are confident of good profit.

6.5.2 Legal and Policy Framework

Barriers: in the five provinces under study, significant changes have occurred because of laws on decentralisation and public administration reform but there are still remnants of the centralised system and top-down characteristics. Even though the private sector contributes substantially to the development of RWSS, regulations and policy is focused on maintaining a process to implement the planned investment of state resources issued by the Ministry of Planning and Investment (MPI), and not as instruments to guide and control public and private investment.

The result is that provinces issue regulations inconsistently or do not issue required regulations that would encourage the private sector. For example, in Tien Giang, a

province where private companies serve 60% of the 1.6 million population[37], provincial leaders issued regulations that prohibited private investors from raising capital from intended users of the scheme, but allowed water cooperative groups and cooperatives to do so. Companies that had received investment capital from users were required to return the money[38]. Additionally, this signalled to private traders in Tien Giang and other provinces to view their activities short-term. Regulations that support their activities today may change significantly in the near future. In Quang Tri, officials recognised the important benefits of private sector involvement in RWSS and encouraged development by informally exempting traders from taxes, monitoring and regulations. However, with no clear regulations issued by the province, this is a temporary solution to the problem and provides short-term results. A transparent and regulated process would encourage private traders to invest for the long-term and improve their response to local demand.

In contrast, in An Giang, provincial leaders have issued regulations to encourage the development of private sector traders in RWSS[39]. As a result, 36 of the 123 small piped water schemes are privately owned. However, some of these companies are going bankrupt. They can not compete with the state-owned companies. Reasons include the high cost of equipment and materials, which limits the profit margin. The price of water is regulated by the province with a ceiling price of 3,000 VND/cubic metre, which limits the scale and expansion of the private sector.

Private traders in An Giang focused on providing water to high population areas and using temporary installation equipment. This made it easier to change the route of the network but water from this type of scheme was usually of low standard and susceptible to contamination. A trend emerged. Private traders provided temporary water service. When water from a state-owned company became available, users closed their business with the private trader and connected to the state-owned system, which they believe to be more hygienic and reliable. Private traders then shift their business and equipment to new areas and continue conducting business. However, the easy access areas where many people in the community can afford water are now in short supply forcing water traders to isolated and poorer areas. The result is that with a fixed ceiling price then supply has exceeded demand. Some traders have left the market already and the poor in isolated and remote areas suffer.

Provincial tax policy was indicated by private water supply companies as a major

[37] Dan Salter, "Tapping the Market: Private Sector Financing of Rural Water Supplies in Cambodia and Viet Nam ", WSP Hanoi: 2003

[38] PPC Tien Giang, Decision 2420/1998/QDUB, 8.9.1998, Articles 30-31

[39] PPC An Giang, "Final Report for 10 Years of Implementing the Rural Water Supply, Sanitation and Environment Programme (1993-2003) ", 24.3.2004

impediment to the development and further investment in the private sector. Small-scale household traders often operate without paying tax. If they scale up activities and register as an enterprise, they would be obligated to pay a range of taxes, including land, income, revenue, VAT, sales and asset taxes. However, Tien Giang issued regulations that made the tax payment system less complex and provided favourable tax conditions for the private sector. Private traders were instructed to pay an aggregated tax of 3.5%.

In Vinh Phuc, villagers indicated that monitoring and enforcement of regulations was essential for the development of RWSS, pollution reduction and protection of the environment. Without coercion by local officials, villagers would not change patterns of behaviour that was having such a negative impact on the local environment.

In addition, there are common areas in communes that are significantly polluted and influencing the health of villagers. There is a lack of political will by officials to regulate, monitor and enforce regulations to reduce the pollution and change behaviour. During collectivisation there were clear guidelines on local management of all areas within the commune. In this new era, there are common areas in communes that are not effectively managed. These areas are regularly and heavily polluted affecting surface and groundwater sources. Research indicated that rich and average income households generally did not pollute around the house, while the focus of poor households was on food security and not on good WATSAN practise. However, most households in the community abused these common areas. This was especially the case in communes that specialised in cottage industries, such as furniture and rice wine in Bac Ninh. The focus of IEC is on increasing awareness of households in the community but the impact of this knowledge on the responsibilities and management of local common areas is limited.

Opportunities: in June 2004, the Prime Minister issued Decree 8/ND-CP outlining reforms in state management between central and provincial governments. The objective of the decree is to further clarify the roles, responsibilities and control of central and provincial levels of government and improve coordination between the levels of government. The decree prioritises reforms in budget management, land and natural resource management, the management of state owned enterprises and public services. These reforms will help improve the implementation of law and policy at the provincial level and increase the economic space for the private sector to operate. Expected changes to the Enterprise Law will provide the private sector the institutional models and guidelines to more effectively interact with SOEs and

increase their share of the RWSS market. Presently, there are limited effective local water management models the cooperative group and cooperative work in some areas but not others. A legal environment is needed that promotes a range of flexible corporate bodies in the public and private sectors to respond to prevailing conditions across the country.

6.5.3 The Planning Process

Barriers: in the five provinces under study, there is a significant lack of provincial level strategic planning to develop the private sector in RWSS. Officials have limited knowledge and skills to respond to the technical, financial, and managerial demands of planning in a market based economy. While the NRWSSS promotes an integrated approach and the utilisation of the private sector to respond to local demand, in practise, provincial RWSS planning and implementation is more influenced by financial subsidies through the National Target Programme (NTP) and meeting centrally determined provincial targets outlined in the Annual and Five Year Socio-Economic Development Plans. This planning process is less effective and does not create the conditions for strategic decisions using available human and material resources. For example, a recurrent problem is the lack of budget to fulfil provincial targets and objectives. Provinces in this study indicated that to implement provincial RWSS targets would require approximately 30 billion VND, while the available budget was limited to 5 billion VND. Incorporating the private sector in short and long-term planning would help fill this budget gap.

At the district level the development of RWSS and the private sector are not included in strategic planning. For example, in Huong Hoa district in Quang Tri province, officials indicated that they understood the critical situation with RWSS in the district but did not include it in district planning. The district plan follows provincial guidelines which allocate no budget to the RWSS. Without provincial directives or budget, the district can not actively respond to local demand. The private sector in the district was household based and active in small-scale activities, such as well drilling and the sale of materials. The district had no plans to create the conditions to develop the sector. Officials believed that the present role of the private sector was appropriate to local demand and that the scaling up activities would not benefit the community and be difficult to manage, regulate and monitor.

The commune administration is a major bottle-neck in the development of the private sector. This level is not involved in the provincial planning process but reports to district level the status of the sector, results of project implementation and

recommendations for investments. This limits the inclusion of priorities derived through demand driven into the planning process. Information regarding access to different credit sources, technology etc. does not reach the commune level. Cadres are not experienced in developing the private sector using tools such as social marketing and market chain analysis. The commune's main role is to provide a legal stamp for formal applications, such as credit and the formation of cooperative groups. In this environment, scaling up of small-scale activities is difficult.

Opportunities: in April 2004, The Ministry of Planning and Investment (MPI) issued Guideline 2215 to provincial Departments of Planning and Investment concerning, "*Rolling-out the development of the provincial socio-economic plan taking into account the Comprehensive Poverty Reduction and Growth Strategy"*. The objective is to apply an integrated approach in developing the socio-economic development plan to ensure pro-poor policies that promote rapid and sustainable economic growth while ensuring social development and equity. The guidelines include (1) analysis of specific socio-economic situation and evaluation of existing provincial data (2) identify directions and development targets according to the CPRGS (3) formulate measures, policies for mobilisation and allocation of resources, (4) monitor and evaluate results, and systematically use feedback from consultation with the local communities and individuals. The integration of these guidelines into the provincial planning process will change implementation modalities from target-based to result based and promote a level playing field for both public and private enterprises to participate in the RWSS market.

6.5.4 Financial Issues

Barriers: an important component of the NRWSSS is the 'socialisation' of RWSS. This involves the utilisation of a community demand approaches and user financial contributions as the main part of RWSS development. To promote 'socialisation', the GoV initiated a pilot scheme in 10 provinces to assist all households' access credit for WATSAN activities. Households could contribute these funds to private or state sector companies to provide water supply. After completion the household is responsible for management and maintenance. Sanitation is much simpler and mostly resolved by households contracting a local mason for construction.

The Bank for Social Policy indicated that the pilot scheme was to be expanded to cover all provinces in 2005. However, using a low interest credit scheme to encourage national RWSS has its limitations. In An Giang, officials and households identified access to credit as the main constraint in developing RWSS. In contrast, in Quang Tri villagers are not interested in taking out loans for RWSS. They believe that they lack the income capacity to repay a loan and prefer that sources of water for living are secured within their income level. The result is that water of low quality is accepted. Local demands can vary. In the study areas in Bac Ninh and Vinh Phuc, 41 households were interviewed. All had loans ranging from 3 million VND to 100 million VND but none had taken out a loan for RWSS. Borrowed money was used as a basis to make investments to increase their access to the means of production.

Box 7: The Poor Must be Included in RWSS Development

In Vinh Thanh Trung commune, Chau Phu district, An Giang, Mr. Nguyen Van Le is the head of a poor household of 7 persons and has been provided a 'poor HH booklet' by commune authorities. His house is close to a canal and so river water is used for all activities (drinking, washing and cooking). During the year, 6 family members got petechial fever. Two cases were serious and were hospitalised.

For the not serious cases, family members visited the village doctor. Since they were poor, the doctor only charged for medications. They were exempt from the examination fees. The family was exempt from medications and examinations for the 2 serious cases, however, they needed to pay for special blood tests and room charges. To pay for this they borrowed money from their neighbour. Now, this debt is a large burden for him.

Source: National RWSS Review Survey, November, 2004

A major barrier is the ineffective distribution of information about issues such as sources of credit, new WATSAN technology and its application. The GoV's Development Assistance Fund (DAF) has the mandate to lend to both small, medium and large companies in the private and public sector, as long they have status as a company under the law. However, the DAF only has an office at

provincial level. Districts and communes in this study had not heard of the fund or how to access its funds. The Bank for Social Policy has representatives at district level but not at commune level. Officials and villagers were aware of the services provided by the Bank but indicated that, since the establishment of the Bank and its split from the Bank for Agriculture and Rural Development, Bank services were difficult to access. Reasons provided during interviews included senior bank officers whom were not experienced and staff whom were not familiar with new procedures. In the provinces under study, there was no system to distribute essential information to many of those in the private sector who could use it.

Table 32: Financial Situation of the Private Sector in Quang Tri

Types of Business	Fixed Asset (mil. VND)	Operating Capital (mil. VND)	Share of Capital invested in activities	Share of Capital derived from loans and used for RWSS activities (%)
Private business	< 100	< 100	20 - 25%	40%
Cooperatives	< 300	< 500	10 - 15%	30%
Household business	< 100	< 300	70%	10 - 15%
Service, production and business groups & teams	< 20	< 30	70%	30%

Source: National RWSS Review Survey, October 2004

Table 33: Financial Situation of the Private Sector in Dak Lak

Types of Business	Fixed Asset (mil. VND)	Operating Capital (mil. VND)	Share of Capital invested in activities	Share of Capital derived from loans and used for RWSS activities (%)
Private business	a. < 100 b . < 100	a. < 100 b . < 500	30 - 45% 40 - 50%	60% 70%
Cooperatives	< 300	< 500	10 - 15%	30%
Household business	< 100	< 300	70%	10 - 15%
Service, production and business groups & teams	< 20	< 30	70%	30%

Source: National RWSS Review Survey, December 2004

Table 34: Financial Situation of the Private Sector in Vinh Phuc

Types of Business	Fixed Asset (mil. VND)	Operating Capital (mil. VND)	Share of Capital invested in activities	Share of Capital derived from loans and used for RWSS activities (%)
Private business	< 300	< 500	10 - 25%	10 - 35%
Cooperatives	< 300	< 500	10 - 15%	30%
Household business	< 100	< 300	50%	10 - 15%
Service, production and business groups & teams	< 20	< 30	80%	30%

Source: National RWSS Review Survey, November 2004

Table 35: Financial Situation of the Private Sector in Bac Ninh

Types of Business	Fixed Asset (mil. VND)	Operating Capital (mil. VND)	Share of Capital invested in activities	Share of Capital derived from loans and used for RWSS activities (%)
Private business	< 100	< 900	20 - 25%	40%
Cooperatives	< 300	< 500	10 - 15%	30%
Household business	< 100	< 300	70%	10 - 15%
Service, production and business groups & teams	< 20	< 30	70%	30%

Source: National RWSS Review Survey, November 2004

During household interviews in Vinh Phuc province, it was reported that about 75% of borrowers did not use loans for their intended purpose. For example, villagers borrowed funds for the purpose of animal husbandry but used the funds for the production of rice cakes to sell in Hanoi. Interviewees indicated that to ensure that credit for RWSS was used for its intended purpose there needed to be in place a comprehensive monitoring system. Presently, the loan procedures have 6 steps: complete the application form, the village leader approves the application, the commune leader approves the application, the bank checks the application, the bank checks the conditions in the household and ability to repay the loan, the bank approves the loan and monitors the use of the loan funds.

The problem is that bank officials are not familiar with local households and do not have technical knowledge. Commune officials have the knowledge but do not have a formal role once they have approved the application. The result is that households

make decisions on how to use the credit using very limited information, which affects the impact. Bank and commune officials do not have an accurate picture of economic development in the commune, which affects the reliability of reporting to districts.

Opportunities: the main objective of the DAF is to lend funds to all types of legal enterprises including SOEs, incorporated bodies, private companies and cooperatives. The criteria for loan approval are transparent and all applications must follow a feasibility process. RWSS is 1 of 14 priority areas that have been identified for preferential status by DAF. The interest rate is 6.6%/annum and the maximum loan period is 12 years with a 2 year grace period during initial construction. Collateral for loans is not required. In 2004, DAF loaned 22 billion VND to RWSS enterprises in 8 provinces, the majority were in the Mekong Delta or neighbouring provinces. The largest loan was 1.9 billion VND to a water supply SOE and the smallest was 303 million VND to a private water company in Vinh Long.

6.5.5 Institutional Environment

Barriers: the institutional environment limits the emergence of grass-roots organisations to participate in the private sector and organise the investment and management of water. Presently, it is not clear about how these organisations can access different sources of credit, after construction who then has legal ownership of the system, and how to access technical support including expert advice, and capacity building. An important finding from the study was that the scale of these organisations needs to be demand driven and based on prevailing conditions.

Presently, cooperatives and the different types of cooperative groups are useful models in some situations, such as Tien Giang, but they do not provide for the diversity and range of conditions in many provinces. For example, in midland areas of Quang Tri, groundwater is the most used source of water for living. Informally, a group of five to seven neighbouring households decide to invest in a well and contract a private drilling outfit from another district. One manager is nominated by the group to manage distribution, and organise activities such as a roster for maintenance. The manager also monitors waste water disposal and hygiene to protect against contamination and sickness. The number of households in each group is decided by members and is dependent on the volume of water available from the source. No formal approval is required from the commune. About 50% of households in these communities participate in this RWSS model.

Presently, most development in RWSS is self-financed and constructed by households. Small piped schemes provide one important model of delivering clean water to users but coverage is only 16%. Other models of investment and management have an important role in improving access to clean water and sanitation in areas where it not feasible to construct a piped system or where people are too poor. In Vinh Phuc, villagers indicated that they were in the process of establishing a Water Supply and Hygiene Club to distribute information about health issues and new water supply technologies.

In areas where state or donor organisations do not contribute to RWSS, then the involvement of the private sector in the communes is dependent on the commune leadership. It is this leadership that controls and decides whether community meetings can be organised to discuss proposals by entrepreneurs, and not driven by local villager demand. This type of arrangement can lead to corruption and other illegal dealings as private traders try to secure local market share.

Meetings with private sector water companies and PCERWASS in five provinces indicated that the relationship between the private and public sectors was not clear. How can PCERWASS and the private sector operate effectively in the same environment where there are no clear national guidelines or regulations? It is not clear how to effectively promote the private sector as an important part of RWSS development in the provinces, and how work carried out by the private sector can be formally guaranteed. It is not clear in provincial regulations whether PCERWASS works with/support or manages the private sector. Presently, the PPC in each province decides how this relationship should operate with the result that there are many different types of arrangements across the country. Some of these arrangements have supported the development of the private sector, such as in Thanh Hoa and Quang Nam, while others have limited the progress of the private sector. There are no checks or monitoring at provincial or national levels to assess what type of arrangements facilitate efficient growth in the RWSS sector.

There is a lack of clarification of responsibilities for all stakeholders in the sector. This involves guidelines and regulations that outline the distribution and control of resources, investment policy, coverage, water quality and the development and monitoring of efficient management and operations. A critical issue is developing institutional arrangements for after project completion. Construction of infrastructure has been a focus for many years but planning the efficient management and maintenance for the medium and long-term was often neglected.

Opportunities: RWSS is presently under review by an independent Joint GoV and donor team of national and international consultants. The main objectives of the Review are to assess the status of implementing the NRWSSS, summarise lessons learned, recommend solutions to constraints/issues identified during implementation, provide guidance and recommendations to Government and donors on harmonisation, aid management modalities, partnership implementation strategies, information sharing, access to global learning, appropriate approaches for rural water supply, sanitation and health in Viet Nam and future investment plans for GoV and the donor community. An important outcome of the Review will be a memorandum of understanding (MOU) for a more harmonised approach to RWSS implementation in the future. The MOU will be signed by GoV and all major donors in the sector. The MoU will be an important part of the government's present policy focus on speeding up the integration of the private sector into RWSS.

6.5.6 Demand Driven Processes

Barriers: presently, there is low local demand for clean water and sanitation due to people's unwillingness to use household income for other purposes besides production, lack of access to IEC (which would provide feasible technical and organisational options), practical steps in a process to improve well-being, changing traditional behaviour, and for many, a lack of income and need to focus on food security issues.

Table 36: Investment in Sanitation at Field Sites

Village Field Sites	Septic tank latrines	Hygienic latrines	Simple latrines	No latrines or pits
Quang Tri	2.5%	0	0	97.5%
Vinh Phuc	2.5%	20%	67.5%	10%
Dak Lak	2.5%	5%	25%	67.5%

Source: National RWSS Review Survey, October 2004

Table 37: Personal Hygiene at Field Sites

Village Field Sites	Hand washing before eating	Hand washing after going to the toilet	Hand washing after going to the toilet	Eating well - cooked food	Drinking boiled water
Quang Tri	70%	40%	85%	100%	75%
Bac Ninh	90%	40%	100%	100%	85%
Vinh Phuc	80%	60%	85%	100%	85%
Dak Lak	40%	20%	80%	100%	85%

Source: National RWSS Review Survey, October 2004

Surveys in 5 provinces indicated that communities and households are constrained by low levels of financial resources. Low income levels limit the amount of expenditure households can put towards improving water supply and sanitation. Low income levels also tend to impact on investment priorities which are geared toward improvements in productive capacity.

Loan conditions issued by the Bank for Social Policy limit the effectiveness of demand driven processes. Groups in the community may utilise a process to identify investment priorities but approval depends on certification by PCERWASS. PCERWASS has been narrowly focused on specific IEC activities and piped schemes. If the community's proposal is not within these parameters, then approval could be rejected, even though the proposal was demand driven.

Box 8: Clean Water is a Luxury for the Poor

Ms. Tran Thi Thu Thao of Vinh Thanh Trung commune, Chau Phu district, An Giang Province, is the head of a poor household and uses river water for all household activities (drinking, washing, cooking, etc.). Her main occupation is doing casual work for local farmers and also small trade during the flood season. She knows that clean water supplied directly to her house is more convenient and safe. However, working for 20,000 VND/day is not enough to cover the expenditures for food, education for her children and clean water. She knows that the river water is polluted but has no other choice.

Source: National RWSS Review Survey, October , 2004

Interviewees identified the financial benefits from improved RWSS. These included reduced sick days allowing more time for productive activities that lead to higher incomes. Another major benefit is reduced medical costs for treatment of water related diseases. Households in the study areas were reluctant to use scarce finances for water supply and sanitation expenditure. However, households acknowledged that the lack of clean water and water-related diseases as being sources of vulnerability and impacted on their quality of life. This means that households may be aware of the linkages between water, sanitation and health but are not confident enough to make changes that will impact on familiar expenditure patterns.

Table 38: Health Problems Caused by Poor Water Quality and Sanitation

Village Field Sites	Diarrhoea Amoebic Dysentery Typhoid	Malaria Petechial Fever	Sore - eyes	Skin - diseases	Others	Female Disease
Quang Tri	35%	12%	28%	25%	10%	over 85%
Bac Ninh	10%	12%	38%	30%	20%	over 75%
Vinh Phuc	20%	7%	0%	25%	18%	over 75%
Dak Lak	35%	32%	8%	15%	10%	over 85%

Source: National RWSS Review Survey, October 2004

Table 39: Occurrence of Disease by Season at Field Sites

Village Field Sites	Rainy Season (spring and summer)	Dry Season
Quang Tri	75%	25%
Bac Ninh	55%	45%
Vinh Phuc	55%	45%
Dak Lak	75%	25%

Source: National RWSS Review Survey, October 2004

Nearly all the 172 households that participated in small group discussions and household interviews in the field sites in Quang Tri were affected by parasitic diseases. These diseases were more prevalent during the wet months when regular flooding contaminated water sources. In Bac Ninh, there were significant barriers that limit the private sector participating in the RWSS market at the district level. District officials had limited knowledge about the sector and it was not a priority in the district. Local investment was low, and villagers reported that they did not participate in the selection process for construction contractors.

Opportunities: a main principle of the NRWSSS is the central role of the household and community in the development of RWSS. Embodied in the NRWSSS is a need to develop:

1. A participatory process at the community level where demands and priorities are identified and included in local strategic planning.
2. A process where the community decides funding arrangements and level of contributions.
3. Human resource requirements.
4. A process where the community has a supervisory role over the scheme (monitoring will be the responsibility of PCERWASS and the district).
5. A process to meet the needs of households in isolated and remote areas.

6.5.7 Human Resource Capacity

Barriers: in the multi-sector market economy, stakeholders have different, sometimes conflicting, interests (public vs. private). Many provincial leaders and department heads do not have the experience in dealing with how to resolve these competing interests efficiently, maintain political control and achieve provincial

economic and social goals in the most effective way. This environment is new for officials, and very different from centralised planning. In most provinces there is a lack of people in the private and public sectors with the management, technical and financial skills to clarify the roles of the sectors, and plan and regulate how they should interface to have the most impact.

Provincial officials have not implemented consistently Decision 62 to pilot household credit in 10 provinces. Central authorities made 130 billion VND available to the Social Policy Bank to lend to 10 provinces, of which 81 billion VND had been disbursed by December 2004. PCERWASS in Nam Dinh has created the conditions for households to borrow over 20 billion VND, while no household in Dak Lak has had the opportunity to borrow. There could be many reasons for this lack of attention to this opportunity in Dak Lak, for example, officials may be concentrating on the DANIDA project in the province or bank staffs are not familiar with the new procedures introduced when the bank was established. However, it is evident that in Dak Lak there is not an effective supervisory organisation to monitor for external sources of support for the RWSS sector.

In the districts, officials are doing extra work outside of work hours to supplement their low incomes. Officials are particularly active in areas such as design and advice on RWSS works. This is having a major impact on the development of local capacity in the private sector at district and commune levels. Additionally, the market is too small for the larger provincial private companies to participate and make a profit. One result is that private companies at district and commune level often provide a range of services and materials besides water and sanitation. For example, in field sites in Quang Tri, it was estimated that only 20% of commercial activity of companies in the RWSS market was devoted to water and sanitation. Other activities included house construction, small-scale irrigation canal construction and the sale of construction materials. The result is that companies are unspecialised which impacts on the quality of work and the local confidence in the private sector to guarantee services and materials.

Most private water scheme construction companies are province based. The few companies at district level in the study area were small-scale and competed for contracts with a value of 100 million VND, on average. Meetings with private water supply companies indicated that it was difficult for them to attract experienced and skilled staff. Work was unstable and most qualified staff preferred employment in the stable public sector. The result was that staff employed by private sector

companies are often of low quality, and do not have the motivation to help develop the company. During meetings, company directors said that they could usually find staff with acceptable technical skills but it was difficult to find staff competent enough in modern management and finance. Some staff interviewed indicated that they viewed their time with the private company as interim until they could find better employment. Private companies competed with public companies for contracts in a not so level playing field, and so were often reliant on contracts that the public companies did not want. In Dak Lak, provincial leaders decided that all tenders for RWSS activities must include a qualified water engineer. Public companies had these engineers on staff but private water companies had difficulty finding qualified engineers to fill these positions and the cost was high.

The commune level is crucial to the development of RWSS. Commune officials have a pivotal role in aggregating community preferences and deciding local priorities, approving applications submitted by villagers, enforcing regulations, approving the organisation of meetings etc. In practise, in most communes, officials lack the management, technical and financial skills to effectively carry out these tasks. In the majority of communes, the community has little or no input into decisions about the construction of RWSS. Additionally, the commune does not have an effective role in the provincial planning process.

Officials have the discretionary power to agree to the organisation of local meetings. Private RWSS traders in communes indicated that often traders from other communes or the district were not permitted to organise meetings or had to pay a large fee. However, traders in one commune said that they thought this was a good idea because it reduced the number of suppliers in the commune which would confuse consumers, and helped to keep profits local. It did, however, affect competition at the commune level. Additionally, the RWSS traders in the commune met regularly to fix prices for materials.

Commune officials approve bank loans for households in the community but they have no responsibility for how the funds were used or were required to monitor the progress of the business activity. In Viet Tien commune, Vinh Phuc, in 2004, officials approved household loans with a value of 7 billion VND. The result is that households invest in activities with very little information and planning, with no oversight, and adversely influencing the achievement of commune objectives and targets.

Most cooperative groups and cooperatives lack the management, financial and technical skills to operate a piped scheme effectively, and assistance is often not available in the commune. This affects the replication or scaling-up of the model. Additionally, operators are not trained in maintenance and when problems occur in the scheme, there is a delay in resolving it while advice and service is requested from the district or province.

Most RWSS in villages is resolved through household self-financing of materials and hardware, and for construction, either carrying out the work or cooperating with other households for mutual benefit. Most rural households do not or are very hesitant to hire labour. Instead, they cooperate with neighbours. The informal groups established in Quang Tri to invest and manage wells is a good example. While these groups have had significant impact, national standards are not used. This results in below standard work which influences health and environment. Upgrading of technical skills for local masons and other trades people is not available locally, which limits the quality of RWSS development.

Opportunities: GoV policy promotes decentralisation to the lowest appropriate level of planning and management roles and responsibilities with the involvement of local communities and households, promotion of private service providers and development of community-based operation and maintenance systems are among the key challenges for implementing the NRWSSS. There is scepticism about the capacity of local communes to plan, finance, implement and manage their own development activities, which to some extent reflects a genuine need for capacity-building in local government as well as at commune and lower levels.

6.6 Conclusions

For effective and efficient distribution of resources and high quality services, market led economies require a level playing field that capitalises on competition by public and private sectors. In Viet Nam, the development of the level playing field has been complicated by the remnants of central planning and a lack of capacity in officialdom in areas such as new financial mechanisms, technology and managerial systems. The gap is most distinct between the central and provincial levels. Central level has the advantage of preparing policy, strategic planning and building capacity to enter such international organisations as the WTO. Provinces do not have the capacity to implement new planning processes that develop private sector potential

or are responsive to demand driven processes, they do not formulate consistent regulations that promote the private sector, and are not investing to improve the capacity of officials.

The result is provinces continue to subsidise the public sector to the detriment of efficient local development incorporating the private sector. In particular, this has a significant impact on private sector development in RWSS, which face a series of formal and informal barriers (including the poor and inconsistent implementation of existing decrees and regulations intended to promote their development) in addition to these unequal economic arrangements.

At the central level, CERWASS and other key stakeholders are not promoting the role of the private sector. At the implementation level, which is the focus of this study, what is emerging in the provinces is a range of *ad hoc* arrangements aimed at resolving problems for the short-term, and no strategic planning for long-term resolutions. Regulations that outline the legal parameters for private enterprises are not clear or not existent. This results in many private enterprises aiming their activities at quick profit areas without providing quality assurance guarantees. These enterprises usually focus on material supply and construction and not on consultancy or water sales, which require longer term commitment. This situation will have a long-term impact on local perceptions of the private sector, if not resolved.

Most private enterprises consider the risks too high for long-term investment. This factor makes it difficult to access credit. Banks are offering low-interest loans over long repayment periods but are worried that private enterprises will not have the capacity to repay over the long-term. Banks consider it a medium risk that private enterprises will not invest in maintenance or repair to increase profits but with the end result that users become dissatisfied with the service and not pay fees.

How provincial institutions are to support and compete with the private sector is not clear leading to distortions in the development of both sectors in RWSS. Provincial departments and centres are not legally entitled to operate business activities, yet are required to find additional funding sources to contribute to their annual budget. This has a significant impact on how they interact with private enterprises. For economic reasons, public enterprises tender for construction contracts and provide services, such as well drilling. However, for new equipment and technology, public enterprises can mobilise funds more effectively than the private sector, they can offer cheaper prices for services because of their economies of scale, and decision-

making during the contract bidding process still often favours public enterprises. This provides public enterprises greater comparative advantage in RWSS activities and no incentive to support the private sector, even though the competition would provide the most efficient and effective distribution of resources.

Local protection of household enterprises in the communes is helping to maintain small business and profits local but impacts on the development of the commodity market. These enterprises are controlling the price and range of commodities available in the commune, which limits the introduction of new technology and leads to higher prices. With nothing in the way of sustainable district advisory services for RWSS to advise and introduce technology, it is difficult to imagine how this situation will improve without substantial institutional support.

What is clear from the research is that investment has been focused on piped schemes servicing 16% of the rural population to the detriment of supporting and developing transitional technologies most suiTable for people in remote areas and disadvantaged groups. There is a strong demand for these technologies, which could provide a growth industry for private enterprise. However, the crucial factor is the capacity of local officials. They need to incorporate demand driven processes in decision-making, develop effective RWSS development plans, target investments to achieve social, environmental and economic objectives, and develop skills in areas such as market chain analysis and social marketing to improve knowledge about private sector potential and clarify the specific role of the private and public sectors. Much investment is needed to improve the capacity of officials but, most importantly, is the need for their political will for change.

Chapter

7

Monitoring and Evaluation

7.1 Introduction and Basic Concepts

Monitoring and evaluation (M&E) is recognised as a key issue in the RWSS sector. It provides a basis for tracking progress, identifying problems, targeting resources and ensuring effective and evidence-based decision-making. The need for an effective M&E system is recognised in the NRWSSS and is defined as a national responsibility, with the action programme to 2005 stating that *"it is necessary to establish a common database on RWSS in MARD"*. The existing efforts coordinated by UNICEF, discussed below, suggest that this 2005 target is likely to be achieved.

Before doing so, it is useful to define some of the basic concepts used in the development of M&E systems and to identify some of the issues of responsibilities and verification that need to be addressed in the development of an effective, verifiable and reliable M&E system.

Monitoring is the checking, collection and analysis of information about current project development to improve implementation, performance and results. In essence, it means comparing the actual situation with the expected (or planned) situation - and then taking action to bring reality and expectation together.

Evaluation is the checking, collection and analysis of information about past project development for purposes of making decisions about continuation of the project and/or to improve the performance of similar projects and the sector as a whole.

An effective and verifiable Monitoring & Evaluation system includes:

A set of indicators that should have following characteristics to 'surve' the purpose:

S The indicators should be a **significant** concern or problem for various stakeholders;

U There should be a concrete answer to the questions: How can this information be **used** and by whom?

R The indicators should be clear and not easy to interpret in different ways by different people. This is **reliability**;

V The indicators should measure accurately what it is intended to measure and it should reflect reality. A change in the issue or variable being monitored should lead to a change in the indicator. This is **validity**;

E Data about the indicator should be fairly **easy and inexpensive** to collect.

Identification of who collects or checks data

Consideration should be taken on who have a real interest in reporting accurately, in particular on the need for independent verification of reporting by agencies that have responsibilities for both managing funds and achieving targets *and* reporting progress made towards targets. This is particularly true where the failure to report adequate achievements towards centrally-defined targets can be used as the basis for sanctions against the reporting agency.

Procedure for collecting, analyzing data, reporting:

- Ensure extra checks (triangulate) for validity, reliability;
- Use valid, reliable and cheap methods for collection and analysis;
- Use a range of methods;
- Analyze data according to specific groups such as men/women, rich/poor.

Identification of who acts? And what action?

- Plan for the use of monitoring information from the beginning;
- Monitoring information should be:
  - Used by individual or group to solve a problem and improve project performance.
  - Acted on at the lowest level possible.
  - Referred to other levels, as needed, to someone who will act.
- Monitoring should become in-built into the normal routines and procedures of agencies which are responsible for the provision of data to the system.

An effective M&E system should differentiate the character of the indicators that it contains. The first type of indicator is **input** indicators: how much money and what types of other resources are being used in RWSS development. The second type of indicators is **output** indicators: how many water supply connections or latrines have been built, how many people trained, how many local organisations developed etc.

The third type of indicator are **outcome** indicators: what improvements to the incidence of water-borne diseases or local environmental conditions are generated, how much revenue is collected through cost recovery systems, what changes take place to health and hygiene practises as a result of IEC activities, etc. The fourth type of indicator is **impact** indicators: what changes to people's overall health, levels of increases in productivity, impacts on poverty reduction etc. These different types of indicators are all important, but obviously require different types of information and different costs and difficulties associated with their collection. A good M&E system will differentiate which types of indicators are collected as part of the normal routine of the system, which can be calculated from other data and which should be collected only periodically (for example, the VLSS which takes place every 3 or 4 years).

7.2 The Current Status of RWSS M&E Systems in Viet Nam

The existing system has developed in an *ad hoc* and fragmentary manner, but existing efforts to develop a central M&E system suggest that the many problems that beset this issue at the present time could be addressed in the near future. There are several parallel, largely independent, M&E for RWSS, but the compiled data varies considerably due to differences in definitions and indicators being applied, different methods of data collection, aggregation and of estimation. There is no one unified system to monitor progress towards the NRWSSS goals and targets. The main M&E systems for RWSS operating in Viet Nam are:

CERWASS operates the RWSS-NTP executive office which is responsible for managing and monitoring the NTP progress. This task is delegated to CERWASS from MPI, which is the lead agency in charge of the overall management and supervision of all NTP programmes. The network of PCERWASS at province level is responsible for implementing RWSS-NTP and reporting to CERWASS. Monthly, quarterly, semi-annual and annual reports on implementation of the NTP and other Programme/Projects implemented/managed by PCERWASSs (e.g. UNICEF WES) are supposed to be made by Provincial Steering Committees to the NTP office and to MPI. Data is then consolidated at Central CERWASS. Those reports are supposed to contain information of funding to RWSS, the number of WSS facilities completed, the number of households supplied with clean water, the number of households with sanitary latrines, etc.

The monitoring, supervising and evaluating of the programmes are not well conducted and many PCERWASSs failed to report monthly and even quarterly to CERWASS. The system relies on formal reporting by the agency that is responsible for programme implementation and there is no independent verification of the data that is reported. These problems are exacerbated by a lack of clear regulations regarding coordination and data sharing requirements between ministries in charge of different projects and the provincial authorities who are responsible for the on-the-ground implementation of planned activities funded by the NTP. In consequence, it is currently not possible for the centre to adequately monitor RWSS-NTP outputs or achievements, as many implementing authorities do not submit reports, the level of detail in the reports that are submitted is inadequate and community and donor contributions are often not accounted for at a local level.

Preventive Medicine Department under MOH: the wide network of PMC at province level, Preventive Medicine Team at district level and Health Station at commune level is responsible for monitoring communicable diseases, including water and sanitation related ones, etc. Previously, quarter reports on sanitation facilities are made by commune health station, but these reports have been discontinued as they thought WSS is a responsibility of NTP. From May 2004, the PMD has requested provincial PMCs to enhance monitoring on the quality of water used for drinking and domestic use: an area where at present little information is available. The PMD should play a critical role in an effective RWSS M&E system in relation to both the impacts of RWSS developments on the health of rural people and the availability of reliable water quality data: a key gap in the existing scope of RWSS information.

General Statistics Office: GSO has a broad network at province, district and commune levels. This network collates reporting from several other sources and is also responsible for the execution every two years of the Viet Nam Living Standard Surveys (VLSS). The VLSS includes some indicators on water supply: percentage of households obtaining water from different sources and sanitation provision and type. The GSO is the overall repository of many types of information in Viet Nam and has a critical coordination role to play in relation, in particular, to many types of outcome and impact indicators (which by their very nature often require cross-sectoral types of information: for example in relation to RWSS information on health conditions, levels and types of livelihood activities and economic outputs, environmental conditions).

A uniform National Database M&E System, coordinated by UNICEF. The purpose is to develop a Multi-purpose National WSS M&E system, building on UNICEF WaterMapper database, with a range of objectives, including a unified set of indicators, improved data collection and processing systems and human and institutional capacity development. The development of this system started in June 2004 and will last through to December 2005. It will be based on a consultative agreement amongst all key stakeholders and will culminate in a National Water and Sanitation Monitoring System that records characteristics of all new water sanitation facilities; routine monitoring key water sanitation facilities. Although this effort is in its early stages, good progress had been made and the effort is receiving strong support from across the sector.

Some of the main characteristics and key points in relation to the UNICEF M&E system are:

- 1990 started using computers for M&E of RWSS (Excel worksheets).
- 1996 developed a database for M&E of RWSS (MS. ACCESS).
- 1999 reviewed the RWSS database and supplement a GIS component (MapInfo) with maps linked to Database.
- 2000 upgraded the previous version, develop WaterMapper as an interface linking the RWSS Database with the maps (using Visual Basic and MapX).
- 2002 upgraded to a new version with new components of Water Quality/Arsenic Management and Environmental Sanitation added.
- As UNICEF WATSAN programme traditionally focused on technical provision of water supply facilities, the Database contains data on materials consumption provided by UNICEF (pipes, cement, iron, etc), investment, pipe schemes, water points, water quality parameters, etc.
- Lack of indicators for assessing effectiveness, impacts and monitor progress of the programme against objectives.
- Data is collected and reported by implementing agencies through PCERWASS.

Evaluation of the DFID Support to UNICEF:

This particular evaluation talks a lot about a simple 5 step approach for

participatory project implementation (WB WSG 2000). Apparently through the evaluation process the 5 steps were presented to and, at least in principle, acknowledged by various PCERWASS.

The evaluation authors propose that the 5 step approach could form the foundation for a unified sector approach. The 5 steps could additionally be the foundation of an essential reporting, monitoring and evaluation method to study the impact of the participatory process.

UNICEF and CERWASS reporting and monitoring systems focus on technical provisions and generic statistic and do not give adequate information for appraising project impact or success.

- The adaptation and transfer of UNICEF's WaterMapper is proposed to be implemented from June 2004 to December 2005. It has been agreed that this will entail the following tasks:

1. Prepare set of management and monitoring indicators for use from central to local levels;
2. Human resources development for management and monitoring;
3. Improve/create sTable information collection/exchange channels;
4. Prepare unified terminology set for use; and
5. Prepare and develop tool to serve management and monitoring, information updating and reporting. To install a database management and monitoring system software to help management and monitoring at a national scale.

The agreed process for the development of these tasks is:

1. Consultative Agreement: broad agreement on steps; data and indicators; working group
2. Adaptation of Database: UNICEF monitoring system software reviewed and adapted
3. Provincial Pilot Project: 3-5 province software test; 3-5 province staff capacity building
4. Adaptation and Expansion: Final software development; Multiplication in 64 provinces

- It is now in the first stage. A key group **(source: INGO RWSS Reference Document, September 2004) c**omprising of representatives from UNICEF, WB, CERWASS, DANIDA, MOH and several PCERWASSs has been established. The key group is studying national data and indicators on RWSS to be collected and incorporated into WaterMapper database. The key group has been working to agree on indicator systems, concepts definition, and data collection channels and mechanism. It is planned that, after being approved by GoV, this Uniform National M&E will become mandated by a national regulation and the M&E system will be established from central to commune level to monitor and evaluate all RWSS activities.
- Main criteria for the national database are: ease of operation, minimisation of parameters, based on monitoring indicators currently collected
- Proposed structure of the database consists of a core minimum indicator at national level. More detailed indicators are added at lower levels (province, district and commune).
- Criteria for identifying indicators
  - Suitable Significant concerns
  - Measurable reliable
  - Cost efficient, able to collect
  - Collection period identified
  - Valuable for statistics
  - Can be verified
- Several Groups of indicators for RWSS are proposed. Some of them are listed below:

RWSS Indicators at the Central Level

1. % of population using safe water sources in the rural area of province / district/ commune, including:
2. % population using safe dug well;
3. % population using safe tube well;
4. % population using safe tap water;

5. % population using safe water from other safe water sources (like spring water, rain water, treated surface water;

6. % of primary schools points having safe water source and hygienic latrine;

7. % of kindergarten points having safe water source and hygienic latrine;

8. % of commune health centres having safe water source;

9. Total number of new piping systems and other types of water sources (new dug wells, new tube wells, new rain tank/jar made during the year in the whole country);

10. Total annual investment for the new piping systems construction in the country, breakdown into:

    - ✓ from government budget
    - ✓ from international donors
    - ✓ from private sectors
    - ✓ from users contribution

11. Total water quantity being exploited (produced) by all rural piping systems for surface/ground water, m3/day-night in the country.

RWSS Indicators at Provincial/District Level

1. Total number of new piping systems and other types of water sources (new dug wells, new tube wells, new rain tank/jar) made during the year in the province/district.

2. Total annual investment for the new piping systems construction in the province, breakdown into:

    - ✓ from the government budget
    - ✓ from international donors
    - ✓ from private sectors
    - ✓ from users

3. Total water quantity being exploited by all rural piping systems for surface/ground water, m3/day-night in the province/district.

4. % of piping systems which are monthly checked for water quality based on the A criteria under the Drinking Water Supply standard 1329 issued by MOH on 18/4/2002.

5. % of piping systems which are checked for the quality of the tap water before putting the system into operation, based on the B criteria under the Drinking Water Supply standard 1329 issued by MOH on 18/4/2002.

6. % of piping systems which are annually checked for the quality of the tap water based on the B criteria under the Drinking Water Supply standard 1329 issued by MOH on 18/4/2002.

7. Popular water treatment technologies used in pipe schemes, by %, including:
   - ✓ Speed filtration using chemicals
   - ✓ Speed filtration not using chemicals
   - ✓ Slow filtration
   - ✓ Other types of treatment technologies should be specified

8. % of persons actually being supplied with safe tap water/total number of projected persons specified in the technical designs of all PSs in the province/district.

9. % of HH installed with water meter/total number of projected persons specified in the technical designs of PSs in the province/district.

10. % of persons which are being supplied with safe tap water >= 60 litter/day/persons (calculated by total amount of water produced by a PS/number of people supplied with water from that PS).

11. Average investment/persons for each level of investment in PSs in the province
    - ✓ less than 500 Mil. VND
    - ✓ from 500 Mil. To 1.5 Bil. VND
    - ✓ higher than 1.5 Bil. VND

12. Average investment/1m3 of water (design capacity of the PS) for each level of investment in PSs in the province:
    - ✓ less than 500 Mil. VND
    - ✓ from 500 Mil. To 1.5 Bil. VND
    - ✓ higher than 1.5 Bil. VND

Rural Sanitation Indicators

1. % of households using hygienic latrine in the rural area of province / district / commune, including:

2. % of households using hygienic septic latrine;
3. % of households using hygienic semi-septic latrine or sublah type latrine;
4. % of households using hygienic double vault or ecological latrines;
5. % of households using hygienic ventilated pit latrine (VIP);
6. % of households using other hygienic latrine types such as semi-septic composite type, simple pit latrine;
7. % of households using bathroom in the commune; and
8. % of health centres having hygienic latrine.

Health Indicators

1. % of population infected by one of the water related disease like diarrhoea, trachoma, skin disease, gynaecological disease in the year.
2. % of population infected by diarrhoea in the year.
3. % of population infected by trachoma in the year.
4. % of population infected by skin disease in the year.
5. % of women infected by gynaecological disease in the year.

Donor programmes such as DANIDA and AusAID have developed their own M&E systems that provide a far more comprehensive set of information for the provinces in which they are being implemented. Both of these and other donor programmes (for example, the DFID/UNICEF programme) have also made conscious attempts to pilot a variety of M&E approaches that are suitable for replication at the national level, but as yet this replication has not taken place. Details of the two main donor systems in RWSS (DANIDA and AusAID) are given below.

DANIDA WAterSPS M&E system

- Project Progress Reporting system is being modified to include the GoV reporting system as a core with annexes containing supplementary information for DANIDA requirements.
- A RWSS Database is developed and put into operation in 2004 in the Pilot Project in Dak Lak for storing and processing data on RWSS developed by the

Pilot project as well as by other sources through PCERWASS. It was designed to monitor information on water resources (information on observation well systems, results of water level and quality quarterly monitoring, etc); water pipe schemes; water points, sanitation etc.

- Data collection and reporting are conducted by project staff and consultants.
- First effectiveness monitoring activities have been recently started (develop evaluation forms, training, surveying: 20 motivators and 18 members of VWU have been randomly selected from pilot project communes and districts in Dak Lak for interview and assess effectiveness of the training, IEC on them, new component of the Database developed to store evaluation data, but the evaluation report is not completed yet).
- Draft guidelines for monitoring of IEC activities are developed.
- RWSS Pilot project in Ha Tinh does not have similar database, though they use the same report format.

AusAID Cuu Long RWSS M&E System

Managing and monitoring implementation of the project activities is considered a major task of the project. A detailed Monitoring and Evaluation (M&E) plan is compiled in January 2003 with the intention to use several different approaches to M&E and implementation including:

(a) Emphasising the use of M&E as a planning tool to assist target groups and implementing agencies understand why M&E data is being collected.

(b) Incorporating tools being used to implement the community participation approach (CPA) into the M&E process and ensuring that the community helps develop the M&E indicators and participates in evaluation processes.

(c) Incorporate gender and poverty issues in the CPA so that communities are focusing on issues raised by them.

(d) Assisting the PCERWASS to improve their capacity to implement RWSS activities with annual project sector performance appraisal reviews of each CERWSS to quantify changes in capacity and needs for further capacity building.

(e) Highlighting that a demand driven system must focus on clients' needs rather than delivering free services to beneficiaries.

- To date, only capacity building, IEC, community consultation activities, some feasibility and design studies but no construction has been conducted.
- Data collection initiated (baseline surveys in project communes and district towns), but still lack of indicators and data collection activities that will enable performance monitoring and impact assessment against key Project objectives and outputs.
- Since 2002, PCERWASS Vinh Long has been effectively managing and operating 67 pipe schemes in rural area of the province and they have developed a good M&E of these pipe schemes that covers many details on: financial, technical, O&M, customers monitoring, performance of the system and the operator, etc.
- This final point about PCERWASS with its own system of M&E is particularly important it raises questions about whether AusAID should be putting so much emphasis on developing a project specific monitoring system when perhaps instead they should be working on strengthening the adoption and application of GoV promoted M&E systems.

7.3 Conclusions and Recommendations

Monitoring and Evaluation of RWSS in Vietnam has become a matter for concern of all main stakeholders in the sector. Recent workshops and studies and the extensive consultations undertaken in this Review suggest that:

- The fragmentation of M&E systems means that it is not possible to easily assess progress in the sector, or even with regard to specific programmes such as the NTP. Current parallel M&E systems (GSO, MOH, CERWASS) should be coordinated to avoid overlapping and make full use of resources, building on the strengths of each.
- The current M&E system could not provide reliable data to describe the existing status of or trends in the sector. This reflects concerns over both the lack of comprehensive data coverage (and especially time series data for assessing trends) and the accuracy of the data that is available.
- The fragmented nature of current reporting reflects different provincial capacities and a lack of understanding of or value to the purpose of the M&E system. This is in turn in part due to the lack of a 2-way information flow: data goes up to the centre but is rarely reported back.

- There is an urgent need to resolve the lack of clarity and multiple definitions used: an issue discussed in Chapter 2. In particular, the use of different definitions and indicators by different major data sources makes the comparison and integration of these different sources into a unified M&E system problematic.

- The monitoring of sanitation and especially assessment of both real needs and levels of investment (many of which are by individuals that are largely ignored by the system) is even more inadequate than the M&E of water supply: again demonstrating the systematic neglect of sanitation issues in the RWSS sector in Viet Nam.

  There is a lack of indicators enabling the assessment of outcomes, impact, effectiveness and progress of the Strategy, programmes or projects against their objectives. Though these do not necessarily need to be part of the regular unified M&E system (this is probably not desirable, given that they can be difficult to collect and analyse), a strategy to develop the analytical capabilities to use different data to undertake such assessments is needed.

  The system does not allow the monitoring of the use of multiple sources of water for domestic needs. Nor does it effectively assess the multiple uses of domestic water, including for productive purposes as well as household consumption. These are critical areas of knowledge where there are significant information gaps in the present system.

  The system does not assess seasonality in water availability, and especially when water sources (surface or ground) dry up, leading to a reliance on less accessible and, in many cases, unsafe sources of water.

  There are gaps in the existing data structure, including on individual and private sector investments, on water quality and on the links between RWSS and health. These gaps are critical in the poor understanding of individual investments or the potential of the private sector in the extension of WSS coverage.

  There are concerns over reporting often tending to be target-driven rather than an objective assessment of the real status: provinces are given specific targets to achieve and reporting tends to reflect these targets.

- Overall, the system is strongly focused on outputs (especially changes to WSS coverage) and gives few insights into impacts (such as improvements to health).

It was noted above that there are major differences between the nationwide data collection models and that that of the more purposeful and in depth household

surveys conducted in limited geographical areas. The former, as conducted by the CERWASS and the MOH, tend to be very quantitative and emphasise number of structures. In contrast the latter, namely the VNHS (2002) and the VLSS (2002), provide far more of the qualitative information relating to access to RWSS services among different groups within the population, but only within the population of a defined geographical area. One of the major challenges for the development of M&E in the sector is how to integrate data obtained from such contrasting survey formats. Certainly for the future there needs to be greater attention to developing survey formats, especially for the nationwide Monitoring & Evaluation systems, that capture more of the subtlety inherent in the more qualitative research methods.

It can consequently be concluded that the existing situation on M&E is a serious impediment to the implementation of the NRWSSS and the overall development of RWSS. This has been recognised and actions are being taken through the UNICEF-coordinated efforts to remedy this. These efforts are of critical importance and should be strongly supported. The indications are that, if such support is provided, the existing efforts to develop a unified M&E system that are being coordinated by UNICEF does have the potential to resolve a number of the issues identified above. It would make sense to wait to assess how effective this system is and how many of these key issues that it does address before working extensively on most of the other issues. The exception is perhaps the issue of definitions: whatever happens there is an urgent need for more accurate, less subjective and standardised definitions of what constitutes the achievement of a target in the RWSS sector: unless we can agree what "safe and sufficient water" or "improved sanitation" means then there is little prospect of a coherent approach to reaching these objectives.

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