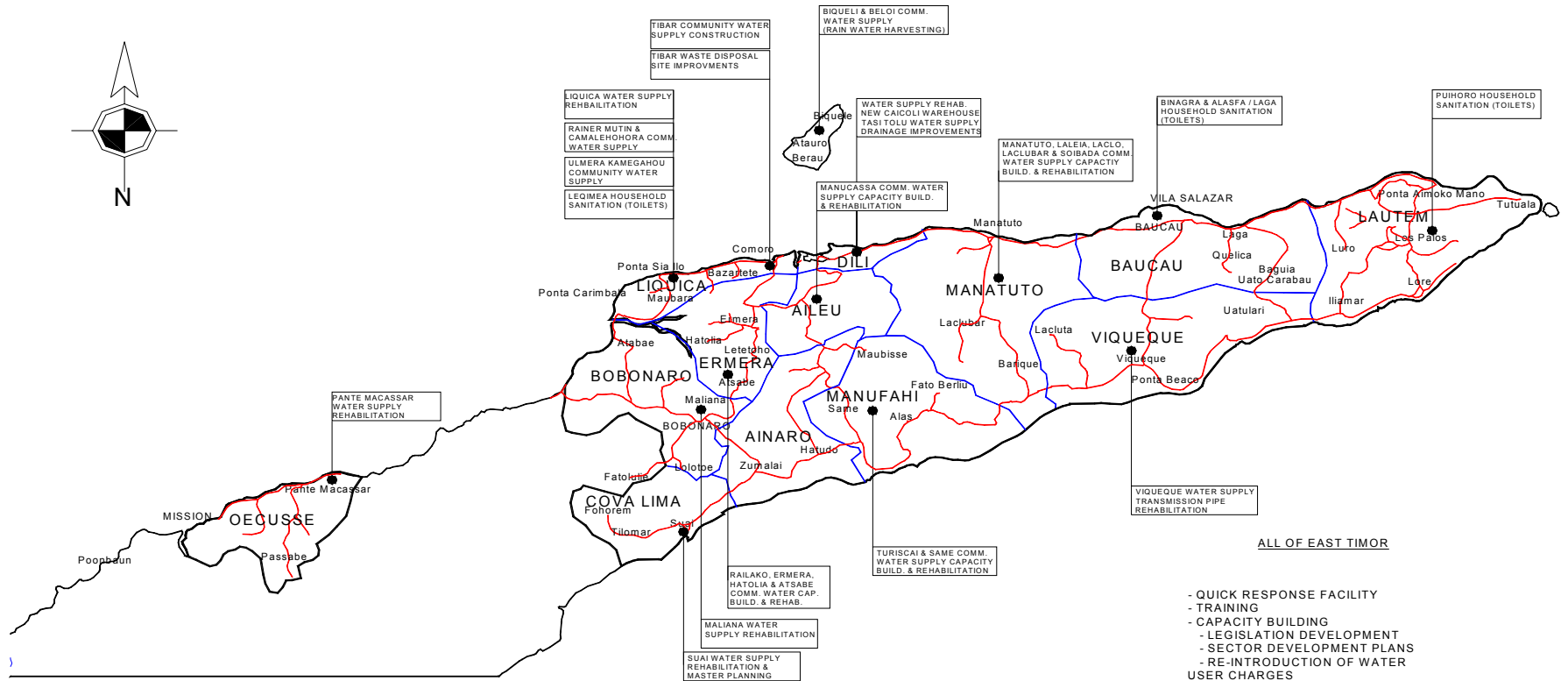
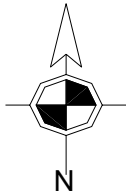


TFET- Funded

Grant No. 8189-TIM (TF)

**Water Supply and Sanitation
Rehabilitation Project**

Phase 2



TIBAR COMMUNITY WATER SUPPLY CONSTRUCTION
TIBAR WASTE DISPOSAL SITE IMPROVEMENTS

BIQUELI & BELOI COMM. WATER SUPPLY (RAIN WATER HARVESTING)

LIQUICA WATER SUPPLY REHABILITATION
RAINER MUTIN & CAMALEHOHORA COMM. WATER SUPPLY
ULMERA KAMEGAHOU COMMUNITY WATER SUPPLY
LEGIMEA HOUSEHOLD SANITATION (TOILETS)

WATER SUPPLY REHAB. NEW CAICOLI WAREHOUSE TASI TOLU WATER SUPPLY DRAINAGE IMPROVEMENTS

MANUCASSA COMM. WATER SUPPLY CAPACITY BUILD. & REHABILITATION

MANATUTO, LALEIA, LAILO, LAULUBAR & SOIBADA COMM. WATER SUPPLY CAPACITY BUILD. & REHABILITATION

BINAGRA & ALASFA /LAGA HOUSEHOLD SANITATION (TOILETS)

PUIHORO HOUSEHOLD SANITATION (TOILETS)

PANTE MACASSAR WATER SUPPLY REHABILITATION

VIQUEQUE WATER SUPPLY TRANSMISSION PIPE REHABILITATION

RAILAKO, ERMERA, HATOLIA & ATSABE COMM. WATER CAP. BUILD. & REHAB.

TURISCAI & SAME COMM. WATER SUPPLY CAPACITY BUILD. & REHABILITATION

MALIANA WATER SUPPLY REHABILITATION

SUAI WATER SUPPLY REHABILITATION & MASTER PLANNING

ALL OF EAST TIMOR

- QUICK RESPONSE FACILITY
- TRAINING
- CAPACITY BUILDING
- LEGISLATION DEVELOPMENT
- SECTOR DEVELOPMENT PLANS
- RE-INTRODUCTION OF WATER USER CHARGES
- DRAINAGE & WASTEWATER IMPROVEMENTS
- ASSET MANAGEMENT SYSTEM
- WATER RESOURCE MANAGEMENT
- IT, COMMUNICATIONS
- UPGRADE OFFICE SYSTEMS

Water Supply and Sanitation Rehabilitation Project (Phase 2) Grant 8189-TIM (TF)

A. Summary

Two Water Supply and Sanitation Rehabilitation projects (WSSRP1¹ and 2) funded from the Trust Fund for East Timor (TFET) at \$4.5 million each are among the largest project interventions in the sector. Both projects address urban needs through the Water and Sanitation Service (WSS) and rural needs through a community development approach in partnership with local and international nongovernment organizations (NGOs). The projects place a high degree of emphasis on capacity building and institutional development through development of systems, practical experience, and building confidence. Although separate grants, the second is a logical continuation of the first. The sectoral goal of the projects is to ensure access to water supply and sanitation services (WS&S) essential for public health, environmental protection, and economic growth.

Commitment of funds under Phase 2 of the Project is now at 91% with physical completion scheduled for 31 August 2003. The major project activity is the implementation of priority WS&S projects in Dili, district centers, and in rural communities. Work in Dili was primarily to complement the Government of Japan-funded headworks rehabilitation by addressing needs in the distribution system. Works implemented under the District Towns (Public) Water Supply Repair and Rehabilitation Program (under WSSRP2) include rehabilitation of part of the transmission mains for Viqueque and from Beremau stream in Maliana; construction of new intake, transmission main, reservoir, and distribution mains in Lauhata (Liquica); construction of new transmission main and installation of new submersible pump in Suai; in Oecussi, construction of a new bore and installation of new transmission main, reservoir, and distribution mains; and construction of intake improvement works and installation of new reservoirs in Gleno and Maliana.

In undertaking planned sector development activities, the Project assisted WSS in strengthening its capacity through the consultative processes involved in the preparation, implementation, and review of the WS&S input into the National Development Plan (NDP); the preparation of a 5-Year Sector Development Plan; reintroduction of water user billing charges along with drafting and promulgation of enabling legislation; development of an Infrastructure Asset Management System; Revision of Community WS&S Guidelines; updating the Dili Water Supply Master Plan; and preparation of an Urban Wastewater and Drainage Strategic Plan.

The Community WS&S Rehabilitation and Improvement component focuses on rehabilitation and improvement of peri-urban, subdistrict, and rural WS&S systems using community participatory approaches to promote project sustainability through community ownership, and operation and maintenance (O&M). The participatory development activities equip communities with the skills to make them more self-sufficient and self-reliant. Implementation by local and international NGOs features integration with hygiene promotion programs and an emphasis on gender equity and minimizing environmental impacts.

¹ WSSRP1 has been completed and was closed on 31 December 2001 and a detailed project completion for the water supply and sanitation sector will be prepared after the completion of WSSRP2.

B. Background

1. Rationale of the Project

Postreferendum vandalism caused extensive damage to WS&S facilities and Indonesian withdrawal led to the collapse of sectoral institutions. The Project undertakes physical repair and rehabilitation, and supports establishment of new institutions and systems for managing, operating, maintaining, and further developing urban and rural WS&S in Timor-Leste that are both appropriate and sustainable.

2. Project Objective and Outputs

The Project's overall strategic objective is to provide the people of Timor-Leste with sustainable WS&S services using appropriate technology and good management systems. The Project aims to provide assistance to rehabilitate and restore damaged and inadequate WS&S infrastructure, and at the same time re-establish the human and institutional capacity needed to manage, operate, and maintain the WS&S infrastructure.

The major project output is implementation of priority WS&S projects in Dili, district centers, and in rural communities (see Figure on the following page). Work in Dili is primarily to complement the Government of Japan-funded headworks rehabilitation by addressing needs in the distribution system. Works implemented in the district towns include rehabilitation of headworks, transmission mains, and distribution mains. Rehabilitation and improvement of peri-urban, subdistrict and rural WS&S systems are being undertaken using community participatory approaches to promote project sustainability through community ownership, operation and maintenance. Implementation of priority improvements to urban sanitation has been undertaken to improve the operation of the central Dili drainage system. Aside from carrying out an extensive staff training program, the Project assisted WSS to strengthen its capacity while undertaking planned sector development activities.

3. Costs and Implementing and Executing Arrangements

The TFET budget allocation was \$4.5 million for phases 1 and 2 of WSSRP2. A Project Management Unit (PMU) was established within WSS to assist with program implementation and to plan for future development of the WS&S sector. The progress of the project implementation is presented in Figure 1 on the following page.

4. Intended Impacts

The project impacts include providing improved access to WS&S, thus upgrading the quality of life for people in both urban and rural areas whose attempts to improve their status and health are continually impeded by the need to divert time, energy, and financial resources to acquire their daily water needs. The Project also generates employment through local labor, thus helping to create a stable social and economic environment.

ACHIEVEMENT OF OUTPUTS

April 30, 2003

● Report ■ Actual ■ Proposed

Component, and Description	2001	2002												2003								
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
COMPONENT 1: WS&S IMPLEMENTATION PROGRAM																						
Sub-component 1.1: Quick Response Facility		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	■	■	■
Sub-component 1.2: Dili Water Supply Rehabilitation & Improvement		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	■	■	■
Sub-component 1.3: District Towns WS Rehabilitation & Improvement		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	■	■	■
Sub-component 1.4: Community WS&S Rehabilitation & Improvement		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	■	■	■
Sub-component 1.5: Urban Sanitation Improvement						●	●	●	●	●	●	●	●	●	●	●	●	■	■	■	■	■
COMPONENT 2: CAPACITY BUILDING & INSTITUTIONAL DEVELOPMENT																						
Sub-component 2.1: Capacity Building Training WSS Staff	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	■	■	■
Sub-component 2.2: Capacity Building Technical Assistance	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	■	■	■
Sub-component 2.3: IT, Communications and Other Equipment		●	●	●	●													■	■	■	■	■
COMPONENT 3: PROJECT MANAGEMENT UNIT																						
Sub-component 3.1: PMU Operations	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	■	■	■

5. Funds Commitment/Disbursements

The amount of \$4.5 million was committed to the Project under the TFET Grant Agreement between the United Nations Transitional Authority in East Timor (UNTAET) and the Asian Development Bank (ADB) signed on 27 August 2001.

Up to \$3.563 million has been transferred to the Project bank account in Dili (including \$1 million Imprest Advance). Actual disbursements, commitments, and expenditures are in the following table.

Table 1: Actual Commitment and Disbursements
(as of end-April 2003)

Category/Output	Proposed Commitment (as revised February 2003)	Actual Disbursements to end-April 2003	Actual Commitments to end-April 2003	Actual Expenditure to end-April 2003
Water Supply and Sanitation Implementation Program	3,448,000	1,913,000	3,103,000	2,360,000
Capacity Building and Institutional Development Program	485,000	311,000	468,000	461,000
Project Management Unit	567,000	339,000	511,000	459,000
Total	4,500,000	2,563,000	4,082,000	3,280,000

C. Project Impacts

1. Socioeconomic Impacts

In the absence of sufficient government capacity and resources, the Project implements a community development approach to develop and maintain rural WS&S services. The model is based on partnerships between communities and NGOs to develop, operate, and maintain facilities while WSS provides support in planning and coordination, establishment of technical standards and guidelines, and monitoring and evaluation. Communities provide labor while the Project funds development materials and equipment and capacity building. Water user groups are established and receive training on financial management for sustainable O&M. Use of NGOs has proven crucial to implementation success through their effective and early access to local experience and knowledge of social and physical conditions, through integration of participatory approaches in physical rehabilitation activities, and through capacity building.

Nine implementation contracts have been awarded to local NGOs and six contracts to international NGOs with a total value of \$405,572. These contracts will improve WS&S services for an estimated 22,500 beneficiaries at an average cost \$233 per household or \$33 per person. Materials to the value of \$343,855 have been procured to support the contracted commitments.

The O&M of community-managed piped water systems for small communities requires consideration of all social, cultural, technical and financial issues. To support the sustainability of these operations the Project has developed community WS&S guidelines and standards covering quality and level of service, and processes for involving the beneficiaries in the decision-making process and in O&M.

Anecdotal evidence suggests that women are well represented on water user committees and in maintenance activities. One aspect of this increase in women's participation

in the community management process is the change in traditional systems with women gaining new skills and responsibilities largely as a result of the social disruption caused by the long-term struggle for independence. Another fact is thought to be the significant number of female facilitators and substantial gender expertise in the NGO teams that implement the projects in the communities.

The Project seeks to ensure access to WS&S services to improve public health and thus upgrade the quality of life for people in both urban and rural areas. Currently very poor environmental standards pose significant risks to health exist in all urban areas of Timor-Leste. The situation is worse in Dili due to high urban development density, lack of maintenance on the urban drainage systems, low levels of solid waste collection, and poor or nonexistent on-site sanitation facilities. In the district towns the risks are more related to the lack of adequate toilet and bathing facilities, and poor environmental health practices, than from the gross deterioration of the urban environment.

The Project has gone some way toward addressing these issues through development of a comprehensive Urban Drainage and Wastewater Strategy involving WSS communities, and other key stakeholders. Crucial aspects of the strategy include building the capacity of WSS in urban sanitation generally (wastewater, solid waste, and drainage) and an integrated approach to improve service delivery simultaneously in all three subsectors. The strategy recognizes the constraints of WSS and communities and will require support from funding agencies for capital investment and capacity building.

On the physical side contracts were granted to improve the operation of the drainage system serving the older and more developed section in Dili. One contract comprises cleaning of approximately 700 road inlet pits and repair of approximately another 500. A second contract includes clearing of approximately 20 kilometers of open channels or piped drains to remove accumulated sediment and solid waste from several years of neglected maintenance as well as some structural repair work to drains. Extensive field survey work was required to assess the condition of Dili's drainage assets in advance of the repair works.

2. Environmental Impacts

Most of the pipeline works under the Project have been installed within existing rights-of-way. The buildings renovated for district WSS offices are former Government of Indonesia buildings that had been burned and vandalized. Some new sites or additional land at existing sites have been acquired for boreholes, storage reservoirs, and water treatment plants. Wherever possible public land has been selected in preference to private land but in all cases a community consultation process was undertaken prior to the selection of any new sites. Compensation has been paid to affected landowners. No resettlement has been required for any subproject.

As most works are of relatively small scale and are located within the original distribution network areas, there has been no significant or lasting adverse impact on the physical or biological environment. Construction works have been comparatively minor and as such are transient environmental disturbances of short duration. Any materials removed from drains in Dili have been dried on-site and disposed of at the Tibar landfill site.

On the positive side the poor environmental conditions that endangered residents in some urban areas through pervasive waterborne diseases and lack of sanitation have been addressed through water, sanitation, and drainage works in project towns.

3. Capacity Building Improvement and Policy and Improvements

TFET has provided specific support to train and develop WSS, WSS-PMU, and NGO staff in knowledge, skills, and abilities to enable them to contribute productively to sustain activities in the sector. Specific areas of human resources development addressed include the following:

- (i) On-the-job AutoCAD training of four Timor-Leste technical officers from national NGOs while preparing new standard drawings for the revised community WS&S guidelines;
- (ii) Travel for three senior WSS officers to attend the National Water Technology Training Institute, Bangkok;
- (iii) Funding for two senior WSS officers to attend the Australian Water Association/Mt Eliza Business School "Pricing and Asset Management" Master Class; for two senior WSS officers to attend the Sustainability of Water Resources Conference at Perth's Murdoch University; and for two WSS local staff to attend the International Water Association 3rd International Congress and Exhibition in Melbourne;
- (iv) Formal in-house training for WSS-PMU staff in English language and in book-keeping principles and in the RDTL accounting package "Free-balance"; and
- (v) Funded the preparation by specialist consultants and delivery to WSS technical staff of a training program on the use of EPANET (computer modeling of hydraulic behavior within a pressurized pipe network).

WSS and the local NGOs require considerable institutional capacity building for the significant investment in infrastructure to be sustainable and effective. Capacity building of relevant institutions has been delivered through integration of a number of approaches. To the extent possible all infrastructure delivery activities undertaken by the Project have been used to train staff of WSS, local NGOs and contractors and to develop capacity to operate and maintain the assets. The project community participation model for facilitating a community based WS&S system provides local NGOs and WSS with opportunities to develop community participatory skills. However, the main focus has been on strengthening of government institutions. These capacity building opportunities included the following:

- (i) Assisting WSS to strengthen its capacity through the consultative processes involved in the preparation, implementation, and review of the WSS input into the National Development Plan;
- (ii) Preparing a 5-Year Sector Development Plan;
- (iii) Reintroducing water user billing charges along with drafting and promulgation of enabling legislation;
- (iv) Developing of water resource legislation and sanitation management legislation;

- (v) Developing and implementing of an infrastructure asset management system; and
- (vi) Revising and distributing Community WS&S Guidelines, updating the Dili Water Supply Master Plan, and preparing an Urban Wastewater and Drainage Strategy.

D. Overall Contribution to the Economy

1. Sustainability of the Investment in the Long Term

By employing local labor, the Project is contributing toward the creation of a stable social and economic environment. The PMU directly employs 7 local-full time staff (of a total of 8). As many as 20 short-term local staff have been engaged for administrative, drafting, and contract supervision activities. In addition, international contractors and international NGOs have partnered with local companies and local NGOs where available and appropriate.

The Project has generated about 5,300 persondays of direct local employment to date, and 60,000 persondays of indirect local employment through contracted activities. For the remaining duration of the Project, it is estimated that an additional 500 persondays of direct local employment will be created, plus an additional 5,000 persondays of indirect local employment.

To ensure the continued O&M and effective use of the facilities to be provided by this Project, technical solutions have been selected that consider the needs, preferences, expectations, and capabilities of the end-users as well as facilitate the intimate involvement of key WSS officers in all phases of the Project to promote the retention of knowledge and experiences of project activities and built capacity within the organization.

Systems have been kept as simple as possible while still matching the demands so that O&M can be carried out by the local staff. Where possible, diesel-driven pumps sets were specified in preference to more sophisticated electrically powered sets that require an additional diesel-powered generator to provide for reliable operation. In some cases, pump sets complete with engines have been duplicated so that if problems arise with either the engine or the pump, the entire set can easily be replaced without significant delays. Stocks of commonly used spare parts and consumable items were procured with the initial purchase to ensure continued operation in the future.

2. Lessons Learned

Following are some of the lessons learned during project implementation:

Notwithstanding the support of other stakeholders, WSS has significant resource and capacity constraints in providing WS&S services at the levels required by the National Development Plan. Significant injection of both capital and personnel will be needed in the coming years.

The very substantial investment in the WS&S sector for funding agencies and NGOs to date has neither achieved the public health expectations of the people of Timor-Leste nor the broader international community.

Current high levels of donor investments have focused predominantly on WS&S infrastructure implementation activities, which have stretched or exceeded the available capacity of sector service providers (i.e., WSS, other government agencies, local NGOs, communitybased organizations, and local private sector) to sustain those services.

A myriad of sector strategic directions, priorities, plans and procedures, etc., have been introduced by international staff in response to emergency or transitional stages of development of the Timor-Leste Government. As a result, many local staff have a limited understanding and ownership of these policies.

The rapid turnover of short-term international advisers, combined with changing government structures and ministers, inexperienced local staff, and the pressures of urgent operational requirements have resulted in a very slow growth of the corporate and individual momentum required to develop and accomplish agreed and achievable targets.

A focus on cost recovery from service users is required to meet government expectations and to increase sustainability. However, WS&S service users generally expect an accompanying service level improvement as a motivation to pay user charges.

WSS staffing limitations (in terms of skills and numbers) impact on its ability to sustain and improve provision services, particularly in smaller communities and rural areas. Continuous capacity building assistance is required to increase service levels and to reintroduce user charges.

Substantial sector investment is still required to improve WS&S service levels and coverage to that required to achieve improved community and individual health, ensure human dignity, and protect the environment.

The capability of WSS to effectively manage daily operations and plan for the future is low. Service levels are low and infrastructure is generally in poor condition either as a result of lack of maintenance or poor design. Water supply system leakage rates are high, water quality remains poor, and maintenance costs are high. Frustrated water users frequently damage infrastructure.

Water wastage is high and individual or community sanitation infrastructures are inadequate. Inappropriate public health and hygiene practices are still too common.

Sector investments and levels of assistance are expected to decrease in the future. External funding will reduce, external staffing assistance to WSS will decrease, and international NGO assistance will decrease their assistance in response to other world events. Consequently, more careful management of investments from external assistance will be required to maximize efficacy.

External sector investment requires centralized project coordination and monitoring. WSS will require strengthening to improve coordination and monitoring with other government agencies and donor countries to avoid duplicate efforts, maximize sustainability, and to ensure WS&S users pay an appropriate level of the recurrent costs.

The sustainability of project activities depends on the involvement of WSS in planning and implementation. All taken project design activities should aim for achievable and sustainable outcomes that are responsive to local needs. The project designs must be flexible

enough to allow changes during implementation brought about by developments in internal political directions and external funding assistance.

The preparation of project activities should consider recurrent costs, user willingness and capacity to pay, and include detailed O&M systems. Water user surveys should be undertaken to determine the willingness and ability of potential users to pay.

3. Continuing Needs and Investment

It is clear that there is a need for substantial ongoing external assistance to the sector in the medium and longer term. The needs include both physical works and capacity building in the broadest sense, for the WSS as an institution, WSS staff, as well as local implementing agencies (NGOs, contractors) and communities.

The physical needs for infrastructure improvement are difficult to quantify because of a lack of data on existing service standards and coverage not only on community WS&S, but also in other subsectors. The planning undertaken as part of the NDP provides some appreciation of the likely needs over the next 5 years. However, this is predicated on poor data and is based on maintaining current levels of funding to the community WS&S throughout the 5-year plan period, rather than the expectation that this level of funding will achieve the target service levels. Improved data and more rigorous analysis are urgently needed before estimates of longer-term sector investments can be prepared. Some of the required data for this analysis in the short to medium term can be drawn from current projects financed by external funding agencies.