

BELIZE

MDG ACCELERATION FRAMEWORK

WATER AND SANITATION



MDG ACCELERATION FRAMEWORK

WATER AND SANITATION

July 2011

UNDP is the UN's global development network, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life.

United Nations Development Programme (UNDP)

<http://www.undp.org.bz>

Copyright © Government of Belize and UNDP 2011

All rights reserved.

Acknowledgements :

This MDG Acceleration Framework for Water and Sanitation was developed with the direct support of technical staff from the Government of Belize, specifically the Ministry of Economic Development (MED), Ministry of Labour, Local Government and Rural Development (MLLGRD), Belize Water and Services Limited (BWSL), the Belize Social Investment Fund (BSIF) and the National Association of Village Councils (NAVCO). The technical officers who contributed extensively to the development of this comprehensive Country Action Plan are Karlene McSweeney and Jeanette Garcia, both from MED, Ernest Banner and Brian Smith from MLLGRD, Fausto Pineda (BSIF) and Keith Hardwick (BWSL). Chief Executive Officers Yvonne S. Hyde (MED) and Marian McNab (MLLGRD) provided final oversight comments on the document to ensure that it could make a direct contribution to national development planning. Tineke Boomsma was the consultant and lead researcher supporting the MDG Acceleration documentation process. This project was coordinated by Jay Coombs, UNDP Belize, with support from Renata Rubian and Gonzalo Pizarro of UNDP/ Bureau for Development Policy, New York, and Alastair Morrison of the UNDP Water Governance Facility at the Stockholm International Water Institute.

Design:

Phoenix Design Aid A/S, Denmark. ISO 14001/ISO 9000, certified and approved as a carbon neutral company.

Cover photo credits:

Ministry of Labour Local Government and Rural Development, Belize

BELIZE

MDG ACCELERATION FRAMEWORK

WATER AND SANITATION



JULY 2011

CONTENTS

1. INTRODUCTION	14
1.1: PROGRESS AND CHALLENGES IN ACHIEVING TARGET MDG 7C IN BELIZE	15
1.2: PAST AND EMERGING CHALLENGES	15
1.3: THE MAF INITIATIVE AND THE COUNTRY ACTION PLAN FOR BELIZE.....	16
1.4: METHODOLOGY FOR DEVELOPING THE COUNTRY ACTION PLAN.....	17
2. AN OVERVIEW OF WATER AND SANITATION SERVICES IN BELIZE	18
2.1: WATER SERVICES IN BELIZE	19
2.1.1: WATER SERVICES IN URBAN AREAS.....	21
2.1.2: ANALYSIS OF DATA ON WATER SERVICES IN URBAN AREAS.....	21
2.1.3: ANALYSIS OF DATA ON WATER SERVICES IN RURAL AREAS	22
2.1.4: LOCATING THE PEOPLE WHO HAVE NO ACCESS TO IMPROVED SOURCES OF WATER	23
2.1.5: MDG TARGET 7C FOR WATER SERVICES	24
2.2: SANITATION SERVICES IN BELIZE	25
2.2.1: IMPROVED AND UNIMPROVED SANITATION SERVICES ACCORDING TO MDG 7	25
2.2.2: SANITATION SERVICES A LOWER PRIORITY THAN WATER	26
2.2.3: SANITATION IN URBAN AREAS.....	26
2.2.4: SANITATION IN RURAL AREAS	27
2.2.5: MDG TARGETS FOR SANITATION SERVICES	27
2.3: CHALLENGES TO MEETING MDG 7C	30
2.4: ASSESSMENT OF PROGRESS TOWARDS THE MDG TARGET PRIOR TO THE MAF AND THE NEED FOR COLLECTIVE ACTION	31
3. STRATEGIC INTERVENTIONS	32
3.1: STRATEGIC INTERVENTIONS IMPLEMENTED: WATER SUPPLY.....	33
3.1.1: CONSTRUCTION OF A RUDIMENTARY WATER SYSTEM.....	33
3.1.2: REPAIR OF DEFECTIVE A RUDIMENTARY WATER SYSTEM	33
3.1.3: EXPANSION OF THE BELIZE WATER SERVICES LIMITED SYSTEM.....	33
3.2: STRATEGIC INTERVENTIONS NEEDED BUT NOT IMPLEMENTED: WATER SUPPLY	34
3.2.1: SETTING UP OR REPAIRING HAND PUMPS.....	34
3.2.2: REPAIRING DEFECTIVE RUDIMENTARY WATER SYSTEMS EXPEDITIOUSLY ...	34
3.2.3: IMPROVING WATER QUALITY DELIVERED BY A RUDIMENTARY WATER SYSTEM	34

3.3:	PRIORITIZED KEY INTERVENTIONS FOR 2011–2015: WATER SUPPLY.....	34
3.4:	STRATEGIC INTERVENTIONS IMPLEMENTED: SANITATION SERVICES.....	36
3.4.1:	CONSTRUCTION OR EXPANSION OF PIPED SEWERAGE SYSTEMS.....	36
3.4.2:	CONSTRUCTION OF OTHER IMPROVED SANITATION SYSTEMS.....	36
3.4.3:	PUBLIC EDUCATION FOR IMPROVED SANITATION.....	36
3.5:	STRATEGIC INTERVENTIONS NEEDED BUT NOT IMPLEMENTED: SANITATION SERVICES.....	36
3.5.1:	PUBLIC EDUCATION ON GOOD SANITATION AND HYGIENE PRACTICES.....	36
3.5.2:	ENHANCEMENT OF REGULATORY CAPACITY.....	36
3.5.3:	BUILDING COMMUNITY CAPACITY AND SKILLS.....	37
4.	BOTTLENECK ANALYSIS.....	38
4.1:	SECTOR-SPECIFIC BOTTLENECKS.....	39
4.1.1:	POLICY AND PLANNING.....	39
4.1.2:	BUDGETING AND FINANCING.....	39
4.1.3:	SERVICE DELIVERY.....	40
4.1.4:	SERVICE UTILIZATION.....	40
4.1.5:	CROSS-CUTTING BOTTLENECKS.....	41
5.	IDENTIFYING INDICATIVE ACCELERATION SOLUTIONS.....	48
6.	MDG ACCELERATION PLAN: BUILDING A COMPACT.....	60
6.1:	ROLE OF THE GOVERNMENT.....	61
6.2:	ROLE OF THE DEVELOPMENT PARTNERS.....	61
6.3:	FINANCING FOR SOLUTIONS.....	61
6.4:	MDG COUNTRY ACTION PLAN FOR WATER AND SANITATION.....	62
7.	IMPLEMENTATION AND MONITORING PLAN.....	70
7.1:	INTERVENTION IMPLEMENTATION, TIMELINE AND RESPONSIBLE PARTNERS.....	71
7.2:	EXISTING MONITORING PLANS IN BELIZE.....	71
7.3:	PROPOSED MONITORING PLANS.....	71
7.4:	MATRIX IMPLEMENTATION AND MONITORING PLAN.....	72
8.	ANNEXES.....	76
8.1:	ROLE OF THE BELIZE SOCIAL INVESTMENT FUND AND THE RURAL WATER SUPPLY AND SANITATION UNIT.....	77

- 8.2: INCOME REVENUES OF RURAL WATER SYSTEMS..... 77
 - 8.2.1: FLAT RATE 77
 - 8.2.2: METERED SYSTEMS 78
 - 8.2.3: COMPARISON OF THE FLAT RATE AND METERED SYSTEMS..... 81
 - 8.2.4: FUTURE ANALYSES NEEDED..... 81
- 8.3: PROPOSED DRAFT POLICY ON WATER AND SANITATION 87
 - 8.3.1: INTRODUCTION 87
 - 8.3.2: VISION 88
 - 8.3.3: POLICY OBJECTIVES..... 88
 - 8.3.4: GUIDING PRINCIPLES..... 88
 - 8.3.5: KEY POLICY STATEMENTS AND STRATEGIES 89

RURAL WATER AND SANITATION POLICY STATEMENTS AND STRATEGIES 89

- RURAL WATER AND SANITATION POLICY STATEMENT 1:
 - BASIC SERVICES FOR ALL..... 89
- RURAL WATER AND SANITATION POLICY STATEMENT 2:
 - IMPROVED HEALTH THROUGH AN INTEGRATED WATER, SANITATION AND HYGIENE PROMOTION APPROACH..... 90
- RURAL WATER AND SANITATION POLICY STATEMENT 3:
 - COMMITMENT THROUGH COST SHARING AND RESPONSIBLE MANAGEMENT 90
- RURAL WATER AND SANITATION POLICY STATEMENT 4:
 - SERVICE SUSTAINABILITY THROUGH COMMUNITY RESPONSIBILITY 91
- RURAL WATER AND SANITATION POLICY STATEMENT 5:
 - SERVICE SUSTAINABILITY THROUGH SCALING UP OF WATER SYSTEMS 91
- RURAL WATER AND SANITATION POLICY STATEMENT 6:
 - COMMUNITY WELL-BEING THROUGH SOCIAL AND ENVIRONMENTAL RESPONSIBILITY . 92

URBAN WATER AND SANITATION POLICY STATEMENTS AND STRATEGIES 92

- URBAN WATER AND SANITATION POLICY STATEMENT 1:
 - QUALITY BASIC SERVICES FOR ALL..... 92
- URBAN WATER AND SANITATION POLICY STATEMENT 2:
 - ADOPTION OF PRO-POOR APPROACHES 92
- URBAN WATER AND SANITATION POLICY STATEMENT 3:
 - SERVICE SUSTAINABILITY THROUGH FULL COST RECOVERY 93
- URBAN WATER AND SANITATION POLICY STATEMENT 4:
 - COMMUNITY WELL-BEING THROUGH SOCIAL AND ENVIRONMENTAL RESPONSIBILITY.. 93

TABLES

TABLE 2.1 BASELINE DATA FOR DRINKING WATER RESOURCES IN BELIZE, USING THE MDG CATEGORIES AND CENSUS 2000 RESULTS.....	20
TABLE 2.2 DRINKING WATER RESOURCES IN BELIZE, 2009, USING THE MDG CATEGORIES AND THE LABOUR FORCE SURVEY, SEPTEMBER 2009 RESULTS.....	20
TABLE 2.3 BWSL SYSTEMS PER TOWN OR CITY.....	22
TABLE 2.4 LISTED WATER SUPPLY SYSTEMS IN VILLAGES OF BELIZE, JULY 2010	23
TABLE 2.5 SANITATION FACILITY CATEGORIES (JMP).....	25
TABLE 2.6 ACCESS TO AN IMPROVED SANITATION SYSTEM IN 2000.....	28
TABLE 2.7 ACCESS TO IMPROVED SANITATION, RESULTS OF THE LABOUR FORCE SURVEY, SEPTEMBER 2009	28
TABLE 3.1 PRIORITIZED KEY INTERVENTIONS FOR 2001–2015: WATER SUPPLY	35
TABLE 3.2 PRIORITIZED KEY INTERVENTIONS: SANITATION SERVICES	37
TABLE 4.1 BOTTLENECKS TO KEY INTERVENTIONS TO PROMOTE ACCESS TO SAFE DRINKING WATER	42
TABLE 4.2 BOTTLENECKS TO KEY INTERVENTIONS TO PROMOTE ACCESS TO BASIC SANITATION SERVICES	46
TABLE 5.1 SOLUTIONS TO MITIGATE IDENTIFIED BOTTLENECKS TO ACCESS TO SAFE DRINKING WATER	50
TABLE 5.2 SOLUTIONS TO MITIGATE IDENTIFIED BOTTLENECKS TO ACCESS TO BASIC SANITATION SERVICES	56
TABLE 6.1 MDG COUNTRY ACTION PLAN: PRIORITY SOLUTIONS TO PROMOTE ACCESS TO SAFE DRINKING WATER.....	62
TABLE 6.2 MDG COUNTRY ACTION PLAN: SUPPORTIVE SOLUTIONS FOR SUSTAINABLE DEVELOPMENT OF THE WATER SECTOR.....	65

TABLE 6.3 MDG COUNTRY ACTION PLAN: SOLUTIONS FOR QUALITY MAINTENANCE OF THE WATER SECTOR.....	66
TABLE 6.4 MDG COUNTRY ACTION PLAN: PRIORITY SOLUTIONS TO PROMOTE ACCESS TO BASIC SANITATION SERVICES	67
TABLE 6.5 MDG COUNTRY ACTION PLAN: SUPPORTIVE SOLUTIONS FOR SUSTAINABLE DEVELOPMENT OF SANITATION SECTOR.....	69
TABLE 7.1 IMPLEMENTATION AND MONITORING PLAN FOR ACCESS TO SAFE DRINKING WATER	72
TABLE 7.2 IMPLEMENTATION AND MONITORING PLAN FOR ACCESS TO BASIC SANITATION SERVICES	74
TABLE 8.1 COMPARISON OF INCOME, EXPENSES AND NET INCOME OF RWS WITH FLAT RATE VERSUS METERED SYSTEMS	80
TABLE 8.2 OVERVIEW OF VILLAGES WITHOUT A PROPERLY FUNCTIONING RWS.....	82
TABLE 8.3 WORKING WATER SUPPLY SYSTEM IN THE VILLAGES OF BELIZE, JULY 2010.....	85
TABLE 8.4 RWS WORKS IN PROGRESS, JULY 2010	85
TABLE 8.5 BWSL PROJECTS IN PROGRESS, JULY 2010	86
TABLE 8.6 VILLAGES WITH NO WATER SYSTEM (RWS OR HAND PUMPS) AND NOT SCHEDULED FOR ANY PROJECT, JULY 2010.....	86
TABLE 8.7 VILLAGES WITH NO RWS BUT WITH HAND PUMPS (WORKING OR NOT) AND NOT SCHEDULED FOR ANY PROJECT, JULY 2010.....	87

FIGURES

FIGURE 2.1 ACCESS TO IMPROVED WATER SOURCES IN 2009 IN RELATION TO MDG 7	24
FIGURE 2.2 ACCESS TO IMPROVED WATER SERVICES IN 2009, IN RELATION TO BELIZE'S GOAL OF 100 PER CENT COVERAGE IN 2015.....	25
FIGURE 2.3 MDG SANITATION TARGET AND TREND.....	29
FIGURE 2.4 BELIZE'S 100 PER CENT TARGET AND TREND	29
FIGURE 8.1 MONTHLY NET INCOME FOR WATER BOARDS WITH A FLAT RATE SYSTEM.....	78
FIGURE 8.2 AVERAGE MONTHLY NET INCOME FOR WATER BOARDS WITH A METERED SYSTEM	79

ABBREVIATIONS

BDP	Bureau for Development Policy
BNTSF	Basic Needs Trust Fund
BSIF	Belize Social Investment Fund
BWSL	Belize Water Services Limited
CAP	Country Action Plan
CDB	Caribbean Development Bank
DAWB	District Association of Water Boards
DoE	Department of the Environment
EU	European Union
GoB	Government of Belize
JMP	Joint Monitoring Programme
LFS	Labour Force Survey
MAF	MDG Acceleration Framework
MDG	Millennium Development Goal
MED	Ministry of Economic Development
MLLGRD	Ministry of Labour, Local Government and Rural Development
MNRE	Ministry of Natural Resources and the Environment
MoE	Ministry of Education and Youth
MoH	Ministry of Health
MoW	Ministry of Works
NAVCO	National Association of Village Councils
NGO	Non-governmental Organization
PAHO	Pan American Health Organization
PUC	Public Utilities Commission
RCDO	Rural Community Development Officer
RWS	Rudimentary Water System
RWSSU	Rural Water Supply and Sanitation Unit
SIB	Statistical Institute of Belize
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Programme
WHO	World Health Organization

FOREWORD

When the opportunity arose to participate in the Millennium Development Goals Acceleration Framework (MAF), Belize accepted this challenge to thoroughly review its national water and sanitation coverage and analyze the likelihood of the country meeting the MDG 7 Target to halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation. Belize is an MDG Plus Country, having set a national target of 100% access to water and sanitation by 2015. However, current progress indicates achievement of 94% and 73.5%, respectively. This report puts water and sanitation as a key component of national development planning and visioning and proposes a Country Action Plan (CAP) to meet this MDG.

Water coverage in Belize has been growing steadily with access to rudimentary water systems (RWS) rising from 43.8% (1995) to 94% (2009). Access to improved water grew despite limited coordination among stakeholders and absence of a strategic plan that is supported and implemented by a national, lead agency. However, several bottlenecks related to institutional capacity, good governance practices, policy development, sound planning and community empowerment threaten MDG achievement. Progress in sanitation remains slow, moving from 41% (1995) to 73.5% (2009), with success impeded by the absence of a primary agency, limited coordinated communication and awareness, cultural practices and poverty. Approximately 26.4% of Belize's population is affected by un-improved sanitation, many of whom live in rural areas. As a sector, water and sanitation receive very limited attention to build and improve technical capacity both at the institutional and community levels. Traditionally, responses to supply shortages and

service deficiency have been primarily through infrastructural development. However, the MAF points out that this sector requires development and implementation of national plans utilizing technical skills that are aligned with national systems in a more coordinated and inclusive manner.

The MAF report is intended to provide an overview of bottlenecks in this sector and the solutions that respond to the challenges they present. This report should be seen as enhancing opportunities to empower communities to take ownership of water and sanitation systems and to make service delivery sustainable. Needed also are leadership and integrated planning to ensure resources are best used to target the most vulnerable and disadvantaged while at the same time building the responsiveness of the institutions in this sector. The CAP outlines institutional strengthening especially for the Ministry of Labour, Local Government and Rural Development (MLLGRD), enhanced coordination among partner agencies, capacity building for water boards, communication and outreach for sanitation, infrastructure work to build relevant water systems and sanitation facilities and support for community engagement processes. These actions focus on interventions that can be done in the short, medium and long-term to increase the likelihood of achieving the MDG on water and sanitation by 2015.



Richard Barathe

*Resident Representative a.i.
UNDP Belize*

FOREWORD

Belize's national objective in the rural water and sanitation sector is to increase the quality of these services and achieve 100 percent national coverage. Over the past few years, Belize has made considerable progress towards reaching the water and sanitation MDG target, but the country will fall short if current bottlenecks in this sector are not expeditiously addressed. They need to be addressed urgently, given the importance and impact of this sector on the lives of people and the development of their communities.

However, water and sanitation have not been given a place at the forefront of Belize's national development agenda. This sector is more not just about bore holes, water systems and septic tanks, and, in effect, is as complex an issue as any. Grappling with water and sanitation is grappling with a myriad of challenges that plague a developing country such as Belize, and all its sectors, public and private, alike. They range from hard to resolve issues such as cultural practices; capacity issues such as the paucity of technical skills; and governance issues such as unregulated migration, squatting and the formation of communities without basic infrastructure requirements, as well as the inclination of institutions to work in silos and disregard multisectoral collaboration and cooperation.

The Ministry of Labour, Local Government and Rural Development (MLLGRD) was established in February of 2008 specifically to ensure reliable sources of quality potable water to rural communities, in collaboration with the Belize Social Investment Fund (BSIF). Support for the monitoring of water quality has been recently provided

jointly by the BSIF, the Ministry of Health (MoH), the Pan American Health Organization (PAHO) and the Public Utilities Commission (PUC). Other such collaborative efforts between the five entities need to be institutionalized.

Sanitation, however, continues to remain a neglected portfolio. Water boards, for example, lack the capacity to maintain their water systems at an acceptable level. Reports from studies conducted on the systems in the Toledo, Belize and Orange Walk Districts alone will bear this out.

The MDG Acceleration Framework (MAF) for Water and Sanitation provide the impetus needed to address critical challenges to a sector that is so crucial to human development. It is our hope that the partnership created under this mechanism can elevate the profile of water and sanitation in the development agenda and benefit the vast numbers of rural people who are yet to be reached.



Marian McNab

Chief Executive Officer

Ministry of Labour Local Government and Rural Development (MLLGRD)



CHAPTER 1:

INTRODUCTION

Photo: Ministry of Labour Local Government and Rural Development, Belize

1.1: PROGRESS AND CHALLENGES IN ACHIEVING TARGET MDG 7C IN BELIZE

The Millennium Development Goal Target 7C (MDG 7C) aims to halve the population that does not have access to safe drinking water and basic sanitation, and falls under MDG 7, 'Ensuring Environmental Sustainability'. Belize has set its own target of universal access to water and sanitation, becoming in this area an 'MDG plus' country. Even though it has made remarkable progress towards this ambitious target, the country may fall short of sustaining further progress if current bottlenecks in this sector are not expeditiously addressed. To maintain the gains made in this sector, all communities must have the requisite capacity to ensure that existing systems are fully operational and can respond to the increased demand for water supply from growing populations. Efforts must be made to keep the present Rudimentary Water System (RWS) — which distributes water originating from a stream — and hand pumps in rural areas, as well as water systems managed by Belize Water Services Limited (BWSL) in urban areas, fully functional according to established standards. However, achieving full coverage by 2015 requires implementing geographical targeting, especially for rural communities in the Belize and Toledo districts. Consistent with Belize's commitment to Multilateral Environmental Agreements and the MDGs, the government has acknowledged the need to safeguard the country's water resources so that it can meet its development targets.

Regarding sanitation coverage, Belize has seen a significant improvement, but the current pace still leaves the country off track in its MDG plus goal of 100 per cent access to improved sanitation services by 2015. Access to improved sanitation lags considerably behind that of potable water. Sanitation services in Belize consist of a mix of pit latrines (primarily in rural settings), and septic tanks and sewerage systems in three urban areas, namely,

the cities of Belize and Belmopan and the town of San Pedro.

National statistics show that in 1995, only 41 per cent of the population had access to improved sanitation,¹ while in 2007 this share had increased to 64 per cent, consisting mostly of urban dwellers who were connected to sewer systems or septic tanks. By 2008, as many as 30 per cent of Belizeans, mostly rural dwellers, relied on systems classified as inadequate.² This level of coverage is well below the goal of 94.6 per cent set for 2009. The deficit in sanitation facilities is substantial and will require a concerted effort at national and local levels to accelerate the progress in order to achieve this target by 2015.

Thus the need for a Country Action Plan (CAP) that lays out solutions to bottlenecks to progress, while committing all relevant stakeholders to their implementation. The CAP needs to address, as well, the varying needs of the population on different levels. The MDG 7C goal for sanitation is achievable if supported by the right set of policies, targeted technical assistance, institutional capacity, adequate funding, and strong political commitment and community engagement. The Government of Belize (GoB), in collaboration with its development partners, remains fully committed to the achievement of the MDGs.

The present MDG Acceleration Compact capitalizes on the existing commitments and captures the evidence available to put forward concrete and realistic proposals to scale up the achievement of the MDGs in the next five years.

1.2: PAST AND EMERGING CHALLENGES

Belize has faced many challenges during the first decade of the 21st century. Overcoming these challenges has required tremendous efforts on the

1) Statistical Institute of Belize, *Living Standards Measurement Survey*.

2) Statistical Institute of Belize, *Labour Force Survey*.

part of the nation. Tropical storms and hurricanes have resulted in the loss of human life and the destruction of infrastructure, farmland, livestock and crops, and have disrupted the lives of tens of thousands of people. International assistance was mobilized for the recovery efforts but much of the damage control was generated from within the country. Often damage control efforts take away resources and funds from projects which are needed to bring the country in line with its efforts to reach the MDG goals in 2015.³

In the last two decades, the economic performance of Belize has been irregular, with high economic growth rates reaching 12 per cent in the period 1990 to 1993, followed by then very slow economic growth between 1994 and 1995, then increasing levels of growth until it reached a promising 12 per cent in the year 2000. This year marked the start of an overall downturn, characterized by economic performance averaging 4.5 per cent in the period 2001–2008 and -1.5 per cent in 2009. The latter downturn reflects the effects of the global slowdown, natural disasters and the decline in the price of oil.

From 1990 to 2009, real GDP per capita increased in Belize. This trend is normally associated with a downward movement in the poverty rate. However, the percentage of persons living in poverty in Belize, as measured by the national poverty line, increased in this period, from 33.5 per cent in 2002 to 41.3 per cent in 2009.⁴

The global recession combined with the fall of the US dollar (to which the Belizean dollar is pegged) resulted in reduced foreign exchanges from Belize's exports, including a decline in the tourism industry, a major foreign exchange earner for Belize. One in every four workers in Belize is employed directly or indirectly in the tourism industry and many of these experienced a decrease in their income.⁵ In 2007, the world food crisis resulted in sharp increases in food prices, which badly affected the disposable

income or purchasing power of the lower income groups.⁶ Belize's GDP contracted in the first three quarters of 2009 but improved in the first quarter of 2010.⁷

1.3: THE MAF INITIATIVE AND THE COUNTRY ACTION PLAN FOR BELIZE

At the United Nations Millennium Summit in September 2000, the world's heads of states and governments adopted the MDGs, the eight development objectives that countries agreed to achieve by 2015, which identified key actions and concrete targets for reducing human poverty in all its dimensions all over the world. In September 2010, the world undertook an extensive review of progress against the MDGs. While accomplishments abound, there is a risk that several countries will miss one or more of these goals by the 2015 deadline, unless they take immediate action. Belize is a signatory to the Millennium Declaration and, while significant progress has been made toward achievement of these goals, strategic interventions are required to fulfill the established targets.

The MDG Acceleration Framework (MAF) has been developed to support countries in intensifying and focusing their efforts in achieving these goals. It provides a systematic approach for national stakeholders to identify and analyse bottlenecks that are impeding MDG achievement in their country, followed by identification of coordinated, focused actions to help accelerate progress. Belize is participating as a pilot country for the implementation of the MAF to develop a CAP for the achievement of MDG 7, the increase of sustainable access to improved water sources and basic sanitation by 2015.

3) In 2008, Tropical Storm Arthur caused damages of over \$77 million, of which \$40 million was in the agricultural sector and more than \$18 million dollars in the infrastructure sector (National Emergency Management Organization).

4) Halcrow Group Ltd. and the Belize National Assessment Team (December 2009). Final draft report. Country Poverty Assessment, CDB and GoB.

5) According to the SIB, hotels and restaurants experienced a decline of 10 per cent in the first half of 2009.

6) The increase in food prices was 17.8 points over 2008, showing a slight decline over 2009 (SIB).

7) SIB

1.4: METHODOLOGY FOR DEVELOPING THE COUNTRY ACTION PLAN

The MAF was applied to the national Belizean context, through the following steps, which led to the development of the CAP:

Step 1: Collection, review and analysis of existing data and current literature on sanitation and water coverage in the country. The literature review also included a review of legislative and regulatory frameworks.

Step 2: An assessment of the sanitation and water coverage of Belize was carried out at the village and city/town levels. The information at village level was collected with the assistance of the Rural Community Development Officers (RCDOs) of the MLLGRD; while BWSL provided detailed information about systems in the towns and cities. The result of step 2 is presented in the Annex under section 8.2.

Step 3: Focus group discussions were conducted in various parts of the country to obtain insight on water and sanitation services as experienced by the final consumer.

Step 4: A national level consultation was held with key stakeholders to prioritize needed interventions, bottlenecks and possible solutions. Information gathered at the consultations informed the development of the CAP.

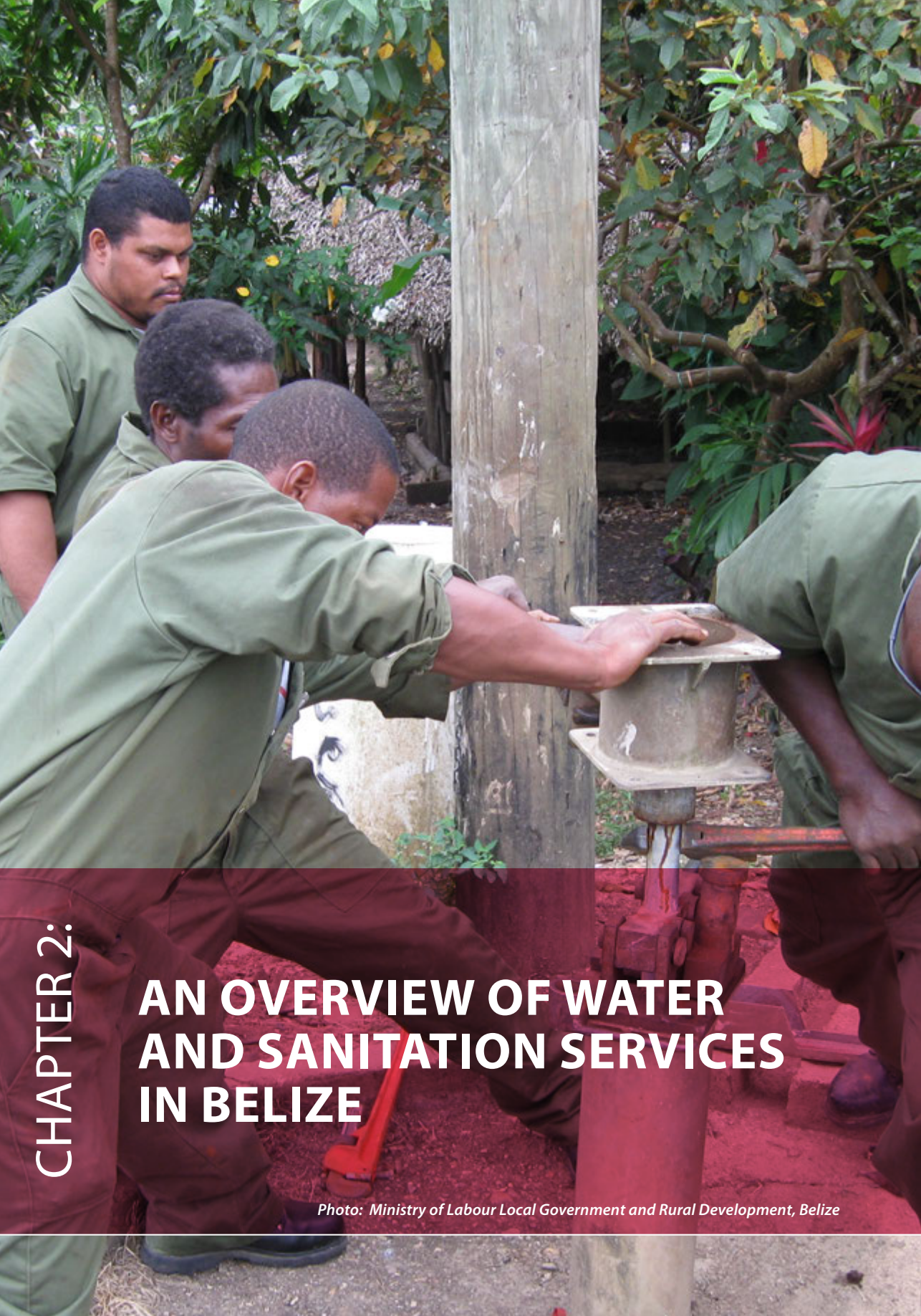
Step 5: A draft CAP to achieve MDG 7C, guided by national stakeholders and formalized by the Government of Belize, was developed. The following sections are included in this document:

- A policy development framework for water and sanitation in Belize (as described in the Annex under section 8.3)
- The MDG CAP (section 6.4)
- A monitoring plan (section 7)

Step 6: The draft CAP was presented to the Project Execution Group in August 2010, comments were included and the final draft CAP was completed on August 31, 2010. In September 2010, the draft of the MAF report on MDG 7C for Belize was presented to the Chief Executive Officers of the Ministry of Economic and Development, Ministry of Labour Local Government and Rural Development, and Ministry of Health.

With only five years left until the 2015 deadline to achieve the MDGs, UN Secretary-General Ban Ki-moon called on world leaders to attend a summit in New York from 20 to 22 September 2010 to accelerate progress towards the MDGs. Coming amidst mixed progress and new crises that threaten the global effort to halve extreme poverty, the summit was a crucially important opportunity to redouble efforts to meet the MDGs set in 2000. The Secretary-General stated in his report in preparation for the September summit, "Our world possesses the knowledge and the resources to achieve the MDGs . . . our challenge today is to agree on an action agenda to achieve the[m]." ⁸

8) Report of the Secretary-General (2010), 'Keeping the promise: A forward-looking review to promote an agreed action agenda to achieve the MDG by 2015', http://www.un.org/ga/search/view_doc.asp?symbol=A/64/665.



CHAPTER 2:

**AN OVERVIEW OF WATER
AND SANITATION SERVICES
IN BELIZE**

Photo: Ministry of Labour Local Government and Rural Development, Belize

Data on water and sanitation in Belize is limited. For the MAF process, the most recent and complete data set for water sources and sanitation services available was the 2000 Census. Although the 2010 Census is currently being conducted, the results will only become available in 2011.

Between 2000 and 2010, three sample surveys, namely two Living Standards Measurement Surveys (LSMS) and the national household census have been conducted⁹ and all three collected data on water and sanitation. However, a review of the results of these sample surveys highlighted some problem areas:

- great variations in outcomes across surveys;
- incompatibility of the outcomes of the different sample surveys as a result of the in-consistency of categories for water and sanitation used in the questionnaires and;
- though sample surveys always have a margin of error, the margin of error was not always available.

Therefore the second data set used was from the Labour Force Survey (LFS), September 2009, conducted by the SIB. This survey also included questions about the living conditions of the household of the interviewees, and data on water and sanitation was also covered.

Since this report is an effort to determine what measures Belize will need to implement in order to achieve the water and sanitation targets of MDG 7, it uses the categories of 'improved' and 'unimproved'

drinking water and sanitation sources as defined by the Joint Monitoring Programme/World Health Organization (JMP/WHO) and the MDG Task Force on Water and Sanitation (see table 2.1 for water sources in 2000 and table 2.2 for water sources in 2009). The Census 2000 and the LFS September 2009 results have been screened and fitted into these categories.

2.1: WATER SERVICES IN BELIZE

The 'improved' and 'unimproved' categories of water and sanitation sources reflect conditions which are found worldwide. In Belize, however, villages that rely on public taps or standpipes are not typically considered as having access to an improved source of drinking water. However, using the MDG classification, these villages now need to be considered as having access to an 'improved source of drinking water'. It must also be noted that the Ministry of Health (MoH) does not consider rainwater as an improved source unless it has been treated (by boiling, chlorination or otherwise) before use.

Another grey area for consideration as an improved source of water is the RWS, which is not chlorinated, and therefore an unimproved source of drinking water. Bottled water is considered an unimproved source when there is no other improved source of drinking water available to the household. Since bottled water is expensive, relative to water supplied at a fixed monthly flat rate, and may not always be available, it is not a preferred option for the daily supply of drinking water.

9) Multiple Indicator Cluster Survey 2006, Living Standards Measurement Survey 2002, Labour Force Surveys (every six months).

TABLE 2.1 BASELINE DATA FOR DRINKING WATER RESOURCES IN BELIZE, USING THE MDG CATEGORIES AND THE CENSUS 2000 RESULTS

'Improved' sources of drinking-water	(%)	'Unimproved' sources of drinking-water	(%)
Piped water into dwelling	29,9	Unprotected spring	n/a
Piped water to yard/plot	17,0	Unprotected dug well	n/a
Public tap or standpipe	4,2	Cart with small tank/drum	n/a
Tube well or borehole	n/a	Tanker-truck	n/a
Protected dug well	0,9	Surface water	2,2
Protected spring	n/a	Bottled water	16,9
Rainwater	27,3	Other	1,3
		Do not know/Not stated	n/a
Total	79,3	Total	20,6

TABLE 2.2 DRINKING WATER RESOURCES IN BELIZE, 2009, USING THE MDG CATEGORIES AND THE LABOUR FORCE SURVEY, SEPTEMBER 2009 RESULTS

'Improved' sources of drinking-water	(%)	'Unimproved' sources of drinking-water	(%)
Piped water into dwelling	61,2	Unprotected dug well	3,6
Piped water to yard/plot			
Protected dug well	25,8	Surface water	1,4
Rainwater			
Public tap or standpipe	7,0	Other	2,2
		Do not know/Not stated	0,1
Total	94,0	Total	6,0

For future references and for the monitoring of the development of coverage of improved water and sanitation, efforts undertaken by different agencies should adapt the classifications as used by the Joint Monitoring Programme (JMP), to create uniformity within data sets and comparability of the results.

2.1.1: Water services in urban areas

The urban areas in Belize are Belize and Belmopan cities, and the towns of Corozal, Orange Walk, San Ignacio and Santa Elena, Dangriga, Punta Gorda, San Pedro and Benque Viejo del Carmen.

These urban areas and several adjacent villages and communities are provided with potable water by the Belize Water Services Limited (BWSL). It is the sole water provider in the urban areas, and supplies nearly 55 per cent of the population of Belize with potable water.¹⁰

Almost all households in BWSL's service areas are connected to the system, although some have been found to have illegal connections to avoid paying connection and/or user's fees. In areas such as the south side of Belize City, public standpipes provide low-income households and households that are not connected to the piped water system with free access to drinking water.

BWSL is expanding its water systems to provide services in villages located near its current service centres; for example, the water system of Cotton Tree (for which an adequate supply of water could not be located) will be incorporated into the Belmopan system, as well as the villages of St. Matthews and Franks Eddy.

Another upcoming project under BWSL is the Belize River Valley project which will connect nine villages in Belize District to a shared water system.

All water provided by BWSL is chlorinated and connections are metered. The fee structure for the BWSL is a progressive one which encourages the user to save water as much as possible. BWSL maintains a 'social fee' of BZ\$7.69 for monthly usage of less than 1,001 gallons. This 'social fee' is higher in areas with sewerage services (BZ\$9.23) and considerably higher in San Pedro (BZ\$22.55), an offshore island.

In Belize City, Belmopan City and San Pedro, BWSL also operates sewerage systems which service parts of all three municipalities. Households that are connected to the sewerage system pay a higher rate per gallon of water that they consume.

In general residents in the urban areas have greater access to an improved source of drinking water. BWSL only expands its system in areas where the land has been surveyed and the street pattern has been laid out. People living beyond these surveyed areas will not be connected by BWSL.

2.1.2 Analysis of data on water services in urban areas

In all urban areas combined, BWSL has 45,537 connections. Some 1,650 connections are required immediately for houses under construction, recently finished or in the planning and permitting phase. Another 2,537 connections will be needed in the future for developments which are still in the planning phase but have not been finalized.

¹⁰ N. Janson, *Belize Water and Sanitation Strategic Sector Analysis, Phase One Report, IADB, 2008, p.56.*

TABLE 2.3 BWSL SYSTEMS PER TOWN OR CITY

Key Performance Indicator	Sales (gallons)	Number of connetions	Average consumption per connection (gallons)	Tariff for consumption (BZ\$)	No. of new immediate connetions required	No. of future connetions for new developments	Cost of providing new services (BZ\$)
Corozal	11,159,551	4,133	2,700	33	341	1,539	2,747,008
Orange Walk	12,777,988	4,145	3,083	39	141	118	509,496
Belmopan	18,208,750	4,763	3,823	65	249	221	1,286,831
San Ignacio	16,408,763	5,117	3,207	41	33	100	289,602
Benque Viejo	5,115,027	1,651	3,098	39	49	68	256,509
Dangriga	7,772,029	2,587	3,004	37	27	50	141,909
Punta Gorda	4,586,258	1,849	2,480	30	66	57	137,727
San Pedro	11,899,685	2,924	4,070	124	212	1	542,338
Belize City	69,244,256	17881	3,873	66	532	419	1,913,471
Hattieville	1,806,163	487	3,709	62	In Belize City		

Customers are required to pay for their connections. The charge does not reflect the full costs involved in the connection process.

Developers of residential subdivisions pay the full cost of the installation of the pipe system in the subdivision. The developer may commission a private company to set out the network but this has to be designed and executed according to BWSL standards. BWSL then pressure tests the network before it is connected to the BWSL system.

2.1.3 Analysis of data on water services in rural areas

In the Village Council Act Chapter 88 of the Laws of Belize, Revised Edition 2003, any area of Belize outside of a city or town where a minimum of 200 eligible

voters for village councils are present may be declared a village. At the same time, “any village already existing and recognized. . . before the passing of this Act shall be a village under this Act.” As a result, 60 villages had 50 or less households (Census 2000) resulting in a population of about 235 persons or less (using estimated average household size in rural areas of 4.7 persons). In 2000, a total of 53.2 per cent of the population of 123,509 people lived in rural areas.

Most of the rural population lives in villages and communities, though the difference between these two categories is not well defined. Sometimes communities are formally part of a recognized village and in other cases they are considered stand-alone units. The rest of the rural population lives scattered across the countryside.

A unique feature of the rural population is the number of Mennonite communities. These do not have the

status of village according to the Village Court Act since they have their own governance system comprising of elected 'elders' and not a village council. These communities are not included in the results displayed in Table 2.5. One Mennonite community, Spanish Lookout, in the Cayo District, has a piped water system which treats the water by filtering through gravel and sand beds. Some villages in the Cayo District are linked to this water system and fall under the category of having an improved water source. Other Mennonite communities tend to rely on rainwater catchment and storage systems, and each household is responsible for its own water supply.

This study used 191 villages found on the website of the National Association of Village Councils (NAVCO). Apart from villages and communities there are small settlements that are not considered to be either. These dispersed settlements remain largely undocumented but are a major factor influencing the capacity of the country to achieve the goal set for 2015: supplying 100 per cent of the Belizean population with an improved source of drinking water.

Rural areas can be divided into four types based on their source of drinking water, as shown in table 2.4 below.

TABLE 2.4 LISTED WATER SUPPLY SYSTEMS IN VILLAGES OF BELIZE, JULY 2010

Sources of drinking-water	Number of villages
Supply from BWSL	19
RWS and hand pumps	134
Hand pumps only, no RWS	28
Neither hand pumps nor RWS	10

- The ten villages without any form of water supply are located in the Belize District (six villages), one in Cayo, and three in Toledo. The total number of households recorded for these villages was 273 (Census 2000).

- In July 2010, with the help of the RCDOs, an inventory of the working condition of the water supply systems was undertaken and the results were as follows: In 22 villages the RWS was not functioning, affecting 2627 households (see table 2.6). Four of the broken systems have metered connections, 17 have a flat rate system and one system is not known.

2.1.4: Locating the people who have no access to improved sources of water

To reach the goal of supplying 100 per cent of the population with access to an improved water source, it is necessary to know where the unserved and underserved populations are. Data available indicate that more than a quarter of Belizean households are without functional access to a consistent supply of potable water. These households are likely to be scattered in urban and rural areas or clustered in newly developed neighbourhoods and in villages.

In order to reasonably capture the group of villages without an improved water source or with a failing water system, RCDOs were asked to complete a questionnaire which would provide information on the water systems in the villages that they serve (see tables 8.2-8.7 under the Annex). Analyses of the water coverage in villages were made and used to produce maps of districts indicating the 'listed' information and the 'actual' information. 'Listed systems' are those RWS's and hand pumps present on site without any indication of their working condition. 'Actual systems' take into consideration whether the systems were working at the time of the survey.

There were limitations in this methodology for the following reasons:

- There is no single standardized list of villages where changes in status of communities are regularly updated.

- Some communities are recognized as part of a neighbouring village but there are some without any associations/affiliations with other villages.
- The district maps were developed using the NAVCO's list of only those villages that held village council elections in 2010.
- Most RCDOs were unsure about the number of hand pumps present and their working condition. It was clear from their answers that most were of the opinion that hand pumps were no longer needed if a village has an RWS.

The results are presented in the Annex.

2.1.5: MDG Target 7C for water services

The only MDG target specifically related to infrastructure is Target 7C which, using 1990 as a

baseline year, aims at halving by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation. Belize has set an MDG plus target of 100 per cent access to sustainable, safe drinking water and basic sanitation.

Regarding universal access to water, Belize is on track to reach this goal if it sustains the current level of investment and there is consistent monitoring and maintenance of existing systems.

There are no figures available on the number of households that live in unserved areas. Since some villages have a well-defined centre but others tend to be a collection of houses and farms spread out over a large area, it will be necessary to determine what is the furthest distance a house must be to be eligible to access publicly provided utilities such as water supply. If houses are located far from the centralized services of a RWS and it is not feasible to connect them, alternative sources of potable water would need to be found if the coverage target is to be met.

FIGURE 2.1

ACCESS TO IMPROVED WATER SOURCES IN 2009 IN RELATION TO MDG 7 TARGET 7C

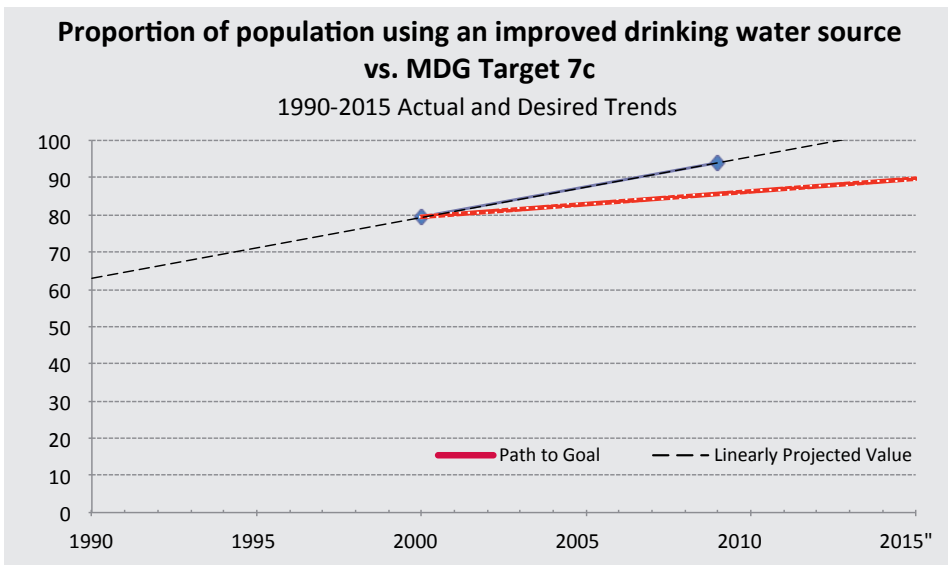
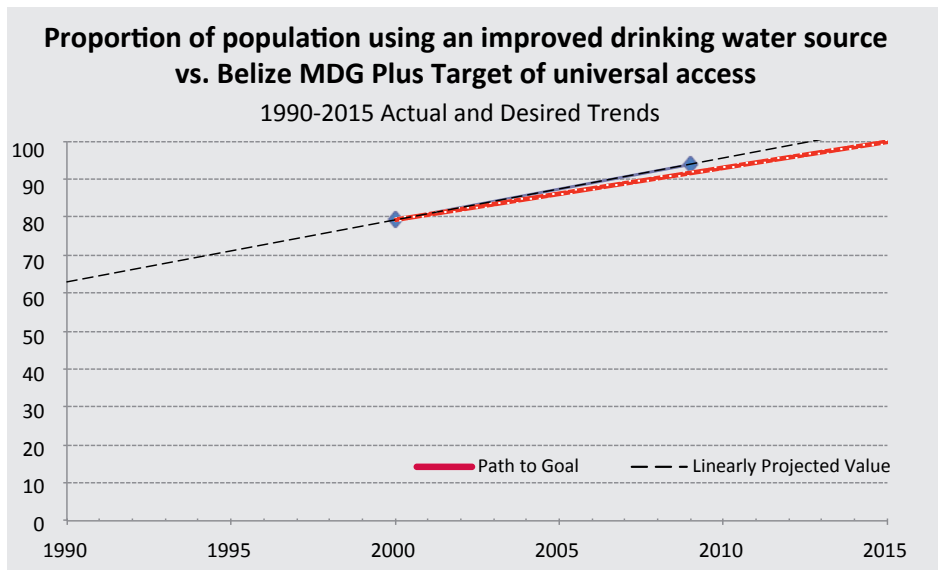


FIGURE 2.2

ACCESS TO IMPROVED WATER SERVICES IN 2009, IN RELATION TO BELIZE'S GOAL OF UNIVERSAL COVERAGE IN 2015



2.2: SANITATION SERVICES IN BELIZE

2.2.1: Improved and unimproved sanitation services according to MDG 7

Following the definition of improved sanitation services, the JMP for Water Supply and Sanitation (www.wssinfo.org) has classified sanitation services into 'improved' and 'unimproved' categories as shown in table 2.5.

TABLE 2.5 SANITATION FACILITY CATEGORIES (JMP)

'Improved' sanitation	'Unimproved' sanitations
Flush toilet	Flush/pour flush to elsewhere
Piped sewer system	Pit latrine without slab
Septic tank	Bucket
Flush/pour flush to pit latrine	Hanging toilet or hanging latrine
Ventilated improved pit latrine (VIP)	No facilities or using bush/field
Pit latrine with slab	Pit latrine not vented
Composting toilet	
Special case	

These categories are general descriptions of sanitation services found the world over. A system is considered 'improved' when human waste is deposited in such a way that the disposal site is safe and secure and both humans and animals will not have any unprotected or deliberate contact with feces.

2.2.2: Sanitation services a lower priority than water

The national focus on sanitation services has been less urgent than the supply of water systems. Belize has made enormous efforts in supplying rural communities with RWS, but not so much with sanitation facilities, and open defecation still continues in some areas of the country, mostly in the south. Analysing the projects executed by the Belize Social Investment Fund (BSIF) under the fifth cycle of the Basic Needs Trust Fund (BNTF) reveals that 19 RWS's were constructed (some projects are still ongoing) but not a single sanitation project was included in the menu of project interventions. Indeed, only a few sanitation projects have been executed by BSIF, for example the building of latrines in Hopkins Village and in the South-side of Belize City.

The simplest form of an improved sanitation system is an improved pit latrine. This does not require running water, and is therefore functional under most circumstances. Neither great technical skills nor extensive qualifications in plumbing are required to construct an improved pit latrine, yet communities still have insufficient understanding about the rationale behind it. Consequently, there appears to be a need for technical (and financial) support at the community level for those households adopting pit latrines as an improved sanitation facility.

More broadly, there is a need to create awareness in the general population of the importance of proper sanitation, especially taking into account the health

hazards and economic costs that result from an unimproved and unmaintained sanitation system.

In 2002, in Hopkins, BSIF improved pit latrines were designed and constructed in conjunction with the local population. The sandy soil and the high water table made the construction of a regular pit latrine difficult and the villagers needed technical assistance to build latrines suitable for the local conditions. In 2010, less than 10 years after this project, septic systems in this village now outnumber pit latrines, and many households are now building their own sanitation facilities. Today, tourism is one of the main sources of income in the community.

2.2.3: Sanitation in urban areas

Three urban areas have a piped sewerage system:

- Belmopan (since 1970): approx. 7,900 consumers
- Belize City (1980): approx. 37,500 consumers
- San Pedro Ambergris Caye (1996): approx. 3,400 consumers

Households that are not connected to sewer systems may have their own individual sanitation system including a flush toilet with a septic tank or latrine, or collect waste in buckets for later disposal in the sea or in overgrown bushes.

No detailed information is available on which households that have an improved sanitation system and which do not. Only latrines with a concrete slab and a ventilation pipe are considered improved sanitation systems.

There is no detailed data system based on cadastral maps which would give authorities insight into where action has to be taken to improve the level of sanitation coverage in the country.

According to the various laws that regulate sanitation, every construction activity (including of the sanitation system) in urban and in rural areas must have a building permit from the Central or Local Building Authorities. In practice, this only happens during the construction of larger buildings and only in urban areas.

Public Health Officers are legally mandated to inspect the building plans to ensure they include properly designed septic systems. However, there is little control on the design and quality of septic tanks due to inadequate monitoring. The officers are also required to monitor the status of improved pit latrines present in urban areas, though these are likely to be replaced by flush toilets when the households can afford it.

2.2.4: Sanitation in rural areas

Pit latrines and septic tanks are the most common forms of sanitation infrastructure in rural areas. Most systems are constructed by home owners, starting with a pit latrine and later investing in a septic system when they can afford it.

It is common for homeowners to gradually expand their houses, at the same time improving the standard of housing with bathrooms and toilet facilities. The knowledge of how to build a septic system and a soak-away is often gleaned from neighbours or family members and copied without knowing the reason for the construction specifications.

Poor sanitation is often not seen as a problem; most people are satisfied as long as a facility does not smell, even if it is not ultimately hygienic. Rural population density in general is very low and average house lots have sizes a minimum of 60 x 90 feet, allowing space for a latrine away from the residence or for a septic tank and a soak-away field.

It is common practice also to have a leach pit (a dug out pit, filled with rocks) and not a soak-away field. Although a leach pit can be practical, they should also be subject to certain specific conditions like a minimum size for the amount of waste water produced in relation to the soil type. Information on how to determine the size of the leach pit has not been thoroughly disseminated amongst the general public.

Programming and funding support for sanitation has come primarily from BSIF, non-governmental organizations (NGO) and the UN's agencies specifically United Nations Children's Found (UNICEF) and Pan American Health Organization (PAHO)/WHO. Humana Belize, an NGO focusing on humanitarian assistance, has made an effort to improve the sanitation facilities in several communities in the country.¹¹ Humana provides the necessary materials and, with the help of villagers, completes, the construction of each facility. Humana hopes that by partnering with the communities, people will learn how to properly build a latrine; and that, in the future, other families will develop the capacity to build and maintain their own.

Despite these efforts, there are still households with no facilities at all, and residents resort to open defecation.

2.2.5: MDG target for sanitation services

The results of Census 2000 show that 59.3 per cent of the Belizean population had access to an improved form of sanitation. The most recent information is available in the LFS, September 2009 (see table 2.7).

11) Humana has built 56 pit latrines in total in the following communities: Trio, Cowpen, Bella Vista, Blue Creek, Sunday Wood, Crique Sarco, Santa Ana, San Pablo, Consejo, Corazon, and Bladen. Eighteen composting latrines were built by Human in collaboration with the Belize Red Cross in Trio, Cowpen and Sunday Wood.

TABLE 2.6 ACCESS TO AN IMPROVED SANITATION SYSTEM IN 2000

'Improved' sanitation MDG	(%)	'Unimproved' sanitation MDG	(%)
Flush toilet	n/a	Flush/pour flush to elsewhere	n/a
Pipede sewer system	15,5	Pit latrine without slab	10,5
Septic tank	34,4	Bucket	n/a
Flush/pour flush to pit latrine	n/a	Hanging toilet or hanging latrine	n/a
Ventilated improved pit latrine (VIP)	7,6	No facilities or bush or field	4,3
Pit latrine with slab	n/a	Pit latrine not vented	24,0
Composting toilet	1,8	Other	1,6
Special case	n/a	Do not know/Not stated	0,2
Total	59,3	Total	40,6

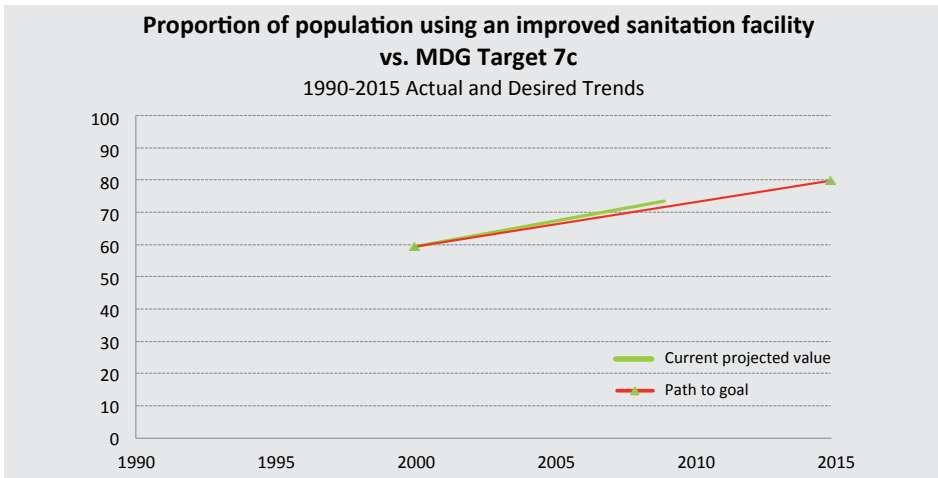
TABLE 2.7 ACCESS TO IMPROVED SANITATION, RESULTS OF THE LABOUR FORCE SURVEY, SEPTEMBER 2009

'Improved' sanitation MDG	(%)	'Unimproved' sanitation MDG	(%)
Flush toilet	n/a	Flush/pour flush to elsewhere	n/a
Pipede sewer system	14,7	Pit latrine without slab	9,4
Septic tank	51,0	Bucket	n/a
Flush/pour flush to pit latrine	n/a	Hanging toilet or hanging latrine	n/a
Ventilated improved pit latrine (VIP)	6,5	No facilities or bush or field	2,1
Pit latrine with slab	n/a	Pit latrine not vented	14,2
Composting toilet	1,3	Other	0,5
Special case	n/a	Do not know/Not stated	2,0
Total	73,5	Total	26,4

The MDG Target 7C is to halve, by 2015, the proportion of people without access to an improved sanitation facility. Based on this MDG, by 2015 the

coverage for improved sanitation facilities should be 79.7 per cent, and Belize is right on track to achieve this goal.

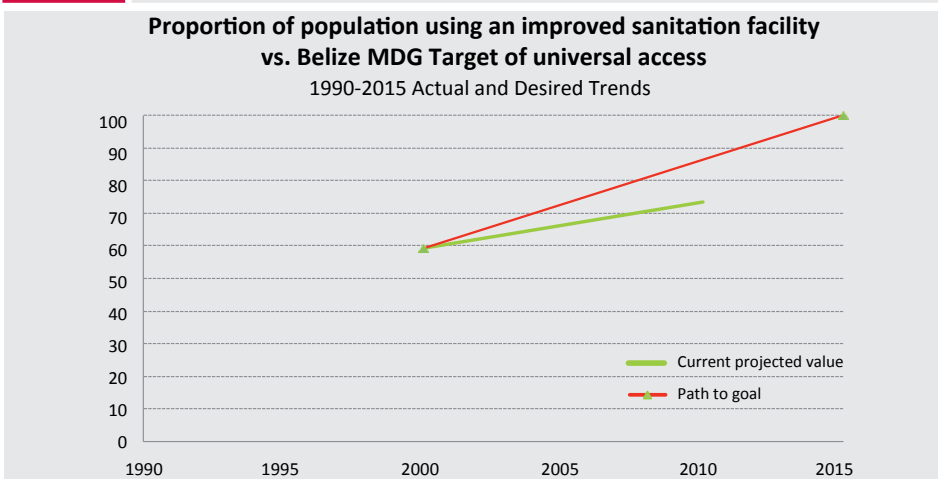
FIGURE 2.3 MDG SANITATION TARGET AND TREND



Similar to water, Belize has set an MDG 7C Plus Target of 100 per cent access to an improved sanitation system,¹² and in this regard Belize is off track. If the trend of development of improved sanitation

facilities continues for the next five years, Belize may reach the 79.7 per cent coverage but not its national target of 100 per cent.¹³

FIGURE 2.4 BELIZE'S UNIVERSAL TARGET AND TREND



12) The target was set out in the manifesto of the current party in Government.

13) This taking into consideration the substantial caveat about the quality of the data.

Unlike the situation with improved water systems, improved sanitation coverage can be quite decentralized and thus available to anyone anywhere in the country because it is a service that most households should be empowered to address themselves. In larger towns (where new urban development tends to cut back on lot sizes which make the development of a proper soak-away field difficult) or coastal developments centralized sewerage systems may be preferable. The latest development is the proposed sewerage system for the Placencia Peninsula.

In rural areas, where the population density is low, the house lots in general are larger and a decentralized sanitation system would be an adequate option. In other words, each household should be empowered to respond to its sanitation needs. In locations where the population is spread out over a large area, a centralized sanitation system would be too costly to install.

2.3: CHALLENGES TO MEETING MDG 7C

Belize has made considerable progress in the coverage of improved water systems for the population and is on target to meet the national goal for 2015. However, the growing demand for improved water systems to reach 100 per cent of the population will always pose a challenge as new settlements continue to spring up without sufficient planning, and as households move into remote areas.

Within urban areas, common reasons for households not having piped water connections include unplanned urban expansions where landowners develop housing lots before the road networks are laid out, as well as, the common informal occupation of land (squattling).

Most villages have their own RWS which are managed by water boards. These boards should be able to finance and execute small expansion

projects within the village without having to seek external assistance. However, the absence of a comprehensive, localized database makes it difficult to track the recurring needs and determine if an RWS can sustainably meet the water supply needs of the community.

A great challenge will be to keep the RWS (most of them were constructed after 2000 and are relatively new systems) fully operational in the medium term. In Table 2.6 which highlights failing systems, the problems encountered are many and include financial, administrative, technical and physical issues. Some of these problems can be avoided or remedied in the short term; in other cases greater efforts are needed. The progress that has been made over the last ten years could easily slip, leaving the country unable to achieve its national target.

With regard to sanitation, on the surface the outlook is less positive. If progress continues along the path of the last ten years, Belize may achieve the international MDG goals of halving the population with no improved sanitation facilities, but not its own set goal of 100 per cent coverage. In contrast with water supply however, every household however, regardless of location, can be empowered to implement its own improved sanitation facility.

The challenge will be to mobilize the population of Belize in such a way that those who can afford to improve the standard of their sanitation system do so independently. At the same time, a concerted push should be made to target that section of the population who does not have the technical and/or financial means to improve their own sanitation facilities of which a large majority are located in rural communities.

2.4 ASSESSMENT OF PROGRESS TOWARDS THE MDG TARGET PRIOR TO THE MAF, AND THE NEED FOR COLLECTIVE ACTION

Collective action by the Government and community-based organizations including NGOs would need to respond to the following aspects of water and sanitation services:

- Rudimentary Water System:
 - o installing and repairing hand pumps in villages with no or insufficient hand pumps;
 - o constructing RWS in villages with no existing systems;
 - o repairing failing systems;
 - o expanding systems where needed;
 - o improving on technical and financial sustainability of the RWS and;
 - o empowering communities to manage their water systems sustainably.

- Implementing improved sanitation facilities in urban and rural areas requires the following steps:
 - o reviewing existing sanitation facilities and making the necessary improvements;
 - o targeting households that can afford to improve their sanitation systems and;
 - o providing technical and other support to households who do not have the means to build their own improved sanitation facility.



CHAPTER 3:

**STRATEGIC
INTERVENTIONS**

Photo: Ministry of Labour Local Government and Rural Development, Belize

3.1: STRATEGIC INTERVENTIONS IMPLEMENTED: WATER SUPPLY

3.1.1: Construction of a Rudimentary Water System

Between 2000 and July 2010, no less than 76 RWS have been built and completed in rural Belize. This is 57 per cent of the 134 RWS present in 2010.¹⁴

At this moment systems are under construction in seven villages with expected completion by the end of 2010.

Nine villages, that have no RWS at this time, will be connected to the BWSL's Belize City network within the next two year.¹⁴

3.1.2: Repair of defective Rudimentary Water Systems

The Ministry of Labour, Local Government and Rural Development (MLLGRD) provides some technical and financial support to repair failing or damaged water systems. Repair of these defective RWS's has an immediate effect on a relatively large number of households. However, several RWS (22) showed failures significant enough to be considered as not properly functioning.¹⁶ Some of these systems deliver piped water in the rainy season but at the start of the dry season, the community is left without a regular supply of improved water. Such a system is not considered a properly functioning RWS, and the

villages may not be classified as having an improved water system owing to the irregular supply of water. Some of the repairs are underway while in a number of cases they are still pending. Prevention of repeat breakdowns is of the utmost importance, and this requires capacity-building at the community level. Three RWS that repeatedly experienced problems with their water supply are at this time being incorporated in the BWSL system of Belmopan.

The villages listed in table 2.6 do have a complete RWS, but one or more components of the systems are broken. By fixing the problems, a great number of households would again have access to potable water. Of the 4,065 households with no access to piped water in July 2010 (see table 2.7), 2,627 (64.6 per cent) could regain relatively easily access simply by fixing the problems. In the case of Santa Cruz, Toledo, this means the purchase and installation of a pump which will cost about BZ\$7,000. Other systems require a more costly solution like the replacement of the membranes in the Reverse Osmosis system in Chunox, Corozal. Still, these costs are a lot less than the construction of a whole new system.

3.1.3: Expansion of the Belize Water Services Limited system

BWSL is constantly expanding its system and increasing connections, but the development of urban areas often outpaces the utility's schedule for system expansion. Projects must then be better coordinated, keeping in mind that BWSL cannot lay pipes if the road system has not been surveyed and constructed.

14) St Anne's, Santana, Corozalito, Boston, Bladden, San Pablo, Sunday Wood.

15) Scotland Halfmoon, Flower's Bank, Bermudian Landing, Lemonal, Isabella Bank, Double Head Cabbage, St. Paul's Bank, Rancho Dolores.

16) Chunox, Guine Grass, Indian Church, San Jose, San Pablo, Mahogany Heights, Mascall, Arenal, Armenia, Cotton Tree, el Progreso, Franks' Eddy, San Familiar, St Margaret's, Matthews, Hummingbird, Aguacate, Bellavista, Pueblo Viejo, San Vicente, Santana, Santa Cruz.

3.2: STRATEGIC INTERVENTIONS NEEDED BUT NOT IMPLEMENTED: WATER SUPPLY

3.2.1: Setting up or repairing hand pumps

There are 16 villages where water is provided through basic hand pumps.¹⁷ In five villages, none of the hand pumps was working at the time of research; in seven, hand pumps were working but the number of working pumps did not meet the standard set by the MLLGRD which is a maximum of 10 households per hand pump. There are seven villages without any service from an improved water supply, none of which is incorporated in any plans for the implementation of an RWS.¹⁸

3.2.2: Repairing defective Rudimentary Water Systems expeditiously

Minor repairs to the RWS should be covered by the governing village water boards.¹⁹ However, in some instances, the water board is unable to generate sufficient funds for proper maintenance and needed repairs. In other cases, repairing or upgrading of the system is beyond the means of the water board, for instance in cases where a new well has to be found. In such cases, it is necessary for the Rural Water Supply and Sanitation Unit (RWSSU) of the MLLGRD to conduct the drilling for a new well. The primary delay when repairs to water systems are needed occurs when the community does not have the technical skills or the financial resources to respond to the issue it is facing.

In all the cases where external assistance is required to restore non-functioning systems, the time needed for application, planning and execution can take

months, leaving the village without reliable water supply during this time.

3.2.3: Improving water quality delivered by a Rudimentary Water System

Although every RWS is expected to have a chlorinator installed, there are many systems without a working chlorinator.

Results from the questionnaire were not consistent and complete, but of the 134 piped water systems in the country (RWS and BWSL), 72 reported having a chlorinator; of these, the status of 62 was not known or stated. Of the 72 systems with a chlorinator, 50 were in use.

A community's first concern is a reliable source of water that is clear, tasteless and without odour.²⁰ Most people do not appear to be concerned with the water quality aspects, such as the concentration of dissolved chemicals and the presence of pathogens. Many do not yet fully grasp that outbreaks of waterborne diseases are a result of drinking untreated water.²¹

Although RWS are improved water systems, if the quality of the water they deliver fails to meet the minimum required standards, then they cannot be regarded as such. Every RWS is supposed to have a treatment system installed, but many communities do not have or do not use them.

3.3: PRIORITIZED KEY INTERVENTIONS FOR 2011-2015: WATER SUPPLY

The following table shows the key interventions in order of priority and their indicative interventions for the period 2011–2015.

17) Copper Bank, Fire Burn, Water Wash, San Carlos, San Luis, Biscayne, Bomba, Yalbac, Jalacte, Mafredi, Santa Elena, Boom Creek, Conejo Creek, San Lucas, Crique Jute, Mabil Ha, Otoxha.

18) Gardenia, Gracie Rock, Freetown Sibun, May Pen, More Tomorrow, Dolores, Punta Negra.

19) Village Council Act, Chapter 88, Revised Edition 2003, Part VII Village Water Boards.

20) WHO, "Surveillance and control of community supplies", in *Guidelines for Drinking-Water Quality*, 2nd edition, vol. 3, 1997.

21) Focus group discussions.

TABLE 3.1 PRIORITIZED KEY INTERVENTIONS FOR 2001–2015: WATER SUPPLY

MDG 7	Key interventions	Indicative interventions	
Target 7C: Reduce by half the proportion of people without sustainable access to safe drinking water	Several national entities provide technical assistance and funding to support water supply and services in the country	Establish a lead agency and protocols for water access and supply	
	Install or repair hand pumps	Install hand pumps in seven villages which currently do not have any pumps or RWS	
		Install and repair hand pumps in 22 villages with insufficient number of pumps	
	Repair defective RWS		Repair failing components of RWS in 22 villages (status as of July 2010)
			Increase technical and administrative capacity of water boards to make needed repairs
			Increase capacity of water boards to finance needed repairs
			Ensure technical assistance to water boards to access resources for repairs
			Incorporate non-functional RWS's into BWSL systems (where possible)
	Improve quality of water delivered by RWS		Build technical capacity of water boards to install and repair chlorinators
			Actively promote use of chlorinators at the community level
			Conduct regular testing of water and provide information to water boards and village councils
	Construct or expand RWS		Construct systems that service multiple villages/communities
			Amalgamate RWS systems
			Construct RWS in ten villages with no RWS (situation July 2010)
	Expand BWSL system		Incorporate neighbouring subdivisions and villages in expanding BWSL systems

3.4: STRATEGIC INTERVENTIONS IMPLEMENTED: SANITATION SERVICES

3.4.1: Construction or expansion of piped sewerage systems

The potential for expanding the BWSL sewerage systems is rather small because of the high costs involved, the technical difficulties associated with moving wastewater to treatment ponds and the limited availability of suitable land to develop these treatment ponds. A cost benefit analysis of this intervention will also be needed to justify the significant upfront investment.

At the time of writing, there is a proposed plan to build a sewerage system at the Placencia Peninsula that may be managed by BWSL.

3.4.2: Construction of other improved sanitation systems

As mentioned previously, during the last ten years, there has been limited strategic, comprehensive action for sanitation coverage. BSIF has only implemented three projects related to sanitation. It is important to note that the implementation of RWS does not automatically include a sanitation component. Given the limited execution of sanitation projects, it might be worth incorporating both water and sanitation components into project proposal requests to BSIF.

Additionally, efforts for improved sanitation facilities at the community level have been supported by the Red Cross and small NGOs such as Humana Belize.

3.4.3: Public education for improved sanitation

Health and hygiene education on the use of sanitation facilities is conducted, although not as regularly and as comprehensively and consistently as needed. Current efforts by both government and non-government organizations to educate the public about hygiene are not sufficiently focused and are usually limited to small target groups.

3.5: STRATEGIC INTERVENTIONS NEEDED BUT NOT IMPLEMENTED: SANITATION SERVICES

3.5.1: Public education on good sanitation and hygiene practices

The main focus of the strategic interventions is on educating and empowering the public on the need for and benefits of improved sanitation, the different sanitation systems, how the systems function and their maintenance.

3.5.2: Enhancement of regulatory capacity

Sanitation regulations exist under different laws, and their enforcement therefore falls under different ministries and agencies. Legislation and enforcement should be revised and harmonized into one instrument, with one lead ministry spearheading all matters related to sanitation.

3.5.3: Building community capacity and skills

Village councils are legally charged with sanitation responsibilities in villages, but only in a few communities are they likely to take on the leadership role to ensure proper monitoring of sanitation. Capacity-building of the village councils in the field

of sanitation monitoring and regulation may be very useful in guiding and controlling the different efforts to establish sanitation facilities in rural areas. Capacity-building should also be extended to the wider community so that they can demand better monitoring of sanitation coverage in their community.

TABLE 3.2 PRIORITIZED KEY INTERVENTIONS: SANITATION SERVICES

MDG 7	Key interventions	Indicative interventions
Target 7C: Reduce by half the proportion of people without sustainable access to safe sanitation services	Consolidate regulations governing the sanitation sector	Develop a comprehensive act that will replace the numerous existing laws and streamline responsibilities of ministries and agencies
		Establish lead agency and protocols for coordination of all programs and initiatives for this sector
	Build community capacity and skills to maintain or improve the standards of sanitation facilities for each household	Facilitate expansion of BWSL sewerage system where possible
		Maintain existing BWSL sewerage system in working condition and at optimal standards
		Facilitate through technical assistance the implementation of improved sanitation facilities at the household level
		Facilitate the construction of improved sanitation facilities at household level for the poorest households, in a joint effort with the community
	Facilitate schools and public buildings with an appropriate number of sanitation facilities	Develop maintenance schedules to keep all facilities in working condition
		Construct facilities in relation to the ratio of toilets per student/visitor which currently is too low



CHAPTER 4:

**BOTTLENECK
ANALYSIS**

Photo: Ministry of Labour Local Government and Rural Development, Belize

4.1: SECTOR-SPECIFIC BOTTLENECKS

This section identifies the bottlenecks that prevent the effective implementation of the priority interventions for water and sanitation mentioned in chapter 3.

4.1.1: Policy and planning

Water supply and sanitation coverage must be an integral component of national development plans. As such, the drive for water and sanitation coverage should be strategically aimed at reaching those populations that are least likely to access these services on their own. There is no national policy governing water supply and coverage to households; however, a draft policy for water and sanitation coverage and maintenance has been formulated (annex 8.3.5, p. 89) through the MAF process, which needs to be reviewed and approved by the Government of Belize. This policy is crucial for defining the path the Government of Belize should follow to reach the national goal for MDG 7 by 2015.

Proper planning is needed to guarantee the timely delivery of interventions in this sector, especially to identify and share responsibilities among stakeholders, reduce costs and make the best use of available materials and human resources. Strategic planning is necessary to guarantee sustainability and prevent any deterioration in access to water and sanitation for the most vulnerable populations.

Currently, the initiative to start a project in a community must come in the form of a request from the village, which in itself can be seen as a bottleneck, as villages in the most remote areas are less likely to seek support from BSIF in applying for a village project like an RWS or a community latrine. It is therefore crucial to have joint planning among coordinating, regulating and funding entities,

including representation of villages to strategically target the populations that need water supply and sanitation services, especially in the context of national development planning.

4.1.2: Budgeting and financing

In the last 20 years, RWS have been completed in villages. In section 2.1.5 an overview of the villages without an RWS or hand pump is given. Apart from serious constraints, such as locating suitable water sources or the small sizes of villages, it is feasible for all villages and unserved urban pockets to have access to improved water. Financing of these systems and pumps is available through the BNTF, managed by BSIF.

Of utmost concern are the communities where an RWS fails, causing an interruption in service. The managing entity, the Village Water Board, is often unable to organize and finance needed repairs. Where a water board is unable to respond to the financial aspects of water supply management, owing to insufficient finances, they are unlikely to execute any expansion of the system to supply water to new houses.

Another recurring issue is who finally pays for the water. Water from both BWSL and BSIF systems are financed either through grants or loans undertaken by the Government of Belize. Loans are repaid from public finances, which means that the general public is effectively subsidizing water systems. The sustainability of both types of systems ultimately depends on a cost recovery structure that guarantees income for operation and maintenance, and to finance repairs and replacement of basic infrastructure.

Currently there is no transparent tariff structure governing what a consumer has to pay for water usage in rural areas. All use of water should be

recorded on a metered system, and user rates determined by appropriate authorities after a thorough analysis of the costs to that particular system. Though the Public Utilities Commission (PUC) currently controls the rate structure of BWSL, the fee for the metered RWS is determined on a case-by-case basis and so uniformity in the fee structure is absent.

4.1.3: Service delivery

The following activities fall under service delivery:

- proper financial and technical management of the water boards;
- timely expansion of the RWS to include new connections;
- adequate monitoring of the financial and technical management of the RWS by the water boards;
- adequate technical assistance by governmental agencies in monitoring the establishment and performance of sanitation facilities;
- enforcement of existing legislation;
- ownership of communal facilities such as the toilets at a school or other public facility;
- periodic testing of the water for quality to allow proper treatment through chlorination;
- technical support for construction of sanitation facilities and;
- regular accounting and reporting to the community on water board finances.

During the national consultation on 29 and 30 July 2010, a frequently listed bottleneck was the

poor management of the RWS by the village water boards. One perceived reason for this poor performance was that members of the water boards are not technically qualified and/or are not sufficiently committed to quality service delivery in the communities. A water board consists of seven members, five of whom should be appointed by the Minister of LLGRD but are instead appointed by the area representative. Although there are many water boards that function very well and act responsibly, the number of complaints regarding poor water board management brought forward during the consultation was overwhelming.

Another shortcoming in service delivery is the level of monitoring support that the MLLGRD can provide. The MLLGRD field staff needs updated information on villages and their RWS. The absence of information leads to unsatisfactory monitoring of the technical and financial performance of water boards. This monitoring capacity is necessary to reduce costly repairs and preventable malfunctioning of systems.

Other entities are challenged in their tasks to regulate and monitor sanitation facilities. The village council is responsible for the sanitation of the village in general, for drainage and sewerage,²² but many village councils may be unaware of this task or what it entails. The Central and Local Building Authorities exist to monitor the construction of buildings, including sanitation facilities, but are not able to do so for every building, especially in the rural areas. The same can be said for the Public Health Officers within the MoH, who are in charge of monitoring the design and construction of sanitation facilities.

4.1.4: Service utilization

Some villages have very limited or no access to communication services, limited public transportation and financial resources which would allow their members to travel to one of BSIF's offices

²²⁾ Reg. 23 k (i) and (ii) of the National Village Councils Act.

and initiate the application process for a water or sanitation project. Furthermore, once the water system is established in the community, residents do not regularly engage with water boards to monitor progress to ensure proper governance of the water systems.

From a strategic perspective, it may be prudent to review requests for both water and sanitation projects simultaneously and ensure that coverage in both areas is adequate before an individual water or sanitation project is implemented.

4.1.5: Cross-cutting bottlenecks

Cross-cutting bottlenecks are applicable to the country as a whole, and either have the potential to affect multiple sectors or require an integrated response across sector agencies.

Information gathering and management for water and sanitation development requires input from different agencies such as the MoH, the MLLGRD, the SIB, NAVCO, Central Medical Laboratory and the Department of Environment. All pertinent data dealing with the villages should be centrally stored and available for community workers and representatives of relevant agencies to use for planning purposes. In the absence of such a database, acquiring necessary information becomes slow and tedious and negatively impacts the speed with which local decisions can be made. The existence of a functional and updated database system for water and sanitation can facilitate joint collection, dissemination and use of data.

Another cross-cutting bottleneck in this sector is the scattered nature of regulatory support and technical services for sanitation. The responsibilities for this sector are shared among different entities, as there is currently no lead agency with coordination responsibilities. Information collected by any entity

is not systematically shared with other agencies. According to the Public Health Act, there should be a minimum distance of 40 feet between septic tanks and latrines and any wells, streams or open waters; yet, the Water Industry Act has specified other minimum distances and differentiates between septic tanks and soak-aways or leach pits — a minimum of 50 feet from surface water and 50 feet from wells for sewers and septic tanks, a minimum of 50 feet from leaching beds and pits and privy from surface water, and a minimum of 100 feet from wells for leaching bed, leaching pits and privies. This bottleneck has significant bearing on the achievement of both water and sanitation indicators for MDG 7C.

TABLE 4.1 BOTTLENECKS TO KEY INTERVENTIONS TO PROMOTE ACCESS TO SAFE DRINKING WATER

MDG 7	Key interventions	Indicative interventions
<p>Target 7C: Reduce by half the proportion of people without sustainable access to safe drinking water</p>	<p>Several national entities provide technical assistance and funding to support water supply coverage and services in the country</p>	<p>Establish lead agency and protocols for water access and supply</p>
	<p>Install or repair hand pumps</p>	<p>Install hand pumps in seven villages which currently do not have any pumps and RWS</p>
		<p>Install and repair hand pumps in 22 villages with insufficient number of pumps</p>
	<p>Repair of defective RWS</p>	<p>Repair failing components of 22 RWS (situation July 2010)</p>
		<p>Increase technical and administrative capacity of water boards to make needed repairs</p>
		<p>Increase capacity of water boards to finance needed repairs</p>

Bottlenecks	Bottleneck category
Insufficient coordination and harmonization among responsible entities to target un-served and underserved communities as part of national development policies.	Cross-cutting
Inability to identify and access suitable water sources in un-served communities	Service delivery
Insufficient budget for the installation of hand pumps	Budgeting and financing
General perception that hand pumps are redundant when an RWS is in place; lowered acceptance of hand pumps	Service utilization
No centralized data management system present to provide information on number of households in villages; location of hand pumps; technical state of the hand pumps, etc.	Service delivery
Shortage of financial resources to carry out repairs	Service delivery
Water boards lack the capability to manage the technical and administrative aspects of the RWS	Policy and planning
There is no transparent mechanism in place to replace unsuitable water board members.	Policy and planning
Water board members are not familiar with the village water board regulations in the Village Council Act Chapter 88, Revised Edition 2003, which outlines their obligations and duties	Policy and planning
MLLGRD has insufficient human resources to properly monitor the performance of the water boards (ratio 1:26 RCDO's to water boards and village councils)	Policy and planning, Cross-cutting
MLLGRD does not have access to an updated data management system for water and sanitation	Budgeting and financing
RWS users pay a flat rate for consumption which does not cover relevant costs (production, maintenance, operation, expansion, etc.)	Service delivery
Small number of connections limits the level of income that can be generated while overhead costs are high	Service delivery
Capacity to audit water boards regularly is severely limited and water boards may not be held to account for poor management	Policy and planning
Many community members do not receive information on RWS finances and its uses by the water board	Cross-cutting
No mechanism in place to replace unsuitable water board members	Policy and planning
District Association of Water Boards (DAWB) are not put in place or are not functioning	Service delivery

MDG 7	Key interventions	Indicative interventions
Target 7C: Reduce by half the proportion of people without sustainable access to safe drinking water		<p>Provide technical assistance to water boards to organize repairs and access necessary materials and equipment</p> <p>There is no system in place to purchase parts and equipment in an efficient and cost-effective manner for all RWS.</p> <p>Incorporate non-functional RWS into BWSL systems (where possible)</p>
	Improve quality of water delivered by RWS	<p>Build technical capacity of water boards to install and repair chlorinators</p> <p>Actively promote use of chlorinators</p> <p>Conduct regular testing of water and provide information to water boards and village councils</p> <p>Implement use of chlorinators</p> <p>Conduct regular testing of water and disseminate information to water boards</p>
	Construct or expand RWS	<p>Construct systems that service multiple villages/communities</p> <p>Construct RWS in ten villages with no RWS (situation July 2010)</p>
	Expand BWSL system	<p>Incorporate neighbouring subdivisions, villages in expanding BWSL systems</p>

	Bottlenecks	Bottleneck category
	Weak financial position of water board prevents direct action in case of malfunctioning of the RWS	Budgeting and financing
	There is no centralized database that houses regularly updated technical information on installed equipment, which is easily accessible to water boards	Cross-cutting
	Applying for financial support for an RWS with the MLLGRD or BSIF is a lengthy procedure	Budgeting and financing
	No financing available	Budgeting and financing
	Capacity of BWSL is limited	Service delivery
	Lack of political support	Policy and planning
	Consumers do not see the need for or oppose the use of chlorination	Service delivery
	Water board members do not have access to the services of qualified technicians who can repair the system	Service utilization
	Consumers do not wish to have the water chlorinated.	Service utilization
	Financial constraints	Budgeting and financing
	No information-sharing protocol developed and established between water boards and MoH and Rural Development.	Cross-cutting
	Consumers do not understand the value of chlorination	Service utilization
	No information-sharing protocol available	Service delivery
	Limited capacity of Central Laboratory of MoH	Service delivery
	Absence of centralized data management system on the performance of RWS: technical, financial, quality, production level	Cross-cutting
	Insufficient financing available	Budgeting and financing
	No regulations developed in regards to management of joint users systems.	Policy and planning
	Expansion of the RWS to include remote living households technically and economically not feasible	Service delivery
	Cost of development per user is unsustainably high	Budgeting and financing
	No fresh water source available at the location	Service delivery
	Village council is not familiar with funding and implementing agencies' systems and procedures	Service utilization
	No financing available	Budgeting and financing
	Capacity of BWSL is limited	Service delivery

TABLE 4.2 BOTTLENECKS TO KEY INTERVENTIONS TO PROMOTE ACCESS TO BASIC SANITATION SERVICES

MDG 7	Key interventions	Indicative interventions
<p>Target 7C: Reduce by half the proportion of people without sustainable access to safe sanitation services</p>	<p>Consolidate regulations governing the sanitation sector</p>	<p>Develop a comprehensive act that will replace the numerous existing laws and streamline responsibilities of ministries and agencies</p>
		<p>Establish lead agency and protocols for coordination of programs and initiatives in this sector</p>
	<p>Build community capacity and skills to maintain or improve the standards of sanitation facilities for each household</p>	<p>Facilitate expansion of BWSL sewerage system where possible</p>
		<p>Maintain existing BWSL sewerage system in working condition and at optimal standards</p>
		<p>Facilitate through technical assistance the development of improved sanitation facilities at the household level</p>
		<p>Facilitate through technical assistance the construction of improved sanitation facilities for the poorest households, based on joint effort with the community</p>
<p>Provide schools and public buildings with an appropriate number of sanitation facilities</p>	<p>Build community capacity to keep all facilities in working condition</p>	
	<p>Construct facilities in relation to the ratio of toilets per student/visitor, which is currently too low</p>	

Bottlenecks	Bottleneck category
Sanitation legislation is scattered across different acts	Policy and planning
There is no lead agency addressing sanitation issues	Policy and planning
Lack of cooperation and coordination among responsible entities	Policy and planning
Limited financial resources	Budget and financing
Absence of adequate technology to respond to physical constraints	Cross-cutting
Inadequate enforcement of legislation for land use and development	Service delivery
Treatment ponds need to be expanded	Service delivery
Legislation governing sanitation standards is inconsistent and scattered across several acts and agencies.	Policy and planning
Regulations and standards related to construction of individual sanitation systems are insufficiently applied and enforced	Service delivery
No lead agency present that can coordinate enforcement of sanitation regulations	Service delivery
No lead agency present to coordinate the provision of direct technical assistance for other systems and household facilities	Service delivery
People do not comprehend the technical information that validates the use of an improved facility	Service utilization
Improved sanitation is not seen as a priority in households	Cross-cutting
Poor households are unlikely to buy materials for implementation of sanitation projects	Cross-cutting
Lack of transparent system to determine which household can qualify for the assistance: who is poor enough?	Policy and planning
Communities are not empowered to seek support for the construction of sanitation facilities at the community level	Service utilization
Lack of coordination capacity among implementing agencies to build and strengthen communal ownership of all sanitation facilities	Policy and planning
Communities are not empowered to conduct maintenance, and proper monitoring of the systems are not conducted regularly	Cross-cutting
Appropriate authorities have not established the maximum ratio of toilets to users to maintain sustainability	Policy and planning
Appropriate authorities are unaware of potential increase in the numbers of users of facilities in schools, public buildings, etc.	Policy and planning



CHAPTER 5:

**IDENTIFYING INDICATIVE
ACCELERATION SOLUTIONS**

Photo: Ministry of Labour Local Government and Rural Development, Belize

The solutions proposed to mitigate the identified and prioritized bottlenecks are grouped in tables 5.1 for water and 5.2 for sanitation.

TABLE 5.1 SOLUTIONS TO MITIGATE IDENTIFIED BOTTLENECKS TO ACCESS TO SAFE DRINKING WATER

MDG 7	Key interventions	Indicative interventions	Prioritized bottlenecks
<p>Target 7C: Reduce by half the proportion of people without sustainable access to safe drinking water</p>	<p>Several national entities provide technical assistance and funding to support water supply coverage and services in the country</p>	<p>Establish lead agency and protocols for water access and supply</p>	<p>Insufficient coordination and harmonization among responsible entities to target un-served and underserved communities in response to national development policies</p>
	<p>Install or repair hand pumps</p>	<p>Install hand pumps in seven villages which currently do not have any pumps or RWS</p>	<p>Inability to identify and access suitable water sources in un-served communities</p>
			<p>Inadequate budget planning and implementation of budget for the installation of hand pumps</p>
			<p>General perception that hand pumps are redundant when an RWS is in place; lowered acceptance of hand pumps</p>
	<p>Repair of defective RWS</p>	<p>Install and repair hand pumps in villages with insufficient number of pumps</p>	<p>No centralized database to provide information on number of households in villages; location of hand pumps; technical state of the hand pumps</p>
		<p>Repair or replace ailing components of 22 RWS (situation July 2010)</p>	<p>Shortage in financial resources delays repair of the systems</p>
		<p>Increase technical and administrative capacity of water boards to conduct needed repairs</p>	<p>Water boards lack the capacity to manage the technical and administrative aspects of RWS</p>
			<p>No transparent mechanism in place to replace unsuitable water board members</p>
			<p>Water board members are not familiar with village water board regulations in the Village Council Act Chapter 88, Revised Edition 2003, which outlines their obligations and duties</p>
			<p>MLLGRD has insufficient human resources to properly monitor the performance of the water boards (ratio 1:26 RCDO's to water boards and village councils)</p>
<p>MLLGRD has no database system for water and sanitation monitoring</p>			

	Indicative acceleration solutions	Solution category
	Establish lead agency and protocols for coordination of water supply and services	Strengthen MLLGRD to serve as the lead agency to coordinate water supply and sanitation services
	Increase RWSSU's technical capacity for drilling production wells	Increase the capacity of the RWSSU
	Strengthen capacity to link programme planning with implementation	Install an improved water system in each village
	Mobilize communities to apply for projects under BSIF or other local financing	Develop awareness campaign
	Start awareness and education campaign, training RCDO's, village councils and water boards about the value of hand pumps and quality of water	Develop awareness campaign
	Create database for water pumps, as part of a broader database system that contains all pertinent information on water and sanitation issues at village level	Develop a centralized database system
	Increase revenue generation of RWS at village level	Install an improved water system in each village
	Revise water board regulations to incorporate new appointment procedures to include selection of competent individuals	Revise water board regulations
	Revise regulations to allow for removal of non-functioning members.	Revise water board regulations
		Strengthen institutional capacity of village councils and water boards
	Require water board members to have basic literacy and numeracy skills	Revise water board regulations
	Build the capacity of water board members to implement the respective responsibilities as articulated in the Village Councils Act	Revision of water board regulations
		Institutional strengthening and capacity training of village councils and water boards
	Build capacity of MLLGRD, specifically, and expand number of field officers to conduct regular and effective performance monitoring of all water boards	Strengthen MLLGRD
	Develop and implement a centralized database system that includes all pertinent information for oversight of RWS	Develop a centralized database system
	Build capacity of lead agency office to manage and process data and disseminate to reports to stakeholders.	Develop a centralized database system

MDG 7	Key interventions	Indicative interventions	Prioritized bottlenecks	
<p>Target 7C: Reduce by half the proportion of people without sustainable access to safe drinking water</p>		<p>Increase capacity of water boards to finance repairs</p>	<p>RWS users pay a flat rate for consumption which does not cover relevant costs (production, maintenance, operation, expansion, etc.)</p> <p>Many community members do not receive information on RWS finances including expenditures on maintenance and repairs by the water board</p> <p>No mechanism in place to replace non-functioning water board members</p> <p>DAWB are not in place or are not functioning</p>	
		<p>Provide technical assistance to water boards to organize repairs and access necessary materials and equipment</p>	<p>There is no system to purchase parts and equipment in an efficient and cost-effective manner for all RWS</p> <p>There is no centralized database that houses regularly updated technical information on installed equipment and easily accessible to water boards.</p> <p>Applying for financial support for RWS with the MLLGRD or BSIF is a lengthy procedure.</p>	
		<p>Build technical capacity of water boards to install and repair chlorinators</p>	<p>Consumers do not see the need for or oppose the use the chlorination</p>	
		<p>Improve quality of water delivered by RWS</p>		

	Indicative acceleration solutions	Solution category
	Implement an effective cost recovery system for RWS including meters and other measures	Revise water board regulations
	Establish a pro-poor rate that is both effective and feasible	Improve financial capacity of the water sector Improve financial capacity of the water sector Reinstitute District Associate of Water Boards (DAWB)
	Empower community leadership to hold water boards to account.	Revise water board regulations Strengthen institutional capacity of village councils and water boards
	Improve financial monitoring/auditing capacity of MLLGRD	Strengthen monitoring capacity of the MLLGRD
	Village water boards should be required to submit standardized financial statements and internal audit/monitoring reports at quarterly general meetings in the village	Awareness campaign Strengthen MLLGRD to monitor water boards Revise water board regulations
	Replacement of non-functioning members should be done in a transparent and objective manner with appointment/replacement schedules under MLLGRD	Revise water board regulations Strengthen MLLGRD
	In each district, a DAVWB will be established; membership to the DAWB is mandatory	Re-install and strengthen DAWB
	Develop a sanction mechanism for village water boards that do not adhere to the DAWB regulations	Revise water board regulations
	Standardize equipment used in RWS construction to make exchange of parts possible.	Develop a centralized database system
	Establish a centralized system for purchasing of parts and equipment	Develop a centralized database system
	Build the capacity of DAWB to provide credit to water boards	Reinstall DAWB
	Strengthen coordination and planning between BSIF, MLLGRD and national development partners for identification and long-term projection of resources required to address the provision of water supply infrastructure	Appoint a lead agency
	Apply for funding with BSIF	Develop awareness campaign
	Conduct awareness campaign to educate consumers on use of chlorinators	Develop awareness campaign

MDG 7	Key interventions	Indicative interventions	Prioritized bottlenecks
		Actively promote use of chlorinators	Consumers do not wish to have their water chlorinated
		Conduct regular testing of water and provide information to water boards and village councils	No information sharing protocol developed and established between water boards and responsible entities Limited capacity of Central Laboratory of MoH
	Construct or expand RWS	Construct systems that service multiple villages/communities	Insufficient financing available
			No regulation developed for management of joint users systems
		Construct RWS in ten villages with no RWS	Cost of development per user is unsustainably high
			No fresh water source available at location
			Village council is not familiar with funding and implementing agencies' systems and procedures for grants
	Expand BWSL system	Incorporate neighbouring subdivisions, and villages in expanding BWSL systems	No financing available
			Capacity of BWSL is limited

Indicative acceleration solutions	Solution category
Awareness campaign to educate consumers	Develop awareness campaign
Monitor water quality and provide feedback to communities	Develop a centralized data base system
Conduct technical training and certification for operators of RWS, to guarantee the correct use of chlorinators	Institutional strengthening and capacity-building of village councils and water boards
Input results of the water quality testing in the database system which is accessible by the RCDOs online	Develop a centralized database system
Increase capacity of Central Laboratory to conduct regular testing water of water system	Increase water monitoring capacity
Operators of RWS should monitor chlorine levels	
Identify and secure funding to install new or expand existing RWS	Install an improved water system in each village
Strengthen water board legislation and develop regulations for establishment and management of joint user systems	Increase capacity of MLLGRD
Investigate alternative ways of treating other water sources (other than RWS or hand pumps) to produce safe drinking water	Improve financial capacity of the water sector
Investigate alternative sources for safe drinking water	Increase capacity of RWSSU
Mobilize and empower communities to apply for projects under BSIF financing	Develop awareness campaigns
	Increase capacity of MLLGRD
Identify and secure funding to expand water supply to underserved communities.	Improve financial capacity of the water sector
Increase technical and financial capacity of BWSL to respond to the water supply needs and services of subdivisions.	Improve financial capacity of the water sector

TABLE 5.2 SOLUTIONS TO MITIGATE BOTTLENECKS TO ACCESS TO BASIC SANITATION SERVICES

MDG 7	Key interventions	Indicative interventions	Bottlenecks
<p>Target 7C: Reduce by half the proportion of people without sustainable access to safe sanitation services</p>	<p>Consolidate regulations governing the sanitation sector</p>	<p>Develop a comprehensive act that will replace the numerous existing laws and streamline responsibilities of ministries and agencies</p>	<p>Sanitation legislation is scattered across different acts</p> <p>There is no lead agency addressing sanitation issues</p>
		<p>Establish lead agency and protocols for coordination of programs and initiatives in this sector</p>	<p>Lack of cooperation and coordination among responsible entities</p>
	<p>Maintain or improve the standards of sanitation facilities for each household</p>	<p>Facilitate expansion of BWSL sewer system where possible</p>	<p>Limited financial resources</p> <p>Absence of adequate technology to respond to physical constraints</p>
		<p>Maintain existing BWSL sewer system (treatment ponds) in working condition and at optimal standards</p>	<p>Inadequate enforcement of legislation for land use and development</p> <p>Inability to expand treatment ponds</p>
		<p>Build capacity of lead sanitation agency — once identified — to implement sanitation policy and enforce sanitation act</p>	<p>Legislation governing sanitation standards including at the household level are inconsistent and scattered within several acts and agencies</p>
			<p>No lead agency present that can coordinate enforcement of sanitation regulation efforts</p>
			<p>No lead agency coordinating the provision of direct technical assistance for other systems and household facilities</p>
			<p>People do not comprehend the technical information that validates the use of an improved facility</p>
			<p>Improved sanitation is not seen as a priority in households</p>

Indicative acceleration solutions	Solution category
Develop a comprehensive and consolidated legislation for sanitation	Revise sanitation legislation
Appoint a lead agency with the resources and capacity to take up this role	Appoint lead agency for sanitation coverage
Empower lead agency and responsible entities to enhance coordination of sanitation efforts	Revise sanitation legislation
Secure funding and identify new revenue / funding source for sewerage expansion efforts	Improve income generation capacity of the sanitation sector
Explore, identify and adapt relevant technology for disposal and treatment of sewerage	Conduct review of sanitation facilities and investigate use of alternative, cost-effective systems
Require responsible entities to enforce relevant laws governing land use and ensure there are consequences for breaching them	Strengthen institutional capacity of responsible entities
Build capacity and provide resources to develop land use policy	Establish and implement land use plans
Prepare a 20-year sanitation development plan to determine the minimum needs for sewerage treatment and secure land for expansion	Establish and monitor sanitation plan
Develop one comprehensive act that will address all aspects of sanitation including at the household level. This act will replace all other legislation and will be implemented by the lead agency	Revise sanitation legislation
Conduct public awareness campaign about good sanitation practices	Develop and conduct awareness campaign and training
Select a lead agency which has the resources and the capacity to take up this role	Appoint lead agency
Select a lead agency which has the resources and the capacity to take up this role	Appoint lead agency
Public awareness campaigns and training should be innovative and appealing to the public	Develop and conduct awareness campaigns and training
Awareness campaign about the need for proper sanitation and associated health and financial benefits	Develop and conduct awareness campaigns and training

MDG 7	Key interventions	Indicative interventions	Bottlenecks
<p>Target 7C: Reduce by half the proportion of people without sustainable access to safe sanitation services</p>		<p>Facilitate the construction of improved sanitation facilities for the poorest households, as a joint effort with the community</p>	<p>Poor households are unlikely to buy materials for implementation of sanitation projects</p> <p>Lack of a transparent system to determine which households can qualify for sanitation assistance: who is poor enough?</p> <p>Communities are not empowered to seek support for the construction of sanitation facilities at the community level.</p>
	<p>Provide schools and public buildings with an appropriate number of sanitation facilities</p>	<p>Develop maintenance schedules to keep all facilities in working condition</p>	<p>Lack of coordination capacity among implementing agencies to build and strengthen communal ownership of all facilities</p> <p>Communities are not empowered to conduct maintenance and proper monitoring of the systems is not done regularly</p>
		<p>Construct facilities in relation to the ratio of toilets to students / visitors</p>	<p>Appropriate authorities have not established the maximum ratio of toilets to users to maintain sustainability</p> <p>Appropriate authorities are unaware of potential increases in the numbers of users of facilities in schools, public buildings, etc.</p>

	Indicative acceleration solutions	Solution category
	Connect households with agencies that support sanitation projects	Improve community participation and capacity for improved sanitation
	Establish a standard set of criteria to identify households that qualify for assistance	Appoint lead agency
		Improve community participation and capacity for improved sanitation
	Mobilize and coordinate Community Development Officers (Ministries of Health, Education, MLLGRD, BSIF etc.) to inform and train all community stakeholders in sanitation and hygiene	Improve community participation and capacity for improved sanitation
	Establish and strengthen coordination from the inception of sanitation project interventions	Improve community participation and capacity for improved sanitation
	Build leadership capacity at the community level for sanitation interventions	
	Integrate and implement sanitation and hygiene education in schools	Improve community participation and capacity for improved sanitation
	Target and train the community to increase participation in the management and monitoring of sanitation services in the community	Develop and conduct awareness campaigns and training
	Develop one comprehensive act and regulations that will address all aspects of sanitation services, and enforce its implementation	Revise sanitation legalization
	Develop community capacity to monitor carrying capacity of public sanitation facilities and to access technical support as is necessary	Develop and maintain database system

CHAPTER 6:

**MDG ACCELERATION PLAN:
BUILDING A COMPACT**

Photo: Ministry of Labour Local Government and Rural Development, Belize



6.1: ROLE OF THE GOVERNMENT

The role of the Government of Belize is crucial in achieving the indicators articulated in Goal 7. The solutions that are proposed to mitigate existing bottlenecks all need political support, changes in legislation and a redefinition of the roles and responsibilities of public entities in the water and sanitation sector. The success of the CAP is dependent on all these actions being approved and implemented effectively.

The Mid-Year Population Estimates for 2009 (SIB, 2010) indicates that 48 per cent of the population of Belize live in a rural setting. However, the Ministry of Rural Development and Local Government has in total a staff complement of just 17 persons who are responsible for monitoring water supply and sanitation services for this sector of the population. To implement the proposed interventions and solutions, the capacity of this ministry will need to be strengthened with a focus on building technical capacity, acquiring key equipment and developing an operational budget sufficient to properly carry out water and sanitation responsibilities in the rural areas. The regulatory roles of the other ministries in this sector such as the MoH and the Ministry of Natural Resources and the Environment (MNRE) need to be heightened, and the necessary resources that they need to carry out their responsibilities need to be made available. At the same time, communities need to hold service providers to account.

The purpose of this CAP was to enable a thorough analysis of the factors impeding progress toward the achievement of the MDG Indicators for water and sanitation. This process was inclusive and participatory and engaged technical and senior public officials as well as non-state actors to identify bottlenecks and to prioritize actions for achievement of the MDGs.

The MAF points out that in the area of improved water coverage Belize has made tremendous progress toward achieving the MDG target. However, the risk of regression is probable especially if measures for sustainability are not incorporated in planning, service delivery and utilization. These measures include ensuring the integrity of rural water system structures, timely access to technical capacity and quality assurance measures as well as greater community participation in the monitoring of service delivery. Sanitation, however, is not on track even as there has been steady improvement at the urban and rural levels. Similarly, the approach to sanitation coverage needs to be reviewed, moving away from a singular approach that provides either water supply or sanitation services, and instead integrating them as one.

6.2: ROLE OF THE DEVELOPMENT PARTNERS

Several NGOs, specifically Humana Belize and the Belize Red Cross Society, and community-based organizations, make valuable contributions to the development and empowerment of rural areas, enabling villagers to assume responsibility for their sanitation needs. This approach reduces dependency on outside entities to lead sanitation activities, and communities can take action on their own. This is a critical contribution to improving sanitation coverage, especially at the community level.

6.3: FINANCING FOR SOLUTIONS

Leadership for financing the solutions will need to come from the Government of Belize to support institutional strengthening of a lead agency while at the same time building the capacity of the MLLGRD, MoH, MNRE and Education and Youth (MoE). As a measure of sustainability, there must be a focus on

improving the capacity of water boards for income generation to respond to the funding gaps for water supply and requisite services at the community level.

In the short to medium term, more intervening solutions will require that the Government of Belize with partner support will source external financial resources to strengthen capacity in this sector.

6.4: MDG COUNTRY ACTION PLAN FOR WATER AND SANITATION

Tables 6.1 to 6.3 reflects the CAP to accelerate the achievement of the MDG 7C target for water. Tables 6.4 and 6.5 focus on sanitation.

In the case of water, table 6.1 lists the priority solutions which have been identified to achieve the MDG for 2015. Table 6.2 includes solutions which are important for building institutional capacity to maintain coverage of improved water systems in the future.

Table 6.3 includes solutions that will maintain quality and public awareness, addressing the bottlenecks that were identified in the management of RWS's; the proposed solutions in this section will strengthen the sustainability of the RWS's for the future.

TABLE 6.1 MDG COUNTRY ACTION PLAN FOR WATER: PRIORITY SOLUTIONS TO PROMOTE ACCESS TO SAFE DRINKING WATER

	Solution category	Description solution	Needs	Solution financing (Indicative budget BZ\$)	Potential partners
1	Install an improved water supply system in each village that is currently unserved.	Install an RWS in seven villages that have no RWS and are not included in future plans for RWS Repair 22 RWS's that are nonfunctional (July 2010) Install or repair hand pumps where needed	Installation of 7 new systems Repair of 22 systems Installation of new hand pumps (100) Repair of hand pumps (200)	4,900,000 6,600,000 500,000 700,000	BSIF, MLLGRD, BWSL
2	Increase the technical and resource capacity of the RWSSU to source suitable water supply in unserved and underserved communities	Increase capacity of the RWSSU to provide production wells to communities in a timely and effective manner Increase field staff capacity to monitor status of hand pumps and water quality and where repairs are needed to respond to these in a timely and effective manner Build technical training and mechanical service capacity of RWSSU to support the RWS	Refurbishing of two rigs and two support vehicles New rig and support vehicle 2 drillers, 5 field workers 4 vehicles	250,000 1,700,000 150,000 250,000	GoB international donors

	Solution category	Description solution	Needs	Solution financing (Indicative budget BZ\$)	Potential partners
3	Improve financial capacity of the water sector	Develop mechanism to support small RWS in times of major emergency repairs and replacements as needed Establish and strengthen revolving fund for RWS to facilitate expansion of systems Establish a cost-effective fee structure for each RWS, reflecting the operational, management costs including adequate capital for non-operational expenses Develop a pro-poor rate	10,000 water meters Emergency fund Development of cooperate rules for DAWB Determination of fee structure for each RWS Determination of pro-poor rates	2,500,000 50,000 30,000 50,000 5,000	RWSSU, BSIF, UNDP, MLLGRD
4	Strengthen MLLGRD institutional capacity to serve as the lead agency to coordinate water supply and sanitation services	Increase technical and operational capacity of field staff of MLLGRD to support monitoring of water systems including technical, administrative, legal and information technology capacity of RCDOs to respond to the varied needs of water boards Develop a platform at national and district level where information exchange between pertinent ministries takes place (MLLGRD, BSIF, Moh, MAF, MoE and MoW, and other entities) Build technical capacity within MLLGRD to conduct financial and performance auditing of water boards Equip MLLGRD staff with adequate equipment and resources to respond to water and sanitation needs at the community level. Develop mechanism for grievance procedures	Assistant coordinator Additional RCDOs Office equipment including computers, scanners, printers, maps Field equipment: GPS units, digital camera, software GIS Vehicles Community training of trainers on RWS management	40,000 180,000 120,000 80,000 40,000	GoB, IDB, UNDP, European Union (EU), Caribbean Development Bank (CDB)

	Solution category	Description solution	Needs	Solution financing (Indicative budget BZ\$)	Potential partners
5	Revise water board regulations	Review Village Councils Act to include minimum qualifications for water board membership along with conditions for replacement of under-performing members, sanctions for misappropriation and mechanisms for community information and Strengthen audit capacity of at MLLGRD Determine rules and rights of the water boards Develop regulations for amalgamated and joined RWS	Publication of revised regulations Public consultations introducing new regulations Training of water board members Financial auditor Office equipment Printing of annual statements for water boards AGM Legal drafts person	10,000 24,000 70,000 40,000 10,000 5,000 20,000	
6	Strengthen the institutional capacity of village councils and water boards to manage water systems	Conduct training and familiarization campaigns on the Village Council Act specifically targeting all village councils and water board members	Printing of Village Council Act, 3,000 copies Training and familiarization programmes	30,000 20,000	

TABLE 6.2 MDG COUNTRY ACTION PLAN: SUPPORTIVE SOLUTIONS FOR SUSTAINABLE DEVELOPMENT OF THE WATER SECTOR

	Solution category	Description solution	Needs	Solution financing (Indicative budget BZ\$)	Potential partners
1	Appoint a lead agency for water supply services	Empower and support MLLGRD as the lead agency to implement the proposed water and sanitation policy. Establish the lead agency as a legislative authority with responsibility to enforce sanctions Recruit a water sector analyst to assist in establishment of the lead agency, develop organizational framework of the water sector, capacity-building of senior personnel in governmental agencies involved in water sector with ongoing role for resource mobilization	National water and sanitation coordinator Water sector specialist	60,000 50,000	Ministry of Economic Development (MED), MLLGRD, MoH, MNREL
2	Develop a water and sanitation policy for Belize	Review, finalize and approve a water and sanitation policy to guide water supply water and sanitation services for the develop and widely disseminate of requisite promotional materials	Development of policy: (see annex 8.3) Website development updating and maintenance Printed materials	See annex 8.3 20,000 20,000	MLLGRD, UNDP, UNICEF, PAHO, WHO
3	Develop a centralized database system to facilitate evidence-based planning and interventions for water supply services and programmes	Strengthen institutional of the MLLGRD by establishing monitoring unit to serve as clearing house and manager of data and information regarding all aspects of water supply and sanitation at the community level should Mandate the data management and processing mechanism to also integrate all data for use in national emergency planning and response	Database system Database manager Computer equipment Website development Collecting of pertinent information in the field Training sessions for ministerial personnel in data collecting, data importing and data use Instructor (See also point 10)	50,000 40,000 10,000 20,000 20,000 10,000 6,000	MLLGRD

TABLE 6.3 MDG COUNTRY ACTION PLAN FOR WATER: SOLUTIONS FOR QUALITY MAINTENANCE OF THE WATER SECTOR

	Solution category	Description solution	Needs	Solution financing (Indicative budget BZ\$)	Potential partners
1	Improve water quality monitoring capacity	Ensure strict application of the use of chlorinators (automated) and consistently monitoring of chlorine levels in each community. Improve capacity and capability of chlorine testing by Public Health Develop and implement sanction mechanism if water quality is below standards of drinking water quality Develop and implement awareness campaign about the need for chlorination of the water	Installation of chlorinators Repair of chlorinators Field kits for chlorine testing One trained lab technician Chemicals, test equipment Awareness campaigns Leaflets and posters for awareness campaigns	200,000 50,000 36,000 25,000 70,000 10,000 10,000	BSIF, MoH, RWS, UNICEF
2	Develop awareness campaigns and promote active community participation to safeguard their water supply and quality	Develop and implement a comprehensive communication programme that addresses use of water systems, sanitation and hygiene practices and community empowerment to maintain and safeguard water supply and sanitation facilities	Community sanitation advocates and leaders Village campaigns (200 meetings): water and sanitation fairs Handouts, promotional materials, testing equipment for village campaigns	20,000 10,000 200,000 200,000 20,000	UNICEF, MNREL, MLLGRD and BSIF
3	Reinstall DAWB	Make fully operational the DAWB as the lead financial lending institution for water boards	Institutional strengthening of DAWB through training: monthly meetings travel costs and meals	36,000	MLLGRD

Tables 6.4 and 6.5 reflect the CAP to accelerate the achievement of the MDG 7C target for sanitation. The prioritized solutions that need to be implemented to achieve the goal are listed in table 6.4. Other solutions,

which are critical but which will have effects beyond 2015, and are important for maintaining the level of coverage of improved sanitation, are contained in table 6.5.

TABLE 6.4 MDG COUNTRY ACTION PLAN: PRIORITY SOLUTIONS TO PROMOTE ACCESS TO BASIC SANITATION SERVICES

	Solution category	Indicative acceleration solutions	Needs	Financial cost (Indicative budget BZ\$)	Potential partners
1	Appoint lead agency for sanitation services ²³	Appoint a lead agency that will be the focal point for all activities concerning sanitation and hygiene interventions and programmes Legislate this lead agency will be legislated with authority to enforce and implement sanctions Equip the lead agency with a sanitation sector analyst who will assist in setting up the lead agency, develop the organizational framework of the sanitation sector and help in capacity-building of senior personnel of governmental agencies involved in sanitation	National coordinator sanitation Office equipment Sanitation sector specialist Database manager	60,000 10,000 50,000 40,000	MoH, UNICEF, PAHO, WHO
2	Revise sanitation legislation to improve oversight and monitoring of all related activities	Consolidate all sanitation legislation into one comprehensive act that will address all aspects of sanitation services consistent with the MDGs Empower lead agency and responsible entities to enhance coordination of sanitation efforts Establish and harmonize minimum standards for individual sanitation systems	Legal drafts person Meetings/workshops	30,000 20,000	GoB, donor agencies, PAHO, WHO, UNICEF
3	Develop and conduct awareness campaigns and training	Disseminate information on the standards of sanitation and good sanitation practices to the general public, professionals, teachers, and health workers Target and train the community (leaders, heads of households, women, youth, etc.) Mobilize and coordinate RCDOs, MLLGRD, BSIF, etc. to inform and train all community stakeholders in sanitation and hygiene	Radio talk shows Newspaper articles/ advertisements Posters Village campaigns Training sessions for professionals Training sessions for water board members, village council members, and ministerial staff	40,000 50,000 10,000 200,000 12,000 50,000	UNDP, UNICEF, donor agencies, NGO

23) Lead agency is likely to be the responsibility of the MoH.

	Solution category	Indicative acceleration solutions	Needs	Financial cost (Indicative budget BZ\$)	Potential partners
4	Develop database system to facilitate evidence-based planning and interventions for sanitation services and programmes	Develop database on the resources available among agencies that support sanitation projects Develop database to include all information pertinent to the sanitation sector such as overview of ongoing sanitation projects, villages / households in need of technical or financial assistance Develop the centralized data system to show users of public facilities in communities	Database system, Computer equipment Website development Collect on of pertinent information in the field Training sessions for ministerial personnel in data collecting, data importing and data use Instructor	50,000 10,000 20,000 20,000 10,000 6,000	GoB, UNDP, donor agencies
5	Facilitate access to an improved sanitation system at the household level	Facilitate the construction of basic improved sanitation facilities for the poorest households, based on joint efforts with the community	24,000 facilities	240,000	BSIF, donor agencies, NGOs

TABLE 6.5 MDG COUNTRY ACTION PLAN: SUPPORTIVE SOLUTIONS FOR SUSTAINABLE DEVELOPMENT OF SANITATION SECTOR

Solution category	Indicative acceleration solutions	Needs	Financial costs per year (Indicative budget BZ\$)	Potential partners
Strengthen institutional capacity	Tighten control of construction activities in urban areas, densely populated villages and coastal regions and Cayes Establish and strengthen coordination between agencies to include sanitation components in proposed water projects Build leadership capacity at the community level to integrate and implement improvement of sanitation in villages	6 district officers 6 vehicles Equipment: cameras, GPS, measuring tools, maps GIS software GIS training Training session for village council members in sanitation issues Training sessions for RCDOs Development training manuals, reference materials Printed materials	150,000 300,000 12,000 10,000 20,000 60,000 20,000 10,000 10,000	UNDP, donor agencies
Establish land use plan	Build capacity and provide resources to develop land use policy Complete a specific sanitation development plan for 20 years to determine the minimum needs for sewerage treatment and secure land for the future needs.	Needs assessment for sanitation facilities for next 20 years, based on Census 2010 population figures Land use policy consultant team	40,000 5,000	GoB, donors
Conduct a needs assessment review of sanitation sector for new and/or expansion of sewerage systems and investigate alternative sanitation facilities	Complete a specific sanitation development plan for 20 years to determine the minimum needs for sewerage treatment and secure land for the future needs Explore, identify and adapt relevant technology for disposal and treatment of sewerage	Investigation of alternative technologies	100,000	BWSL
Facilitate access to an improved sanitation system at the household level	Facilitate household upgrade to connections to BWSL Sewer System.	Identification and prioritization of connections	1,000,000	GoB, donors



CHAPTER 7:

IMPLEMENTATION AND MONITORING PLAN

Photo: Ministry of Labour Local Government and Rural Development, Belize

7.1: INTERVENTION IMPLEMENTATION, TIMELINE AND RESPONSIBLE PARTNERS

Tables 7.1 and 7.2 show the timeline of the implementation of the proposed interventions that are required to achieve the MDG target. The first responsible partners are the ministries involved in the water and sanitation sector including the MLLGRD, MED, MoH and MNRE. The coordination between these ministries will have to be brought to a higher level, and scattered legislation has to be reviewed and revised. The timeline has been set to start in 2010 and to end in 2015. This is a narrow window, and no time should be lost in the implementation of the interventions listed. The fundamental interventions can be put in motion without major costs.

7.2: EXISTING MONITORING PLANS IN BELIZE

Few monitoring plans exist for water and sanitation services. The MoH, through its Central Laboratory, is responsible for a standard tool that monitors the quality of water of the BWSL, the RWS and the hand pumps. When the quality of water does not meet established standards, the problem is reported to the responsible agency and action is taken. The only monitoring plan for sanitation is executed by the Department of the Environment (DoE) which on a regular basis samples the discharged effluents from sewerage systems. There is no proactive monitoring of the status of household sanitation facilities. This is especially absent at the rural level.

7.3: PROPOSED MONITORING PLANS

In the section on water, important monitoring roles are envisioned for the MLLGRD, while in the sanitation

sector, the situation is more complex with important roles for different entities. The MLLGRD should be in charge of the coordination of all monitoring efforts.

Though not directly involved in the water and sanitation sector, the SIB does its biannual survey, the LFS, which is an important source of data since it incorporates questions on water and sanitation. The principal shortcoming of the LFS, however, is that the categories used for the water and sanitation questions are not compatible with the MDG categories. This could be easily resolved if the SIB is sensitized to this issue.

7.4: IMPLEMENTATION AND MONITORING PLAN

TABLE 7.1 IMPLEMENTATION AND MONITORING PLAN FOR ACCESS TO SAFE DRINKING WATER

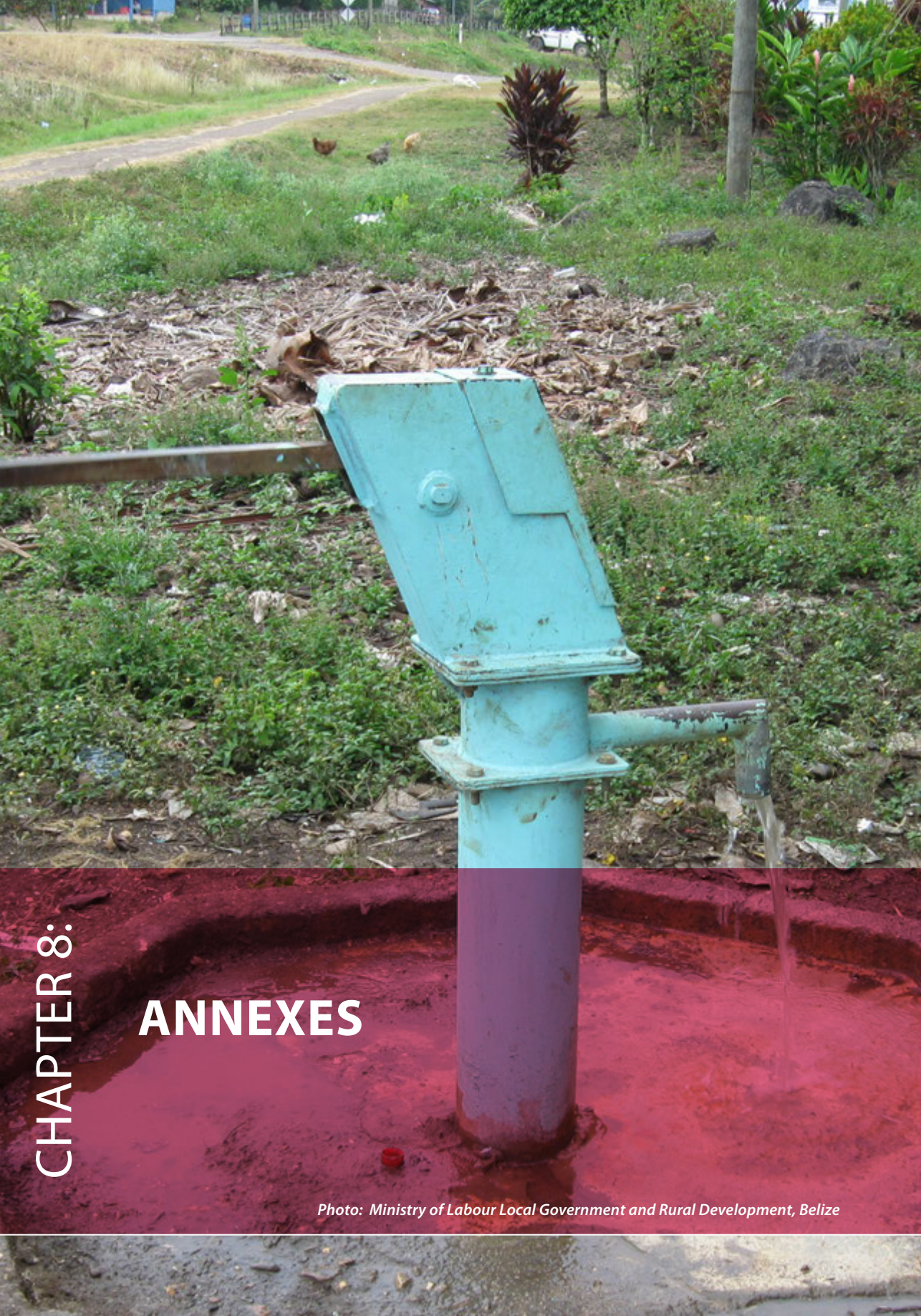
MDG 7	Key interventions	Indicative interventions
Target 7C: Reduce by half the proportion of people without sustainable access to safe drinking water	Set up or repair hand pumps	Set up hand pumps in villages without RWS and without any pumps
		Increase number of hand pumps in villages with insufficient number of pumps
	Repair of defective RWS	Repair failing components of RWS
		Incorporate non-functional RWS in BWSL systems (where possible)
	Improve quality of water delivered by RWS	Install chlorinators
		Repair chlorinators
		Implement use of chlorinators
		Share water quality results with water boards and MLLGRD
	Construct or expand RWS	Plan construction of systems that service multiple villages / communities
		Amalgamate RWS
		Construct of RWS in villages where there are none
	Expand BWSL system	Incorporate neighbouring subdivisions and villages in expanding BWSL systems

	Implementation timeframe (2010-2015)						Indicator for monitoring (2010-2015)						Responsible partners
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	
							No. of villages without RWS and pumps						MLLGRD
							No. of households per hand pump per village						MLLGRD
							No. of RWS not working						MLLGRD
							No. of RWS incorporated in BWSL						MLLGRD
							No. of RWS without chlorinator						MLLGRD
							No. of chlorinators not working						MLLGRD, MOH
							No. of working chlorinators not used						MLLGRD
							Test results received for every RWS, bimonthly						MLLGRD
							No. of new combined systems						MLLGRD
							No. of newly amalgamated RWS						MLLGRD
							No. of villages still without RWS						MLLGRD
							No. of newly incorporated BWSL systems						BWSL, MLLGRD

TABLE 7.2 IMPLEMENTATION AND MONITORING PLAN FOR ACCESS TO BASIC SANITATION SERVICES

MDG 7	Key interventions	Indicative interventions
Target 7C: Reduce by half the proportion of people without sustainable access to safe sanitation services	Develop adequate legislation	Development of one comprehensive law for sanitation that replaces the numerous existing laws
	Improve the standards of sanitation facilities for each household	Expand BWSL sewerage system where possible
		Keep existing BWSL sewerage system in working condition
		Facilitate through technical assistance the development of improved sanitation facilities at household level
		Facilitate construction of improved sanitation facilities at household level for the poorest households, working jointly with them
	Develop community-based maintenance schedules to keep existing facilities in working condition	
Equip schools and public buildings with an appropriate number of sanitation facilities	Construct of facilities in situations where the ratio of toilets per student / visitor is too low	

Implementation timeframe (2010-2015)						Indicator for monitoring (2010-2015)						Responsible partners
2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	
						Publication of the new law in the National Gazette						GoB
						No. of households in urban areas without sewerage connection						BWSL
						No. of households with sewerage connection in 2010 remains the same						BWSL
						Effluent discharge remains within legal limits						DoE
						LFS: Percentage of households with an improved sanitation facility						SIB, MLLGRD
						LFA: No. of unimproved facilities in households where no one is employed						SIB, MLLGRD
						Copy of maintenance schedule is lodged at district education officer and the MoE						MoE
						Annual update no. of students enrolled and staff and no. of sanitation facilities						MoE



CHAPTER 8:

ANNEXES

Photo: Ministry of Labour Local Government and Rural Development, Belize

8.1: ROLE OF THE BELIZE SOCIAL INVESTMENT FUND AND THE RURAL WATER SYSTEM AND SANITATION UNIT

The BSIF is instrumental in financing the construction of new rural water systems and the rehabilitation of existing ones. It assists with technical and organizational expertise during the execution of these projects. In all instances, the involved village is asked for an in-kind contribution, usually in the form of labour. The funds in the majority of the cases are secured through grant or loan financing from the CDB, but other donor agencies have also been involved.

BSIF is not actively involved in determining if a village needs an RWS or hand pumps; the villages have to initiate the process. All proposals that BSIF receives are vetted by the BSIF Board of Directors and, only when the application is approved will it be taken up by SIF as a project. The average cost of a new RWS amounts to BZ\$700,000, and major rehabilitation of an RWS costs on average BZ\$400,000.

The RWSSU will assist in the implementation phase by drilling the required wells. Usually BSIF does not take up an RWS project if a suitable source of water has been identified. The limited drilling capacity of the RWSSU (exemplified by the number of wells it can afford to drill each year and the maximum depth it can reach), also restricts the number of RWS's BSIF can construct each year.

The RWSSU has an annual budget of BZ\$100,000, and this will allow it to drill approximately six wells. The RWSSU assists private, companies, farmers and others in drilling boreholes and establishing wells. These efforts are not free of charge, but the fees will be deposited in the Government's Consolidated Fund and is not accessible by the RWSSU. Effectively, the RWSSU has to provide commercial services without

adequate remuneration, but still has to keep up with the wear and tear of its rigs caused by these activities.

8.2: REVENUES OF RURAL WATER SYSTEMS

At this time there are two systems in place to determine how much each connection has to pay: the flat rate system and the metered system.

8.2.1: Flat rate system

Each connection pays a flat monthly fee, regardless of the volume of water used. Generally, this fee applies to every connection, but a few exceptions can be made. For example, agricultural users or small businesses may be charged more, and in one particular community with an otherwise flat rate, commercial users are metered. This system is not transparent; it depends on the members of the water boards to determine if an activity qualifies as regular household or business.

Another shortcoming of an RWS without meters is that there is absolutely no knowledge of the production level of the system and if there are any leaks.

In 2008, the MLLGRD made an effort to analyse the income and expenses of more than 100 RWS's in the country; based on income and expenses data over a 12-month period. At that time, 63 systems (serving 72 villages) fell under the flat rate scheme.

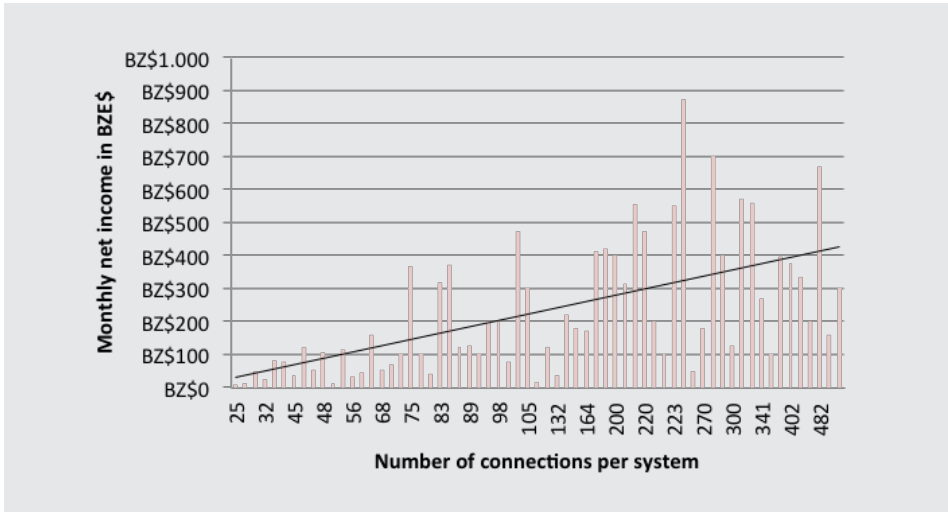
FIGURE 8.1**AVERAGE MONTHLY NET INCOME FOR WATER BOARDS WITH A FLAT RATE SYSTEM**

Figure 8.1 graphs net income of RWS with a flat rate. There is no relation between the size (number of connections) of the RWS and the net income of the system. Villages that perform under the trend line should be subject to financial auditing to determine the cause for the low performance, as this could be the result of the high costs of repairs and maintenance, an expansion of the RWS or poor financial management of the system. As shown, more than half of the RWS's (35) perform under the trend line.

8.2.2: Metered systems

The minority (31 systems serving 35 villages) of RWS have metered systems where consumers pay according to what is being used. All townships and villages that receive water from BWSL are subject to a metered system, with the rates determined by the PUC.

The rates for RWS's are ultimately determined by the MLLGRD, after a period of several months where village water boards establish which rate covers their expenses best.

The average price per gallon of water was BZ\$1.1. The lowest rate was 0.6 cents and the highest 1.5 cents. The highest rates were found in villages where a Reverse Osmosis system was installed and a number of villages near Spanish Lookout that received water from that community.

Based on the income sheet and the price per gallon, the use of water per connection was calculated. The average use was 70 gallons per connection per day, ranging from 362 gallons to an unlikely low of four gallons a day. In the latter case, there is clearly a need to investigate and improve the administrative system.

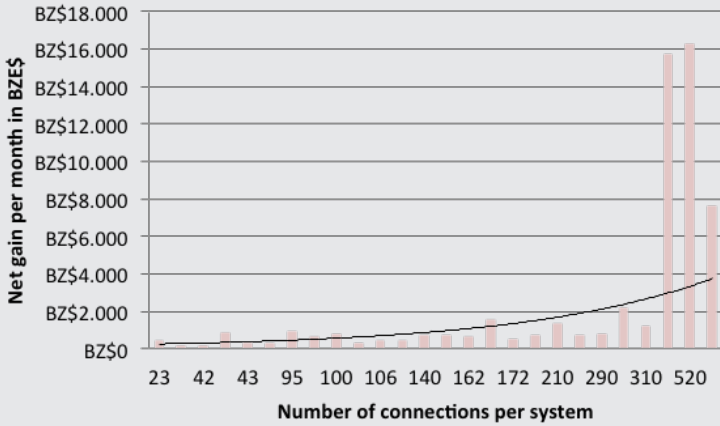
FIGURE 8.2**AVERAGE MONTHLY NET INCOME FOR WATER BOARDS WITH A METERED SYSTEM**

Figure 2.4 graphs the average monthly income with an RWS with a metered system. Less than half of the villages with such a system perform below the trend line. Again, in these cases, the financial management by the water board should be analysed to find out whether there are any imminent problems with that particular RWS.

TABLE 8.1 COMPARISON OF INCOME, EXPENSES AND NET INCOME OF RWS WITH FLAT RATE VERSUS METERED SYSTEMS

Category		RWS with flat rate system	RWS with metered system	RWS with metered system (not including Seine Bight, Placencia and Independence) ²⁴
Average number of consumers paying		86	N/A	N/A
All connections are being paid for: one village (La Gracia)		100	N/A	N/A
Lowest number of connections being paid for: 50 % (Guinea Grass)		50	N/A	N/A
Size of the RWS	Average number of connections	181	174	139
	Mean number of connections	105	140	120
	Smallest village	25	12	12
	Largest village	560	792	310
Net income per connection	Average monthly net income per connection (income–expenses)	\$ 1.49	\$ 9.17	\$ 6.47
	Median monthly net income per connection	\$ 1.32	\$ 5.36	\$ 4.55
	Average lowest monthly net income per connection	\$ 0.15	\$ 2.76	\$ 2.76
	Average highest monthly net income per connection	\$ 4.88	\$ 48.80	\$ 20.81
Net income per system	Average monthly net income per RWS	\$ 228	\$ 21.75	\$ 734
	Median monthly net income per RWS	\$ 160	\$ 730	\$ 702
	Lowest average monthly net income per RWS	\$ 6.0	\$ 165	\$ 165
	Highest average monthly net income per RWS	\$ 873	\$ 16,271	\$ 2,180
Expenses per system	Average monthly expenses per RWS connection	\$ 6.50	\$ 14.30	\$ 10.54
	Median monthly expenses per connection	\$ 6.67	\$ 11.30	\$ 9.76
	Lowest average monthly expenses per connection	\$ 0.35	\$ 2.50	\$ 2.50

24) These three communities have significant income which would skew the overall average income of water boards.

8.2.3: Comparison of the flat rate and metered systems

The outcome of the current analysis (of the 2008 data) is presented in table 8.1. This analysis is a first attempt to examine the two types payment schedules; the outcome warrants a more thorough study which would answer the question of what a reasonable rate is for water produced by an RWS. An effective fee structure will pay for the average monthly expenses of the water boards, such as stipends, electricity and chlorine, and also occasional expenses like repairs and replacements. Small expansions to the system to connect new households should also be included, while major expansions, for instance for large new public subdivisions, may be eligible for (partial) funding by BSIF.

The RWS for the villages of Seine Bight, Placencia and Independence were left out of the comparison as these three systems differ from most other RWS's because of the nature of their consumers: tourism and industries, and the level of their respective incomes.

- The net income per RWS per month is higher in metered systems. These systems generate more income (the average is more than 3.2 times), while average expenses are only 2.2 times higher.
- Forty RWS's with a flat rate fee structure make on average a profit of less than BZ\$200 per month profit. This may not be enough to make savings to buy a new pump (which costs approximately BZ\$6,000). The financial base of these systems is very fragile and will remain dependent on external sources like MLLGRD and BSIF to cover major expenses for repair, replacements and expansion of the system. Handling of these broken systems is not only financially demanding but also takes valuable time away from the already limited staff of MLLGRD.
- Under the Village Council Act, Chapter 88, Revised Edition 2003, 15 per cent of the monthly revenues

of the water board shall be paid monthly by the board into an account established by the DAVWB for the district wherein the board is situated. It is mandatory for the village water boards to join the DAVWB. Many water boards with a flat rate fee structure are not able to meet this requirement since their net income is often totally used up for expenses. Of the total of 63 RWS's with a flat rate, for which financial information was available:

- o 28 villages spend more than 85 per cent of their income on expenses, and
 - o 19 villages spend between 75 and 84.9 per cent of their income on expenses.
- Of the water boards with a metered system:
 - o 1 village spends more than 85 per cent of its income on expenses, and
 - o 6 villages spend between 75 and 84.9 per cent of their income on expenses.
 - If the DAVWBs are reinstated, these institutions may be able to answer calls for financial support in a short time and thus repair a non-working RWS quicker.

8.2.4: Future analyses needed

- Breakdown of RWS over the last 10 years to see if there is any relationship between broken systems and the kind of fee structure that is applied in the villages;
- The level of external financial support the broken systems need to become fully operational again;
- A relationship, if any, between flat or metered systems and the time it takes to completely repair the systems;
- Financial performance of water boards, before and after 2008 (most members of water boards were replaced after general elections in 2008).

TABLE 8.2 OVERVIEW OF VILLAGES WITHOUT A PROPERLY FUNCTIONING RWS

Village	Problem	Description of failure	Number of households (Census 2000)	Flat / metered rate	Used for agriculture
Corozal:					
Chunox	Membrane of the reverse osmosis system	This is a reverse osmosis system and is not working properly. The filtration system needs servicing and the pump has to work long hours to run it, thus burning a lot of electricity. The 'membranes' are said to need changing, and the parts are readily available.	175	Metered	Unknown
Orange Walk:					
Guinea Grass	Pipes, system too small	System needs complete overhaul to replace old pipes and standardize pipes in system. Need for village expansion for water. Large village with an old system, village has expanded.	448	Flat	Yes
Indian Church	Reservoir, no power supply	Reservoir too small, no electricity, person supplying generator electricity charges too high, 67 cents/kW, higher than BEL.	N/A	Flat	Sometimes
San Jose	Capacity of system, pipes	The piped system is an old one. It serves two villages and the village has expanded and the one reservoir used for two villages needs to be reviewed. New pipes can be put in place. Pressure is low	590	Flat	Yes
San Pablo					
Belize district:					
Mahogany Heights	Parts broken, management	No parts for system. No adequate management of system.	N/A	Unknown	Unknown
Maskall	Water pressure, quality water	System has very low water pressure, water does not reach all households. Rusty/salty water.	141	Metered	Unknown
Cayo:					
Arenal	Reservoir, pipes	The water reservoir is cracked and it is only three-fourths full. The new area is not fitted with proper lines since the water board has limited funds. Three quarters of the pipes are not strong enough to withstand the pressure. Water board wishes to start metering and repair / replace the reservoir.	83	Flat	Yes

Village	Problem	Description of failure	Number of households (Census 2000)	Flat / metered rate	Used for agriculture
Armenia	Water source	Water source is a stream, works well in the rainy season	195	Flat	No
Cotton Tree	Water source	Water source of the system is not adequate	160	Flat	No
El Progreso	Pipes, management	Corroded galvanized pipes leak, increased resistance, system taking in air. Management allows water to be used for agriculture, while households receive no water. In dry season, the system was mostly not working. No transparency in the water board's actions.	N/A	Flat	No
Franks Eddy	Water quality	Water has a high concentration of a chemicals, hence not used.	42	Metered	No
St. Familia	Pipes, elevation of tank, regulation of the use of water	Pipe system may be leaking (leaks undetected), elevation tank too low to provide water to the new housing area, water used for farms (cattle, chickens). Apparently, problems in collecting monthly fees but no one disconnected	141	Flat	No
St. Margaret's	Water source	A new water source is needed for the system.	N/A	Flat	No
St. Matthew's	Water source	Water source is not adequate.	111	Metered	No
Stann Creek:					
Humming-bird	Water during rainy periods muddy, broken pipes	System is a gravity-fed RWS, directing the water directly into the houses, no sedimentation or treatment of the water takes place. When pipes are broken they are not repaired immediately. The board is not functioning the way it should. Chairperson claims that customers don't pay their fees hence there is no finance for repairs. Customers claim that service is poor hence they don't pay their fees.	61	Flat	Yes

Village	Problem	Description of failure	Number of households (Census 2000)	Flat / metered rate	Used for agriculture
Toledo:					
Aguacate	Generator	Water board cannot get the correct parts for generator.	94	Flat	Not used for agriculture
Bella Vista	Pipes, well, tank	The pipes need to be changed and the existing water system. The existing system is in poor condition. New water system (well, tank) needed, and meters installed .	141	Flat	Used for agriculture
Pueblo Viejo	Pump, well, battery generator, corroded pipes, electric wires, cable wires, broken pipes	Board has insufficient savings to purchase new pump. Rural development assisted board with BZ\$5000 to purchase new pump, but the well is full of garbage and leaders seek assistance from rural development to clean it.	91	Flat	Not used for agriculture
San Vicente	Water source, tank	Water source is a spring, and during the dry season water level drops and operations close .	62	Flat	Not used for agriculture
St. Ana	Well	The production well of the piped system is not working properly.	37	Flat	Not used for agriculture
St. Cruz	Pump	Water board has very small savings and cannot purchase a new pump.	55	Flat	Not used for agriculture
Total households			2,627		

Table 8.3 identifies the villages and the actual situation of water supply, showing that in total 32 villages (16.8 percent) have no improved water supply (RWS or hand pumps) as of July 2010.

- 10 villages with 273 households had no RWS nor hand pumps and
- 22 villages with a total population of 2525 households, had a broken RWS or nonworking hand pumps.

TABLE 8.3 WORKING WATER SUPPLY SYSTEM IN THE VILLAGES OF BELIZE, JULY 2010 (COLORS CORRESPOND WITH THE CLASSIFICATION OF VILLAGES ON THE DISTRICT MAPS)

Source of drinking water	Number of villages (%)		Approximate number of rural households, based on Census 2000 (%)	
Water supply with piped/piped and pump (working)	129	67.5	17,907	81.5
Water supply by sufficient pumps (working)	6	3.1	202	0.9
Water supply by insufficient pumps (working)	24	12.6	1,338	6.1
None available or non-functional	32	16.8	2,525	11.5
Total	191	100	21,972	100

In the analysis in table 8.3, villages are treated as a whole, meaning that if a village was listed as a village with an RWS, it was assumed that the total population of that village was connected to the RWS. In reality, there will always be a number of households that do not have access to these facilities. No hard figures could be collected to show the households that are not connected. The results of the Census 2010 could reveal more information, although the way the Census collects data is by enumeration of districts which does not always coincide with what is generally assumed to be village boundaries.

In July 2010, works on RWS's were in progress, and were expected to be completed by the end of the year. It is expected that some of the villages with no facilities or with only hand pumps will be addressed. Note must be taken of the fact that the list of dysfunctional RWS's consists mostly of RWS constructed since the year 2000. The fact that so many of these systems fail within a 10-year time period is disconcerting and warrants a more thorough analysis of the encountered problems and ways to remedy or prevent them.

TABLE 8.4 RWS WORKS IN PROGRESS, JULY 2010

Village	Present system	Number of households (Census 2000)
St. Ann's	Sufficient hand pumps	27
Santana	Insufficient pumps	35
Corozalito	Sufficient pumps	16
Boston	Insufficient pumps	41
Bladen	Insufficient pumps	83
San Pablo	None	34
Sunday Wood	No working pumps	39
Total		275

TABLE 8.5 BWSL PROJECTS IN PROGRESS, JULY 2010

Project	Affected villages	Present system	Number of households (Census 2000)
BWSL: expansion of Belmopan system	Cotton Tree	RWS not working, insufficient pumps	160
	St. Matthew's	RWS not working, insufficient pumps	111
	Franks Eddy	RWS not working, insufficient pumps	42
BWSL: Belize River Valley Project	Scotland Halfmoon	Insufficient pumps	19
	Flowers Bank	None	20
	Bermudian Landing	None	44
	Isabella Bank	No working pumps	27
	Lemonal	Insufficient pumps	N/A
	Double Head Cabbage	Insufficient pumps	74
	Willows Bank	Insufficient pumps	36
	St. Paul's Bank	Insufficient pumps	61
Rancho Dolores	Insufficient pumps	36	
Total			630

TABLE 8.6 VILLAGES WITH NO WATER SYSTEM (RWS OR HAND PUMPS) AND NOT SCHEDULED FOR ANY PROJECT, JULY 2010

Village	Number of households (Census 2000)	Potential problems
Gardenia	54	N/A
Gracie Rock	28	N/A
Freetown Sibun	N/A	N/A
May Pen	8	Small village population that could affect sustainability of systems
More Tomorrow	29	N/A
Dolores	56	N/A
Punta Negra	N/A	No adequate source of fresh water available
Total	275	

TABLE 8.7 VILLAGES WITH NO RWS BUT WITH HAND PUMPS (WORKING OR NOT) AND NOT SCHEDULED FOR ANY PROJECT, JULY 2010

Village	Number of households (Census 2000)	Number of working hand pumps	Potential problems
Copper Bank	72	None	Brackish groundwater
Fire Burn	24	Insufficient	Small village
San Carlos Community	27	Insufficient	Small village
San Luis	50	Sufficient	N/A
Biscayne	66	Insufficient	N/A
Bomba	24	None	Brackish groundwater
Yalbac	12	Insufficient	Small village
Jalacte	120	Insufficient	No source of ground water
Mafredi	30	Insufficient	Small village
Santa Elena	25	Insufficient	Small village
Boom Creek	17	None	Small village
Conejo Creek	22	None	Small village
San Lucas	18	None	Small village
Crique Jute	40	Sufficient	N/A
Mabil Ha	28	Sufficient	Small village
Otoxha	41	Sufficient	N/A
Total	616		

8.3: PROPOSED DRAFT POLICY ON WATER AND SANITATION

8.3.1: Introduction

On 28 July 2010, the General Assembly of the United Nations adopted a resolution recognizing access to clean water and sanitation as a human right. The General Assembly called on States and international organizations to provide financial resources, build capacity and transfer technology, particularly to

developing countries, in scaling up efforts to provide safe, clean, accessible and affordable drinking water and sanitation for all.

Access to water is a fundamental right and is linked to a need for improved sanitation practices, facilities and systems. Making safe water and sanitation available to people in a sustainable and affordable way has proven to impact on poverty rapidly and directly in many countries.

Water and sanitation are closely linked to the efforts to achieve the Millennium Development Goals (MDGs). One of the targets of MDG 7 is halving, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation. Water and sanitation is also a key input for the achievement of universal primary education and reductions in child mortality (MDGs 2 and 4) and is directly linked to the eradication of poverty and hunger, the empowerment of women, improvements in maternal health and the reduction of diseases (MDGs 1, 3, 5 and 6).

Investment in the water and sanitation sector offers high and diverse multisector returns. By directly impacting key indicators in the health, education, livelihoods/food security, and environment sectors, water supply has a profound impact on quality of life indicators and is a major determinant of productivity and poverty levels. A benefit-cost ratio study indicated that all low-cost water supply and sanitation improvements are cost beneficial for all developing world regions. Results of the study suggest that achieving the sanitation MDG target is economically more favourable than the water MDG target, with a global return of US\$9 for sanitation compared to US\$4 for water, per US\$1 invested.²⁵ Investment to improve drinking water, sanitation, hygiene and water resource management systems makes strong economic sense: US\$84 billion a year could be regained from the yearly investment of US\$11.3 billion needed to meet the water and sanitation targets under the MDGs.

In addition to the value of saved human lives, other benefits include higher economic productivity, better education, and health care savings.

8.3.2: Vision

Belize's vision of the Water and Sanitation Policy is the following:

Belizeans will have access to improved water sources and adequate sanitation, thereby reducing the water- and sanitation-related disease burden, increasing productivity, promoting human welfare and setting the nation on a path towards long-term sustainable growth, development and poverty reduction.

8.3.3: Policy objectives

The objectives of the Belizean Water and Sanitation Policy shall be:

- To enhance access to improved water sources and sanitation, in an affordable, sustainable and equitable manner, to all the people of Belize.
- To provide guidance in institutional, economic, social and legal reforms that will lead to improved governance in the water and sanitation sector at the national and local level.

8.3.4: Guiding principles

The guiding principles of Belize's Water and Sanitation Policy are based on a holistic approach incorporating considerations for equity, efficiency, and sustainability in terms of environment and

25) *Economic and health effects of increasing coverage of low-cost household drinking water supply and sanitation interventions to countries off-track to meet MDG target 10*; WHO-Geneva 2007, http://whqlibdoc.who.int/hq/2007/WHO_SDE_WSH_07.05_eng.pdf.

service delivery. These guiding principles are based on the inescapable premise that fresh water is a finite and vulnerable resource which is essential to sustain life, development and the environment.

The guiding principles are the following:

1. Access to safe drinking water and sanitation is a basic human right.
2. Water has an economic value and is a social good.
3. Safe water, hygiene practices and sanitation are directly linked to improved public health, especially for vulnerable groups such as children and the elderly.
4. Development should be demand-driven and community-based. Provision of water and sanitation services will be an integral component of national development planning and poverty alleviation.
5. Priority in the planning and allocation of public funds will be given to those who are presently unserved and underserved.
6. The provision of water for household consumption has priority over other water uses.
7. There is a need for an integrated approach covering water, sanitation and hygiene promotion.
8. Users should pay for the services they get. Pro-poor approaches should be adopted wherever applicable.
9. Water quality, rehabilitation and the effective operation and maintenance of existing facilities should be maintained at optimal levels.

10. The protection and conservation of the environment is essential to the sustainable utilization of water and to water security.
11. The Government has a role as an enabler in a participatory approach to development.
12. BWSL has an important role in water and sanitation service provision.
13. Projects are not to result in adverse social or environmental impacts.

8.3.5: Key policy statements and strategies

An estimated 48.9 per cent of Belize's population live in urban settlements²⁶ and 51.1 per cent live in rural settlements. Of the 191 villages in Belize,²⁷ 60 had a population of less than 50 households.²⁸ Keeping in view the differences inherent in the service provision and facilitation in these different contexts, the following policy statements and strategies are enunciated in two parts: rural and urban.

Sixty-three per cent of the rural population lives in poverty²⁹ and this poses particular challenges to service provision that require strategies that are both simple and sustainable.

26) Country Poverty Assessment, 2009.

27) Based on NAVCO website: results of the village council elections 2010.

28) Census 2000.

29) Country Poverty Assessment, 2009.

Rural water and sanitation policy statements and strategies

Rural water and sanitation policy statement 1: Basic services for all

Provision of basic services to all un-served rural households shall take place before developing a higher level of service. The delivery of basic services to rural households is seen as a first step leading towards the development of higher level of services. These basic services are: the ability of the system to provide a minimum of adequate safe³⁰ drinking water (10 gallons/person/day);³¹ sanitation (access to sanitary disposal facilities that can contain human waste in a hygienic manner); and hygiene promotion (a clear understanding of good hygiene practices).

Strategies

- Water and sanitation coverage will be guided by strategic planning and leadership from a lead ministry, namely MLLGRD in partnership with MoH, MNRE and BSIF.
- Development and delivery of basic services will be based on need, with the understanding that beneficiaries demonstrate a willingness to contribute to the sustainability of the facilities in either financial or in-kind contributions.

Rural water and sanitation policy statement 2: Improved health through an integrated water, sanitation and hygiene promotion approach

Basic services will be provided using an integrated approach to maximize health benefits. The integrated approach comprises community mobilization, capacity-building, hygiene promotion, water and sanitation. Government will lead the identification of the appropriate entity to coordinate this integrated approach.

Strategy

- Comprehensive and integrated sanitation and hygiene promotion will be implemented to accelerate and maximize health benefits through hygiene behaviour change.

Rural water and sanitation policy statement 3: Commitment through cost-sharing and responsible management

Construction and/or rehabilitation of water and sanitation facilities shall be on a cost-sharing basis. The costs for construction and/or rehabilitation will be shared, and will be part community contribution and part subsidy. All members of the participating community shall have equal access to water, sanitation and hygiene services and facilities.

Strategies

- Least costly and effective technology shall be promoted for water supply systems.
- Community contribution for the construction and development of water facilities will be at an agreed minimum per cent of the total costs. These contributions may be in the form of skilled and unskilled labour, local materials or cash.
- Technical and grant support for household sanitation facilities will be available to those who are prepared to contribute their own resources for sanitation improvement.
- Communal sanitation approach will be promoted for household facilities where the pooling of household resources will be encouraged to cover the cost of materials not available locally.
- Where households wish to have access to sanitation facilities, capital and running costs must be met by the household.

30) In accordance with WHO Guidelines for drinking water quality.

31) http://www.searo.who.int/LinkFiles/List_of_Guidelines_for_Health_Emergency_Minimum_water_quantity.pdf.

- All water systems will be metered.
- A pro-poor basic water tariff will be established based on 1,000 gallons per household per month ,which will be charged at a strict operational cost. Households using more than this basic amount will be charged at a fee that covers operation and maintenance costs.

**Rural water and sanitation policy statement 4:
Service sustainability through community
responsibility**

Sustainability of services is ensured through community participation in all aspects of service delivery. Communities that demonstrate a willingness and ability to participate in the provision of services will be empowered through participation in all aspects of delivery including planning and construction of facilities. The community will be the manager of the completed RWS facilities and responsible for the operation, maintenance and management of the facilities. The management framework consists of the water board regulations in the Village Council Act (Chapter 88, Revised Edition 2003) which provides for the general powers and composition of the water board.

Strategies

- Every village shall have a water and sanitation board responsible for both the management of RWS and/or hand pumps and enforcement of sanitation regulations.
- The Village Council Act shall be modified to include regulatory roles for sanitation.
- The water board regulations in the Village Council Act shall be amended to provide for a transparent mechanism for the replacement of members that have not performed satisfactorily.
- Proven, locally appropriate technologies, that provide safe drinking water on a continuous basis and that are best suited for local conditions will be promoted.
- All communities will receive necessary capacity-building to ensure that water supply systems (e.g., motorized pumps or generator-driven pumps) are operated and maintained by the local community.
- Water (and sanitation) board members will be qualified for the overall management of the water and sanitation systems; this includes qualification in accounting, plumbing, electricity, sanitation and health education.
- Communities should receive training and motivation to actively participate in developing and eventually managing their water and sanitation facilities.

**Rural water and sanitation policy statement 5:
Service sustainability through scaling up of
water systems**

Analysis of the RWS's has shown that small systems have no financial sustainability; amalgamating neighbouring RWS's could overcome many shortcomings; and equally, a large, centralized system such as that provided through the BWSL lacks most of the shortcomings recognized in small rural systems. In the long term, many RWS's cannot respond to major maintenance, repairs and system expansion demands. There is already a move to incorporate many rural RWS's into a centralized BWSL system. This is a process that should continue where possible and appropriate.

Strategies

- Amalgamation of individual RWS's into systems serving neighbouring communities, to be implemented where practical. BWSL will continue to gradually incorporate neighbouring RWS's into its urban piped water system based on requests from the Government.
- BWSL shall investigate and where necessary implement incorporation of neighbouring rural communities into one of its urban sewerage systems.

Rural water and sanitation policy statement 6: Community well-being through social and environmental responsibility

Investments in the water and sanitation sector will be socially and environmentally responsible. Environmental considerations should be integrated into the water and sanitation strategic and investment plans prepared by service providers and government authorities. Meaningful community participation is essential for the sustainability of rural water and sanitation projects.

Strategies

- Standardized regulations with regards to sanitation systems will be implemented throughout, involving all regulating, implementing and enforcing bodies.
- Each sanitation project proponent should assess the potential environmental and social impacts on the well-being of the community. This will enable the proponent to design and implement appropriate mitigation measures and environmental management plans.

- Effective, culturally sensitive, environmental conservation and hygiene promotion programmes for consumers, educational institutions and other internal and external stakeholders will be developed and implemented and coordinated by a lead agency. Women, community leaders and children will be centre stage in promoting better sanitation and hygiene practices.

Urban water and sanitation policy statements and strategies

Urban water and sanitation policy statement 1: Quality basic services for all

The delivery of basic services to urban households is seen as a first step leading towards the development of a higher level of services and shall take place before developing a higher level of services to those already served. These basic services are the provision of adequate safe water (10 gallons/person/day), and sanitation (access to piped sewerage or on-site sanitation system and hygiene promotion).

Strategies

- The quality and service levels of water systems shall be monitored by the MoH and PUC respectively, on a regular basis.
- All households within the service area of BWSL will be connected to a piped water system in accordance with BWSL policy.
- Developers of new residential subdivisions in urban areas are responsible for the development of a piped sewerage infrastructure where deemed feasible by BWSL.

- Where piped sewerage is not available, residential house lots should have a minimum lot size to ensure appropriate septic and soak-away systems where feasible.

Urban water and sanitation policy statement 2: Adoption of pro-poor approaches

Pro-poor approaches to service provision will be adopted. Poverty is a principal impediment to increasing access to services, from the household to the national level. Some households may simply not be able to afford the costs of improved services without outside assistance.

Strategies

- Pro-poor social tariffs should be adopted to ensure that every person has at least a basic level of water supply and sanitation service. The tariff for a basic supply of water of 1,000 gallons per month per connection should cover only the operation costs.
- Connection costs for the poor can be paid for in installments.

Urban water and sanitation policy statement 3: Service sustainability through full cost recovery

All urban water supply and sanitation systems must work on cost recovery principles while ensuring effective, efficient and sustainable service delivery. Consumers are willing to pay for water if high quality and reliable levels of service are provided.

Strategies

- Consumers should pay all costs required to achieve long-term sustainability.

- Staff will be trained in water production, distribution (leak detection and repairs), metering consumers, computerized billing systems, and commercial activities and general management.

Urban water and sanitation policy statement 4: Community well-being through social and environmental considerations

Investments in the water and sanitation sector will be socially and environmentally responsible. Environmental considerations should be integrated into the water and sanitation strategic and investment plans prepared by service providers and government authorities. Community participation is essential for the sustainability of urban water and sanitation projects.

Strategies

- Standardized regulations with regard to sanitation systems will be implemented throughout, involving all regulating, implementing and enforcing bodies.
- Each project proponent should assess the potential environmental and social impacts on the well-being of the community. This will enable the proponent to design and implement appropriate mitigation measures and environmental management plans.
- Effective environmental conservation and hygiene promotion programmes for consumers, educational institutions and other internal and external stakeholders will be developed and implemented. Women, community leaders and children will be centre stage in promoting better sanitation and hygiene practices.

