

WATER FOR LIFE

**WATER & SANITATION SECTOR PLAN
2012 - 2016**

Water & Sanitation Sector

Our Goal

“Reliable, clean, affordable water and basic sanitation within the framework of Integrated Water Resources Management, for all people in Samoa to sustain health improvements and alleviate poverty”

National Apex Body

Joint Water Sector Steering Committee (JWSSC)

Implementing Agencies

Ministry of Natural Resources and Environment (MNRE)

Ministry of Health (MoH)

Ministry of Works Transport and Infrastructure (MWTI)

Ministry Women, Community and Social Development (MWCSD)

Samoa Water Authority (SWA)

Land Transport Authority (LTA)

Independent Water Schemes Association (IWSA)

Samoa Red Cross Association (SRC)

Plumbers Association of Samoa (PAS)

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Preface

Water is a precious natural resource. It is vital for life, national development, the environment and maintaining ecosystems, and for sustaining health and economic development. Most importantly, the management of water resources must be well planned and effective. This need is becoming more urgent as we witness increasing pressure, competition, and, in some areas conflict over the use of water resources. The linkages between water supply development initiatives and the initiatives in the agriculture, food, energy, health, education and other key sectors must be clearly understood and carefully managed, in order to benefit from the inherent synergies and to minimize or avoid negative cross-sector impacts.

The Water and Sanitation Sector has been working hard over the last four years to address these challenges, focusing on areas where it can provide added value. The results and evaluations of achievements and performance are summarised in this present plan: *Water for Life: Water & Sanitation Sector Plan 2012-2016*. Review of the Sector's progress since the initial plan¹ in 2008 has indicated that one of the main challenges is the need to implement Integrated Water Resources Management more effectively. Further challenges include addressing institutional capacity constraints in the Sector, replacing ageing water supply infrastructure, and mobilising financial resources needed to provide access to clean and ultimately safe, water and basic sanitation across the country. To address these challenges the Sector will strengthen its work in Integrated Water Resources Management by examining a wider range of water uses and the impacts of climate change on this agenda. It will also explore how to strengthen financing for water supply and sanitation, and the related governance issues.

Water for Life: Water & Sanitation Sector Plan 2012-2016 has been prepared to guide the developments of the sector over the next four years. The overarching development goal for the sector is **"Reliable, clean, affordable water and basic sanitation within the framework of Integrated Water Resources Management, for all people in Samoa to sustain health improvements and alleviate poverty"** and underpins the achievement of the national goal **"For every Samoan to achieve a better quality of life"**.

To ensure the successful delivery of its programme, the Sector is joining forces with key development partners, business and civil society to address identified water challenges. The Sector also gratefully acknowledges the contribution of its development partners in providing encouragement and technical and financial support through our budget support system.

Good water management is so fundamental to human and economic development, and to the maintenance of ecosystems, that we cannot afford to fail.

Acknowledgements

Preparation of the *Water for Life: Water & Sanitation Sector Plan* for 2012-2016 has been possible thanks to the dedication and contributions of many stakeholders working at the sector and sub-sector levels. Their contributions, cooperation and constructive engagement have been instrumental in bringing this Sector Policy document to fruition. The Sector further acknowledges KVA Consult for facilitating the extensive review and update of the Sector Plan.

¹ Water for Life: Water Sector Plan and Framework for Action (2008-2011)

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List of Acronyms

ADB	Asian Development Bank
ADWF	Average Dry Weather Flow Capacity
AUA	Apia Urban Area
AusAID	Australian Agency for International Development
BNPL	Basic Needs Poverty Line
BS	Budget Support
CBD	Central Business District
CBOs	Community Based Organisations
CDC	Cabinet Development Committee
CEO	Chief Executive Officer
CSO	Community Services Obligation (Grants)
CSSP	Civil Society Support Programme
DEC	Division of Environment and Conservation
DMO	Disaster Management Office
DWSP	Drinking Water Safety Plan
EDF	European Development Fund
EIB	European Investment Bank
EPC	Electric Power Corporation
EU WF	European Union Water Facility
EU	European Union
FY	Financial Year
GCCA	Global Climate Change Alliance
GEF	Global Environment Fund
GoS	Government of Samoa
HIES	Household Income and Expenditure Survey
HR	Human Resource
IAs	Implementing Agencies
IWRM	Integrated Water Resources Management
IWS	Independent Water Schemes
IWSA	Independent Water Schemes Association
SRC	Samoa Red Cross Association
JICA	Japan International Cooperation Agency
JWSSC	Joint Water Sector Steering Committee
KPI	Key Performance Indicator
L/c.d	Litres per capita per day (ie; litres of water consumed per person daily)
LTA	Land Transport Authority
m	metre
MAF	Ministry of Agriculture and Fisheries
MDGs	Millennium Development Goals
MESC	Ministry of Education, Sports and Culture
MNRE	Ministry of Natural Resources and Environment
MoF	Ministry of Finance
MoH	Ministry of Health
MoU	Memorandum of Understanding
MTEF	Medium Term Expenditure Framework
MWCSD	Ministry of Women, Community and Social Development
MWTI	Ministry of Works, Transport and Infrastructure

NAPA	National Adaptation Plan of Action
NGOs	Non Government Organisations
NHS	National Health Services
NRW	Non Revenue Water
NWRIMS	National Water Resources Information Management System
NWSMCC	National Water & Sanitation Ministerial Coordination Committee
NWSP	National Water Services Policy
NWU	North West Upolu
PAS	Plumbers Association of Samoa
PMS	Performance Monitoring System
PPCR	Pacific Preparation Climate Resilience
PPTA	Project Preparatory Technical Assistance
PUMA	Planning and Urban Management Agency
PWWA	Pacific Water and Wastes Association
ROU	Rest of Upolu
SAT	Samoa Tala
SDS	Strategy for the Development of Samoa
SBS	Statistics Bureau of Samoa
SE	South East
SHA	Samoa Hotels Association
SNDWS	Samoa National Drinking Water Standards
SOE	State Owned Enterprises
SOPAC	South Pacific Applied Geo Science Commission
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
SROS	Scientific Research Organisation of Samoa
SSDP	Samoa Sanitation and Drainage Project
SUNGO	Samoa Umbrella of Non Government Organisations
SWA	Samoa Water Authority
SWAp	Sector Wide Approach
SWAP	Sector Wide Approach to Planning
TA	Technical Assistance
TORs	Terms of References
TSC	Technical Steering Committee
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USD	United States Dollars
WaSSP	Water Sector Support Programme
WB	World Bank
WfL	Water for Life
WMPs	Watershed Management Plans
WRD	Water Resources Division
WS	Water Supply
WSS	Water Supply and Sanitation
WSCU	Water Sector Coordination Unit
WTP	Water Treatment Plant
WWD	Wastewater Division
WWS	Wastewater Systems
WWTP	Wastewater Treatment Plant

Executive Summary

Background and Context

Since 2005 the Government of Samoa (GoS) has embarked on a continuing process of reform of the water sector with the aim of ensuring that both water resources and services are provided and managed with increased efficiency and cost effectiveness. A comprehensive Sector support reform programme (Water Sector Support Programme- WaSSP) funded by the European Union (EU) was initiated in 2005 and ended in 2010. During this reform programme, detailed situational analysis of the Sector was carried out resulting in the preparation of comprehensive *Water for Life: Framework of Action* or Sector Plan, investment plans and time bound national targets for the Sector up to 2012. In demonstrating its commitment to the reform process, the GoS has already embarked on the process of implementing some of the key strategies from the Sector Plan, as well as supporting studies.

Sector Performance Assessment 2008-2012

As indicated in the Sector Plan, the planning process is continuous and the plan is periodically updated. The review of the Sector performance from 2008-2012 highlighted a number of challenges and gaps in implementing various activities in its respective sub-sectors. The different sub-sectors have developed or evolved separately and their levels of performance evaluation and monitoring are at various degrees in conformity with Sector targets. Given the achievements so far, the Sector is on the right track but has still some way to go to meet both its medium term and long term objectives and targets. With the majority of Sector reforms now completed, the Sector is bracing itself for a period of intensive activity as the reform recommendations begin to be implemented.

Sector Opportunities and Constraints

The approach for assessing the key opportunities and constraints for the Sector involved looking at casual links between economic activities and livelihoods. The assessment of relevant driving forces and pressures on the Sector, the consequent state of the Sector and its impacts and responses undertaken as well as the inter-linkages between each of these elements resulted in the identification of the major key opportunities and constraints in the sector.

Sector Framework for Action 2012-2016

To address the identified opportunities and constraints in the sector, the framework for action for 2012-2016 focuses on the overarching development goal for the Sector is *“Reliable, clean, affordable water and basic sanitation within the framework of Integrated Water Resources Management, for all people in Samoa to sustain health improvements and alleviate poverty”*. The Sector is confident that achieving this goal will greatly contribute towards achieving the national goal *“For every Samoan to achieve a better quality of life”*.

A prioritised 4-year programme based on the key objectives provides a roadmap aimed at achieving these goals:

1. To strengthen **sector’s governance** framework to guide and sustain sector developments;
2. To improve **watershed management** and reliability of water resource data through **integrated water resource management**;
3. To increase **access and improve provision of reliable, clean and affordable water supplies**;
4. To improve surveillance of **drinking water quality** and water borne diseases
5. To increase **access to basic sanitation, improved wastewater systems and improved hygiene practice**;
6. To strengthen effectiveness of **flood mitigation measures** to reduce incidence and magnitude of flooding in the Apia urban area.

Sector Governance Programme - Six strategies have been identified to “strengthen Sector governance framework to guide and sustain Sector developments”. These strategies will address the need to guide and sustain Sector developments through the formulation of a *coherent Sector policy framework*, identification of *sustainable financial means to meet resourcing requirements*, building and sustaining *institutional capacity* to implement Sector investments, a *robust monitoring system* to measure Sector performance and an *effective clearing house mechanism* in place for effective communication to its key stakeholders including local communities. In addition, the Sector will also be focusing on *strengthening its disaster preparedness and response strategies* to better coordinate efforts and resources during natural disasters.

Water Resource Management Programme - Strengthening *watershed conservation and management* has been identified as a priority strategy out of the 4 key strategies required to “improve watershed management and reliability of water resource data through integrated water resource management”. This is in response to increasing developmental activities in key watershed areas that are water supply sources. Other key strategies include *expansion of the water resource monitoring network* for both groundwater and surface water resources to map out availability of water resources in the face of increasing climate variability and the likely threats to the quantity and quality of water resources, *improving enabling environment for water resource management and strengthening community engagement*.

Water Supply Programme - The water supply subsector has identified nine specific strategies identified to address the sub-sector objective “To increase access and improve provision of reliable, clean and affordable water supply” to all people living in Samoa.

Six of these strategies primarily apply to the SWA as the prime agency for delivery of piped water supply services and will address the need to (1) *optimise the use and operation of the existing infrastructure and facilities through NRW reduction programs* including strengthening of meter management, pipe replacement, and overall network control improvements, rehabilitation of priority facilities including upgrade of the disinfection systems to improve water quality, improved asset management systems and implementation of improved preventative maintenance and improved financial management; (2) *to secure alternative sources of supply for the dry season* – this involves the drilling of standby boreholes and rehabilitation of spring and river intakes; (3) *to continue capacity building and enhance community consultation* – a program of continuous skills improvement, community consultation at grass roots level and public awareness programs; and (4) *to prioritise future water supply service area expansion investments* – investments prioritised taking account of social, technical and economic considerations.

Strategies and actions for the independent water schemes revolve around *upgrade of priority schemes and implementation of Drinking Water Safety Plans (DWSPs)* to improve service and water quality and *improved community management*. The remaining strategies and actions promote improved water use efficiency through improvements in the *plumbing trade* including emphasis on *rainwater harvesting* as the prime source of water supply for zones where piped supply is not economic or financially viable and for low income households.

Drinking Water Quality Programme - Five strategies have been identified to “improve surveillance of drinking water quality and water borne diseases”. These revolve around surveillance of drinking water quality to increase access to safe water supplies, surveillance of water-borne diseases as a measure of improved drinking water quality and good hygiene practice, capacity building and improved coordination and information sharing between key stakeholders.

Sanitation Programme - A total of five strategies have been identified to “increase access to adequate sanitation, improved wastewater systems and improved hygiene practices”. These strategies will ensure nationwide awareness programs on sanitation and wastewater management issues, all households will have access to basic sanitation at the minimum of a VIP latrine in applicable areas, increased compliance to sanitation and wastewater standards and regulations, improved capacity of Implementing Agencies to implement statutory roles and responsibilities relating to sanitation and expansion of the sewer network to connect commercial properties within the CBD.

Flood Mitigation & Drainage Rehabilitation Programme - Four strategies have been identified to mitigate impacts of flooding in the CBD. These will address first and foremost clarification on the roles of LTA, MWTI, MNRE and the existing Drains Committee, the need for regular and routine maintenance of the drainage system including upgrades and rehabilitation of drains, capacity building for key implementing agencies and strengthening of awareness programs to address negative behaviours toward care of public drains and river channels.

Implementation Arrangements

A comprehensive institutional framework for the management and development of the country's water resources has been established. The reforms have been geared towards the redefinition of the roles of the different levels of government, with the central government creating the enabling environment for action by communities and the private sector.

A realistic and achievable framework for Sector performance monitoring is in place with 61 indicators to measure the progress of the Sector at the national level. These indicators will also measure Samoa's progress towards achieving its MDGs in particular Goal 7 which aims to “*Halve, by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation*”.

An effective and elaborate framework has been put in place to coordinate and facilitate integration of planning, programming, implementation, monitoring and evaluation across the Sector. Nine committees have been established and make up the sector coordination framework. A new **Ministerial Coordination Committee (MCC)** has been established to strengthen political advocacy and support and comprises Ministers from MNRE, MoH, MoF, MWCSO, MWTI and respective CEOs. This committee is the interface between CDC, Cabinet and the Sector. Their main task is to review policy issues affecting the Sector and advocate Sector issues at the political arena.

It is anticipated that the development of a comprehensive three-year capacity building plan for the Sector will guide future spending to targeted capacity gaps critical to facilitate programme planning, implementation and monitoring and evaluation. Additionally, the development of Sector Medium Term Expenditure Frameworks (MTEFs) has gradually built the capacity of IAs to plan and programme Sector activities in a rolling manner by enhancing the predictability of funding (both Government and project) available.

Resource Requirements

The GoS has adopted the SWAP framework and the EU has initiated its sector budget support programme for water in 2009. This has given the Sector a high degree of flexibility in allocating both local and donor financial resources according to the national priorities and development objectives. Investments in the 4 years of this Sector Plan focus on reducing NRW, improving financial and asset management, continuous strengthening of resources and staff capacity and expansion of service to priority areas.

Delivery of the *4-year programme will cost approximately SAT 112 million*, inclusive of national and project funds against *total resources of about SAT 111 million*. More than 70% of the total resource envelope is provided through the EU Sector budget support which, together with GoS funding makes up 85% of national funding requirements. The balance (15% ie approximately SAT 15 million) will be made up from project funding from JICA (subject to approval) and includes 1.4% from existing Global Environment Fund (GEF) IWRM and NAPA 4 Projects. The summary of key programme expenditure is noted below:

- An enhanced and effective *governance framework* to guide and sustain Sector developments will cost roughly *SAT 5 million* over the next four years.
- *Integrated water resource management* for sustainability of water supplies will cost the sector approximately *SAT 15 million* and will give emphasis to improved watershed management through the development and implementation of watershed management plans, conservation of critical watershed areas as reserves to sustain water supplies and access to reliable water resource data through the implementation of a realistic resource monitoring programme.
- *Increased access and improved provision of reliable, clean and affordable water supply* will cost the Sector approximately *SAT 70 million* in four years and will address SWA priority issues, strengthening of Independent Water Schemes and improvements to drinking water quality including rainwater harvesting and strengthening of the plumbing association in the country.
- *Increased access to adequate sanitation, improved wastewater systems with emphasis on improved hygiene practice* will cost about *SAT 5.5 million* with additional funding provided through the MDG Initiative Project targeting vulnerable groups/households at *SAT 6.8 million* and includes provisions for rainwater harvesting and food security.
- Strengthening of *flood mitigation measures* will cost *SAT 11.8 million* and will be largely funded under the Global Climate Change Alliance (GCCA) project at approximately SAT 9 million.

Way Forward

Implementation of the reform recommendations will not only be challenging but will also inevitably have heavy financial, technical and legal implications all of which have to be addressed to ensure successful and timely realisation of set targets. Some of these pre-requisites have been addressed in detail in the different sub-sector strategies and investment plans but there is still more to be done.

It is envisaged that the private sector and the local communities will play a more active role in the management and delivery of water and sanitation services in the new liberalised and decentralised water sector. The challenge in this case will be building the capacity of both the local communities and the private sector to enable them to play their role effectively. Increased stakeholder participation in the Sector activities will also call for more effective coordination mechanisms and a coherent monitoring, evaluation and reporting framework to ensure transparency and accountability in the Sector and to minimise duplication of efforts and wastage of resources.

Chapter 1: Introduction

1.1 Sector Background

The Water and Sanitation (WSS) Sector (hereafter referred to as the Sector) is one of the fourteen key sectors in Samoa under the Government planning initiative. It is also one of the priority sectors as it directly impacts on the quality of life of the people and overall productivity of the population. Water resources management, supply and sanitation are among the key issues emphasized under the Strategy for the Development of Samoa 2008-2012 (SDS), which is the key government framework for ensuring an enabling environment for rapid economic development and social transformation. Over the last 4 years of the initial *Water for Life (WfL) – Sector Plan 2008-2012*, significant progress has been achieved in the development and realization of its key objectives.

Despite Samoa being well endowed with significant freshwater resources, the challenges of wasteful water use, uncontrolled catchments, residential and agricultural development, environmental degradation, pollution and weather extremes, including droughts and flooding, have in recent years combined to accelerate the depletion and degradation of the available water resources. These challenges have been compounded by climate change impacts.

In order to meet these challenges, GoS undertook major reforms in the water sector in 2005 to ensure that both water resources and services are provided and managed with increased efficiency and cost effectiveness. A comprehensive Sector support reform programme (WaSSP) funded by the European Union (EU) was initiated in 2005 and ended in 2010. During this reform programme, detailed situational analysis of the Sector was carried out resulting in the preparation of the comprehensive *Water for Life: Framework of Action* or Sector Plan incorporating investment plans and time bound national targets for the sector up to 2012. In demonstrating its commitment to the reform process, GoS has already embarked on the process of implementing some of the key strategies from this WfL Sector Plan and priority actions.

The scope of sector strategies and actions in the Sector Plan comprises the conservation, development, use and monitoring and evaluation of all fresh water resources and the receiving coastal waters in Samoa both in terms of water quality and water quantity. Coverage of sanitation² including emphasis on good hygiene practice, wastewater and drainage issues has also been mainstreamed into the Sector domain since 2008.

This document presents a logical and pragmatic framework for action in the context of national and Sector planning following an extensive Sector assessment involving public, private and community consultations and is therefore shaped to respond to crosscutting issues like public health, poverty, gender and culture and climate variability and those unique to the Sector.

1.2 Review and Planning Process

As indicated in the 2008-2012 Sector Plan, the planning process is continuous and the Plan is periodically updated. The specific review areas highlighted in Appendix 1 provided the basis for assessing the performance of the Sector in the subsequent chapters. Strong participatory processes with the Sector were undertaken during the review with initial focus group discussions targeting the

² Sanitation as it applies to this sector includes on-site as well as off-site sanitation systems including the collection and treatment of septage and piped wastewater/sewerage collection, treatment and disposal systems. Solid waste management including hazardous waste management is covered by the Environment Sector.

sub-sector working group members and follow up individual interviews with Joint Water Sector Steering Committee (JWSSC) members and newly identified stakeholders (Appendix 2). Final Sector-wide consultations with the public were then held to formally adopt this proposed framework for action. The remaining gaps and emerging issues identified herein provide the basis for formulating the priorities and strategies to be addressed in this updated Sector Plan.

1.3 Purpose of this Plan

The GoS has prioritised investment in water in order to pursue improvements in public health, promote economic growth and ensure the effective management and supply of water resources. Critical developments over the last decade culminated in the adoption of a Sector Wide Approach (SWAp) in early 2006 by the Sector. Key stakeholders made a commitment to move away from business as usual approach (mainly discrete projects) towards a more coordinated and coherent Sector approach.

The “Sector Wide Approach to Planning (SWAP)” framework, which has been embraced by both government and the water sector development partners, has already proved to be the most appropriate mechanism for resource mobilisation and implementation of the Sector Plan. The SWAP framework also promotes the participation of all stakeholders in the planning and implementation of Sector activities. This openness and the benefits from such an approach has resulted in increased confidence from major development partners including the EU which has agreed to finance the Sector program through the regular government budget (Sector budget support programme) rather than as project specific funding.

The main objective of this updated Sector Plan is to focus on the implementation of key reforms and policies over the 2012-2016 timeframe.

Chapter 2: Country Context

2.1 Country Background

Samoa is a small island economy with a total population of over 180, 000 people. Its total land area is 2,820 sq km, and lies south of the equator comprising of two main islands (accounting for more than 99% of the total land area) and seven smaller islands. The closest metropolitan countries are New Zealand, Australia and Hawaii.

2.1.1 Topography & Geology

Samoa's topography is rugged and mountainous. The highest peak is Mt. Silisili reaching 1,848 m high. The geology is composed mainly of basic volcanic rocks with much younger rocks found in Savaii and this could be attributed to the last eruptions in 1760, 1902 and 1911. The older volcanics are extensively weathered to form clayey soils, resulting in rapid surface water run-off, whilst the younger volcanics have poorly developed or no soils and allow rapid infiltration. The distribution of water resources is therefore very much determined by the country's geology.

2.1.2 Climate

The climate is generally marked by a distinct wet season (November to April) and dry season (May to October). The annual rainfall is about 3,000 mm (varying from 2,500 mm in the north-west parts of the main islands to over 6,000 mm in the highlands of Savaii) with about 75 per cent of the precipitation occurring during November-January.

2.1.3 Natural Disasters

Samoa is highly vulnerable to natural disasters and an historical account of previous natural disasters, notes the most common as earthquakes and tropical cyclones. The latest tropical cyclones to have hit Samoa causing widespread devastation (population, health, environment, economy etc) were Cyclone Ofa in 1990 and Cyclone Val in December 1991. In September 2009, a tsunami devastated the whole country when it hit south eastern Upolu and claimed 147 lives. Heavy rainfall events have also caused major flooding particularly in the Apia urban area, a low-lying flood plain prone to flooding. Droughts cause major stresses on availability of water resources for water supply purposes. In 1988/89 an El Nino drought was recorded as a highly severe event in that major water supply rations were carried out as well as major bush fire events in the island of Savaii. Recently, prolonged drought conditions were experienced from May to October in 2011 and most of the country's surface water intakes dried up disrupting water supplies in many areas. Impact of the drought also affected neighbouring islands like Tokelau and Tuvalu who faced major water shortage crises and required relief assistance to import water for drinking and meeting other basic needs.

2.1.4 Land Ownership

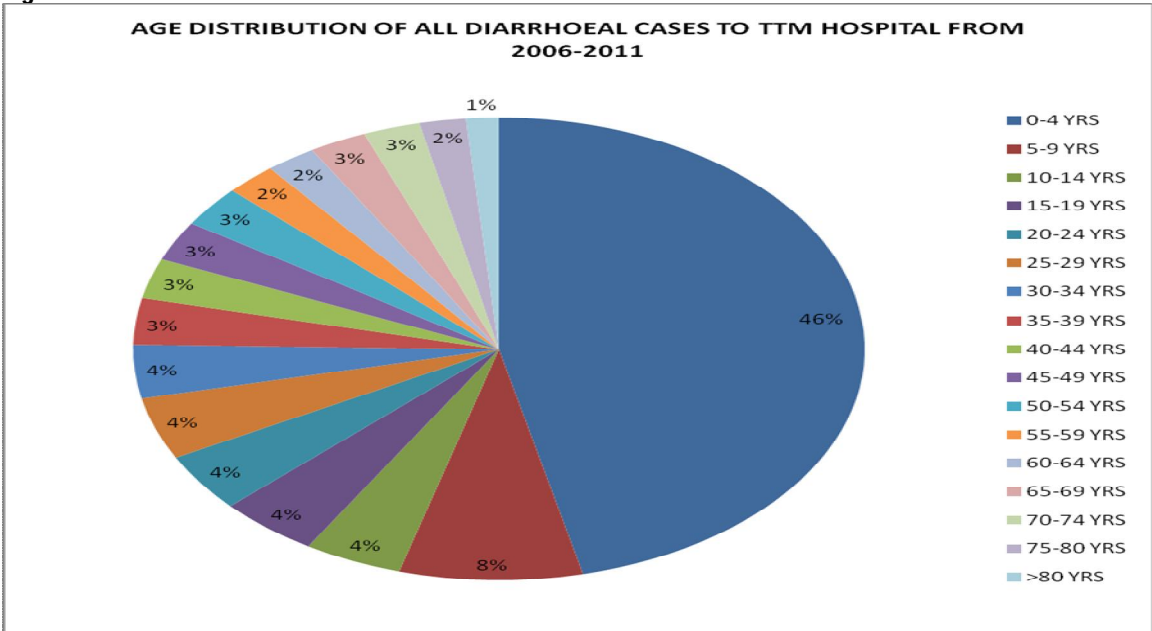
There are 3 broad categories of landownership in Samoa: customary, freehold and government. More than 80% of land is under customary ownership, some 16% is government owned with the remaining under freehold. Government owned lands are administered through the Land Board/Commission (under the Ministry of Natural Resources & Environment), Samoa Trust Estate Corporation and Samoa Land Corporation. Privately owned lands (freehold) are mostly found in and around the vicinity of the urban area.

Land clearance due to logging (mostly in the past) and agricultural developments (to date) and recently a growing trend in land subdivisions have been identified as the main culprits in watershed degradation and declining water quality.

2.2 Public Health Improvements

Surveillance data from MoH illustrates that diarrhoea continues to be the second most common disease for consultation to the main hospital³, from 2006 to date. Of all diarrhoeal cases from 2006-2011, 46% were children under 5 years (graph). The number of diarrhoeal cases that presented to the main hospital was inversely proportional to age. Factors that might contribute to this trend include: the underdeveloped immune system in children makes them more vulnerable to the disease; the fact that parents or care givers are much more alert and therefore have low thresholds for taking their children to the hospital to seek care, and; that adults would usually self-medicate at home and therefore would not count towards the diarrhoea numbers.

Figure 1: Diarrhoea Cases



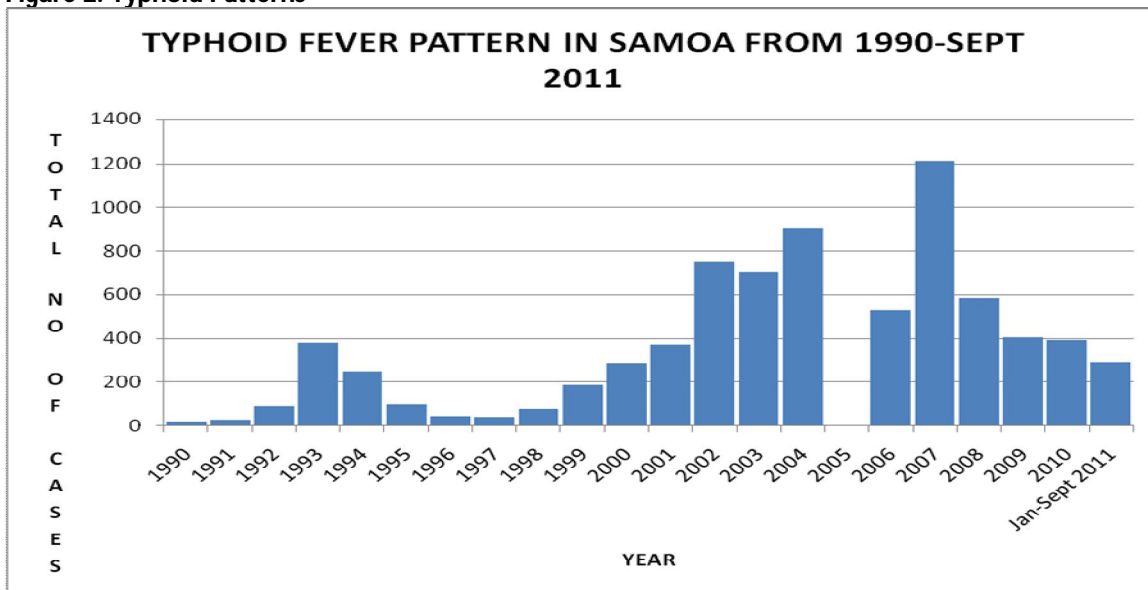
Source: Ministry of Health

Number of diarrhoeal cases show a seasonal pattern, with an increase during the November/December to February/March period which corresponds to the wet season in Samoa. Typhoid fever which is a major health problem for Samoa is endemic in the country. The first ever known outbreak occurred immediately following two cyclones in 1993 when there were problems with water supply as a consequence of the cyclones. From then onwards, typhoid continued to increase peaking in 2007 and reducing thereafter. However since the beginning of 2012, surveillance data suggests that typhoid fever rate continues to be above the threshold.

Data suggests that typhoid fever is much more prevalent in the Apia urban area with an annual prevalence rate of 427 cases per 100,000 population followed by a similar prevalence rate for Upolu rural area and Savaii of 298 cases per 100,000 population.

³ TTM Hospital

Figure 2: Typhoid Patterns



Source: Ministry of Health

2.3 Poverty Reduction

In general, Samoa has performed well in terms of human development. However, there have been concerns expressed over inequality of income distribution, hardship amongst vulnerable groups, and the lack of formal employment and income generating opportunities (especially for school leavers).

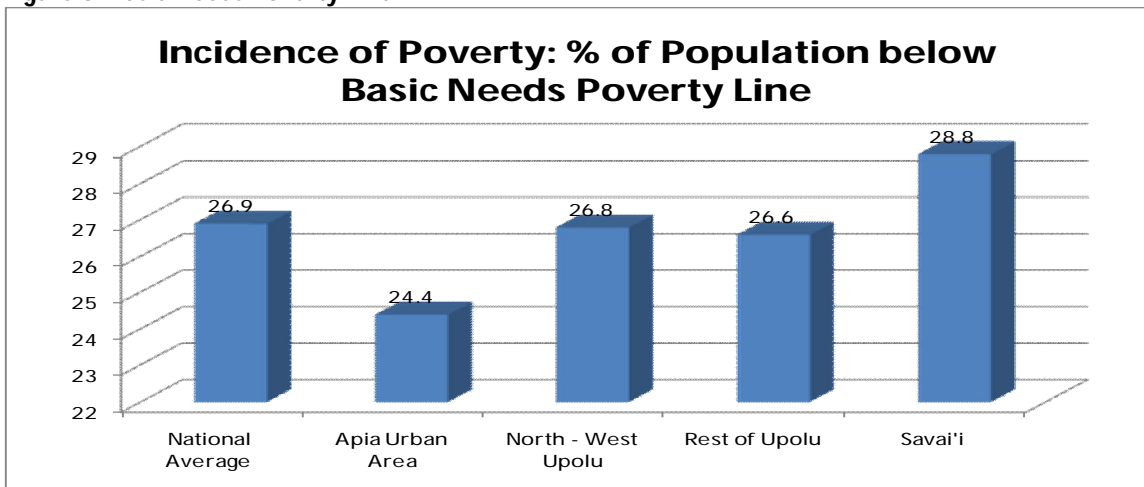
Based on a recent Poverty Report⁴ developed by the Samoa Bureau of Statistics with United Nations Development Programme (UNDP) assistance in 2010, the analysis of hardship and poverty in Samoa uses the data from the 2008 Household Income and Expenditure Survey (HIES) to estimate food and basic needs poverty lines (BNPL). The per capita costs of the BNPL have been estimated as a national average household expenditure of SAT53.59 per capita per week with the Apia Urban Area (AUA) having the highest at SAT 59.95 and the lowest in Rest of Upolu (ROU) at SAT49.46⁵.

The level of serious poverty, as measured by the proportion of households and population falling below the food poverty line is very low; only about 3% of households and 5% of the population. The average incidence of basic needs poverty over all households nationally is estimated at 20.1%, accounting for 26.9% of the population. Within this national average, Savaii had the highest proportion of the population (28.8%), followed by North-West Upolu (NWU-26.8%), Rest of Upolu (RoU-26.6%) and Apia Urban Area (AUA-24.4%) as noted in the Figure 1 below. Notably, for AUA and NWU the incidence of basic needs poverty amongst the population is little changed from that observed in the 2002 HIES.

4 A report on the estimation of basic needs poverty lines, and the incidence and characteristics of hardship and poverty, August 2010;

5 These are the amounts of expenditure/consumption (cash and/or the value of own production consumed) required each week, to meet the estimated costs of a minimum standard of living in Samoa

Figure 3: Basic Needs Poverty Line



Source: *Poverty Report 2010 – Statistics Bureau of Samoa*

The increase in basic needs poverty that is seen is concentrated in the rural areas, in the rest of Upolu (ROU) the proportion of population falling below the BNPL is estimated to have risen from 15.1% to 26.6% and on Savaii from 16.1% to 28.8%. This analysis further confirms that affordability of water and sanitation services within the identified areas is very low. Current policies and actions targeting these areas will need to take into consideration the ability and willingness of customers to pay for the required service.

2.4 Culture and Gender

There are 330 villages in Samoa with an average of 530 people per village (Population Census: 2006). Each village is governed by its “fono” or Council of Matai who monitor and ensure the implementation of village rules. Each village also has a women’s committee, which assumes responsibility for health, and social and community development. Christianity is an integral part of Samoan custom and pastors command great influence and respect in the village. Each village has at least one church and pastor.

Given their long-established, active role, women usually are very knowledgeable about current water sources, their quality and reliability, and any restrictions to their use. They are usually key players in implementing improved hygiene behaviours. Men are usually more concerned with water for irrigation or for livestock, while women are often more direct users of water, especially in the household. However, men traditionally have a greater role than women in public decision-making. Because of these different roles and incentives, it is important to fully involve both women and men in demand-driven water and sanitation programs, where villages decide what type of systems they want and are willing to contribute financing and other support.

To date the main interaction between the Sector and communities has been through the IWSA. The fundamental role of women in water supply is generally recognised with the Sector currently emphasizing gender-sensitive design and community-driven activities through two of its 48 key performance indicators under the IWSA program – whereby village water committees must have at least 2 female members on the IWS Water Committee. While this has been a great initiative, it would be useful to see how the women have actually participated in the water committees to gauge if a difference has been made by their inclusion.

One of the issues identified during the review and evaluation of the Sector is the importance of increased engagement of communities, in particular women, to achieve the objectives of the Sector.

This will require more time by Sector officials spent out in the field meeting with communities to involve them in a range of priorities including water demand, leak detection and conservation, watershed rehabilitation and protection; sanitation and hygiene behaviour change. Whilst there have been a number of communication initiatives targeting behaviour change the Sector would benefit from a more coordinated approach with messages and media tailored to the target group covering a range of topics.

2.5 Water Resources

Samoa has abundant water resources compared to many other Pacific Islands. The average rainfall is over 3,000mm/year (varying from 2,500 mm in the north-west parts of the main islands to over 6,000 mm in the highlands of Savaii) with about 75 per cent of the precipitation occurring during November-January.

Conventional water resources include surface water and groundwater. The distribution of these resources across the country is fundamentally controlled by the geology and topography. Catchment sizes are small, and slope gradients steep, resulting in rapid responses to rainfall events with significant sediment loads, and low flows in dry periods where low flows in these streams have been known to be significant enough to cause problems for the urban Apia water supply system. Surface water and groundwater are used for water supply by SWA, the national service provider and Independent Water Schemes with only about four bottled water companies extracting directly from the source. Surface water provides approximately 65% of the water supply and groundwater 35%.

2.6 Climate Variability and Change

The impacts of climate change on the seasonal variation of rainfall patterns and rising sea levels pose a potential threat to water security, especially in isolated small island states like Samoa. Regional studies indicate that climate change is affecting temperatures and precipitation which will, in turn, impact Samoa's water resources. In the past few years, climate variability has had major effects on the sector in Apia and the rural areas. Prolonged dry conditions have resulted in water shortages and rationing, whilst heavy rains have brought problems of flooding and sedimentation which impact on water quality and quantity at source.

The Sector has faced the challenge of a long dry period (drought) from May to October 2011 which resulted in serious water shortages in Western Savaii and South East Upolu and also water shortages for the Apia schemes. It is highly likely that this problem has been compounded by the resettlement of communities from the coast to upland areas above the water supply intakes. Increased residential and agricultural development in the watershed areas above Apia and the clearance of trees is also of considerable concern further impacting on the quality of water at intakes.

The development, implementation and monitoring of watershed management plans and restriction / regulation of residential and agricultural activities in critical water resource zones will be essential to mitigate the impacts of climate change. In addition, the Samoa Water Authority (SWA) has prioritised in its investment plan the rehabilitation of pipe networks to reduce leakage, the rehabilitation of river intakes to provide a more secure and cleaner supply and the development of boreholes at strategic locations as back-up sources during the dry season.

The effects of climate change on health are devastating. The basic essential requirements for health are greatly affected; contaminated food and water, poor sanitation, poor housing and living conditions, changes in temperature and agents of diseases associated with climate change are likely to emerge. Effective health protection measures and public health surveillance are key to improving health standards at community and national level.

Sea level rise impacts on groundwater are not yet known as monitoring of this has only just started, but some production boreholes have been abandoned as a result of saltwater intrusion due to over extraction. Sea level rise and increased rainfall will affect the construction of proper septic tanks for sanitation, especially in low lying areas. As sea levels rise, contamination of marine waters will be increased, especially if sealed septic tanks are not properly constructed. Cleaning and resizing of the drainage system is essential in order to accommodate increased runoff from rainfall and flood events. Floodway operation should be assessed to ensure that the floodwaters of a 1:20 year flood scenario can be accommodated. Careful consideration will also be given to all major investments to take into account potential resettlement of communities further inland.

The Water Resources Division (WRD) now monitors flood events at a basic level, and is expected to improve its water related disaster monitoring programme which includes flooding and drought monitoring.

Chapter 3: Sector Performance Assessment

3.1 Sector Performance Overview

3.1.1 Water and Sanitation Millennium Development Goals

The MDG targets for the WSS Sector are currently used to assess the overall impact or outcome of activities. However, Sector reporting and monitoring systems are currently not reporting regularly against MDG targets and the data collation is based solely on outdated data and anecdotal evidence. Recent analysis undertaken by the Sector based on 2006 Census figures provides the following update:

Table 1: Water and Sanitation MDGs

MDG Target	Progress to Date
Target 10: Halve, by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation.	<p>Access to improved drinking water supply = 97.3%</p> <p>Access to improved sanitation facilities = 87%</p> <p>The sector is aware that the current methodology for assessing this indicator does not provide an accurate presentation of the % of population with access to safe water or improved sanitation facilities. Consistent monitoring and targeted surveys are needed to improve on the data analysis.</p>

Source: Annual Sector Review Report 2009/10

3.1.2 National and Sector Goals and Targets

Considerable progress has been made to date in implementing the WfL Sector Plan targets. In 2008, the Sector had developed a comprehensive list of over 100 key indicators and targets to monitor and assess the performance of the Sector. In 2009/10 the performance framework was further refined and subsequently reduced to 48 key indicators. Progress in achieving these goals and targets are presented in detail in Appendix 3.

Sector status and performance is discussed below for each of the 5 key sub-sectors:

1. Sector Governance
2. Water Resources
3. Water Supply
4. Sanitation and Wastewater
5. Flood Management

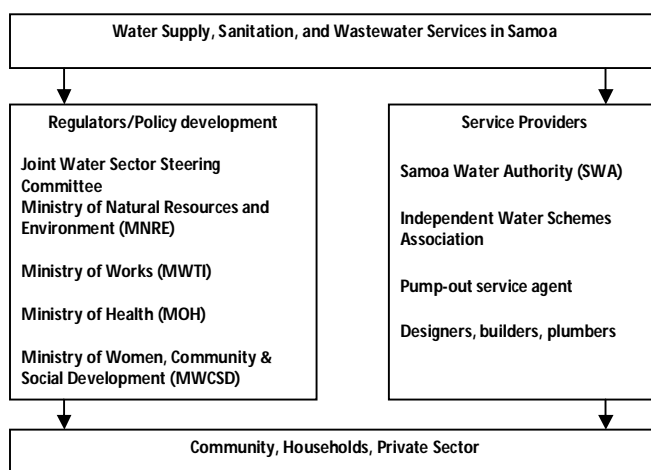
3.2 Sector Governance

3.2.1 Sector Institutional, Policy & Regulatory Framework

Institutional

The Sector has successfully introduced a SWAp, and facilitated key institutional reforms. Important legislation and regulations are in place. New institutions were created for water resources management and for coordination including clearly defined roles and responsibilities for key Implementing Agencies (IAs). Coordination, co-operation and communication between and within agencies have been greatly improved and the “*Water for Life Sector Plan and Framework for Action* (ie Sector Plan) process was subsequently adopted as the basis for Budget Support under the 10th European Development Fund (EDF).

Figure 4: Sector Governance Model



Samoa is moving towards a governance and policy development model after several years of institutional reform. This governance model (Figure 4) separates the role of regulators who are responsible for policy development and service providers or policy implementers. The water sector encompasses a range of regulators and service providers, although some institutions continue to provide both roles. Many of the current arrangements have been recently established and changes in institutional arrangements are continuing.

The extensive institutional restructuring over the last few years has inevitably drawn considerable resources away from the day-to-day management of the water sector in Samoa. The Sector has undergone a comprehensive capacity building programme within each of its key agencies. GoS is now focusing on building capacity of the water and sanitation sector institutions as well as promoting increased private sector participation and effective community participation in all water and sanitation sector activities.

Key reforms that recently took place are as follows:

- i. Establishment of a Procurement and a separate Asset Management Unit under the Technical Services Division of SWA in 2012;
- ii. Decentralization of the SWA Rural Water Supply Division to strengthen communication with rural customers;
- iii. Restructuring of SWA in 2009 to separate urban and rural operations including a shift from quarterly to monthly billing;
- iv. Establishment of the Independent Water Schemes Association in 2008;

- v. Establishment of a Water Resources Division within MNRE in 2006;
- vi. Establishment of a Water Quality Unit within the Health Promotion & Preventive Services Division of MOH in 2006;
- vii. Establishment of the PUMA in 2004 under MNRE;

Policy and Regulatory Framework

Policy, legislative and regulatory reforms have more or less run parallel with institutional reforms. There have been significant developments with regard to policy, legislative and regulatory framework in the sector particularly within the WaSSP period. A summary of some of the more significant policy and regulatory reforms are listed below:

- National Water Resources Management Strategy 2007-2017
- National Water Resources Management Policy 2010
- National Sanitation Policy 2010
- National Water Services Policy 2010
- National Sanitation Master Plan 2011
- Integrated Master Plan for Water Supply, Sanitation & Drainage 2011
- Water Resources Management Act 2008
- Land Transport Act 2009
- SWA Sewerage and Wastewater Regulations 2009
- Water Abstraction Licensing Scheme 2009
- National Drinking Water Quality Standards 2008
- Independent Water Schemes Association (IWSA) Strategic Plan 2008 – 2012

Information on progress including an analysis of critical challenges and key policy objectives is included in Appendix 4.

Although policy and regulatory processes are largely established or identified to be established, the biggest issue is the limited capacity of regulators (MNRE, MOH, MWCSO, MWTI) to implement and enforce policies and regulations.

The regulatory regime for the water sector includes multiple players, with different government authorities having distinct responsibilities for particular issues. Information on key institutional bodies with legal mandates and Sector roles are presented in Appendix 5.

Table 2: Regulatory and Institutional Responsibilities

Authority	Legislative basis	Function
Ministry of Natural Resources and Environment		
Planning and Urban Management Agency	Planning and Urban Management Act 2004 and regulations	<ul style="list-style-type: none"> • Controls the impacts of structures and activities on the environment e.g. impacts of discharges from wastewater systems • Environmental protection and nuisance • Manage the wastewater effluent discharge standards
Division of Environment and Conservation	Lands, Survey and Environment Act 1989 Waste Management Bill 2008	<ul style="list-style-type: none"> • Landfill operation and management of sludge treatment, disposal, operation and management • Environmental protection

Water Resources Division	Water Resource Management Act 2008	<ul style="list-style-type: none"> • Protect water quality and watershed resources through monitoring, and appropriate management strategies
Ministry of Works, Transport and Infrastructure		
Building Division	Ministry of Works Act 2002 (Part IV) (through the Building Code)	<ul style="list-style-type: none"> • Controls building quality including domestic and commercial septic system design and installation • CEO may designate road reserve for sewer network
Ministry of Health		
Health promotion and Preventative Services	Health Ordinance 1959,	<ul style="list-style-type: none"> • Requirement for buildings to have adequate provision for wastewater management • Promotes public health issues and solutions • Prevents outbreak of infectious diseases by stopping discharge of sewerage into receiving water
Samoa Water Authority		
All Divisions	Samoa Water Authority 2003 and Samoa Water Authority (Sewerage and Wastewater) Regulation 2009	<ul style="list-style-type: none"> • Provision of water supply • Develop, operate and maintain central Apia sewer system - control and monitor <i>tradewastes</i> associated with the system
Ministry of Women, Community and Social Development		
Internal Affairs Division Womens Division	Internal Affairs Act 1995	<ul style="list-style-type: none"> • To assist in educational activities delivered at the local village level • To provide services for village programmes and development (Aiga ma Nuu Manuia Programme)
Land Transport Authority		
Procurement & Programming Division	Land Transport Act 2009	<ul style="list-style-type: none"> • Drainage rehabilitation and routine maintenance

3.2.2 Sector Coordination

Crucial to the successful implementation of the SWAp, is the effectiveness of the coordination framework with which to facilitate and coordinate programme implementation at the Sector and subsector level. The multi-faceted nature of the water sector means that inter-relationships between stakeholders in particular sector implementing agencies are both complex and unpredictable. In addition, various stakeholder organisations are mandated to enact their own legislation or constitutions and to follow the direction of their individual governing bodies or boards, whose objectives may not always be in line with sector objectives or priorities.

The JWSSC supported by Water Sector Coordination Unit (WSCU) has been instrumental in coordinating the implementation of a range of successful institutional and regulatory reforms, and should continue to do so. However, participation at Chief Executive Officer (CEO) level is an issue that

has been discussed repeatedly at quarterly meetings. Several factors such as unavailability due to official duty travels, competing demands on CEO time, different priorities and commitments, individual legislative mandates rather than a sector wide mandate, have been identified. In addition, various CEOs/ Implementing Agencies (IAs) consider the SWAp approach as a temporary initiative that will last as long as donor funding is available and therefore the long term viability of the JWSSC is questioned and could be the main reason why some stakeholders are non-committal. Looking forward, the Sector will need to look at options that could secure the long term viability of the JWSSC and therefore of the SWAp methodology itself.

3.2.3 Sector Planning, MTEF Planning and Performance Monitoring

Planning & Resourcing

The current Medium Term Expenditure Framework (MTEF) process utilised by the Sector now allows for the allocation and tracking of expenditures for each sub-sector. The Sector also now has a better idea of the available level of resources over the next 3-5 years as a result of the EU-funded Water Sector Support Programme⁶ (WaSSP) and detailed investments as highlighted in Chapter 7. The challenge now is to effectively utilise the available resources by prioritising identified key investments and ensuring appropriate allocations for agreed priority actions.

Performance Monitoring

In 2008, more than 100 indicators were selected at the time in order to accommodate the variety of different IAs. Since then, the Sector has refined and rationalised its core performance indicators to include 48 key performance monitoring indicators that now form the basis of its performance management framework. A performance monitoring system (PMS) was established within WSCU to collate and analyse data from IAs. Although this has been rather slow in progress, data has been collected for water quality monitoring, water resource management, sanitation and water supply sub-sectors. The challenge now is to ensure that data is authenticated and reflects the actual situation in each sub-sector.

3.3 Water Resources

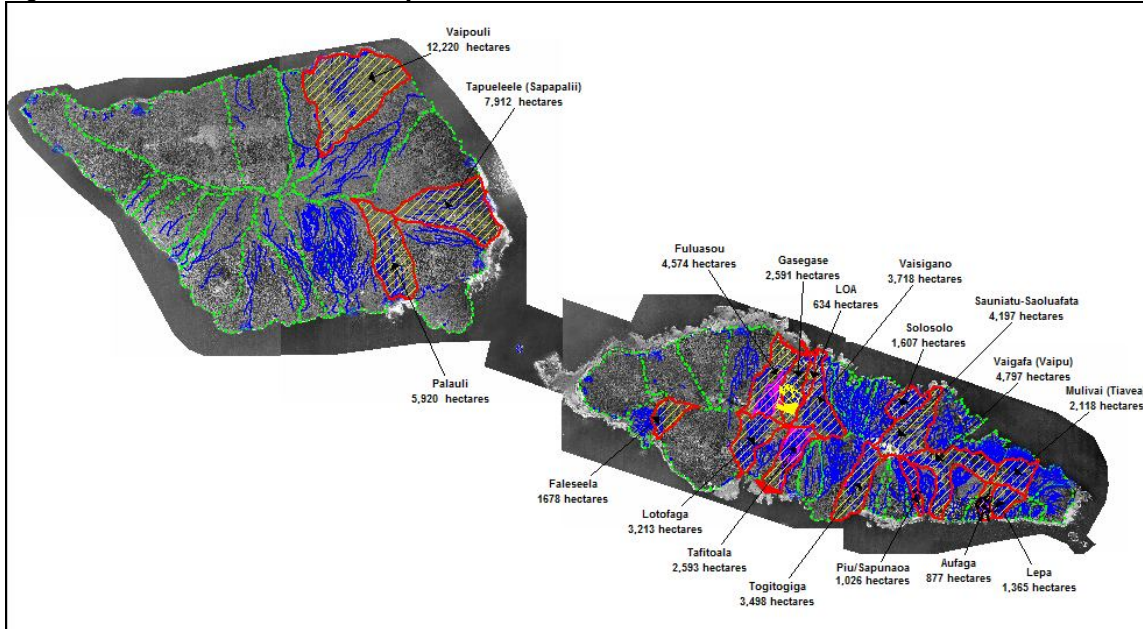
3.3.1 Watershed Management

Watershed Management Plans (WMPs) for critical areas are being prepared in parallel with ongoing rehabilitation efforts. However, the development and subsequent implementation and enforcement of these critical plans have been greatly delayed due largely to limited existing capacity of WRD to produce these plans in the first instance. There are currently 8 watershed management plans in place and in draft forms. The Togitogiga and Vaipouli Watershed Management Plans have been endorsed by the JWSSC and are scheduled for Cabinet Development Committee (CDC) endorsement in mid 2012. The Loimata o Apaula and Gasegase WMPs are also in draft form while the Faleseela and Fuluasou WMPs are currently under review and two others, Aufaga and Tafitoala WMPs, have just been drafted.

There has also been a strong commitment at the political level to prioritise watershed management following the recent drought from May to October in 2011 where most of the country's surface water intakes dried up disrupting water supplies in many areas. The purchasing of critical areas at Malololelei within the Apia Catchment to be reserved is a demonstration of Government's commitment to protect key watershed areas and the beginning of a sector-wide effort to mobilize resources to ensure this is achieved. The Government has already taken 32 acres of critical lands from Malololelei.

⁶ provides for fixed and variable resources depending on Sector performance

Figure 5: Prioritised Watershed Map

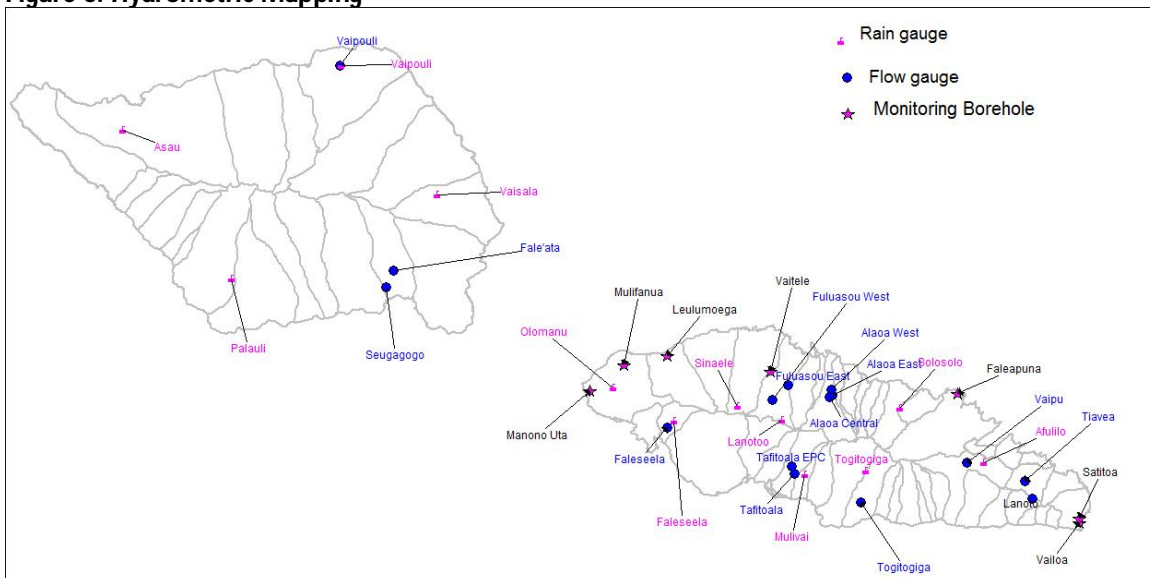


Source: Ministry of Natural Resources and Environment

3.3.2 National Hydrometric Network

There is now an expanded and improved resource monitoring network with old surface water monitoring stations being upgraded to automated systems, and work on groundwater monitoring is progressing. However, the planned groundwater monitoring programme is not yet complete. Baseline research for monitoring lakes within the country has also progressed beginning with Lake Lanotoo and Lake Lanoto, with plans for other additional lakes to be monitored in the near future. Water quantity and quality monitoring and assessments are presently being carried out, but at a basic level. A number of technical trainings on hydrological monitoring have been undertaken, and a central database on water resources information called the National Water Resources Information Management System (NWRIMS) is now operational.

Figure 6: Hydrometric Mapping



Source: Ministry of Natural Resources and Environment

3.3.3 Allocation of Water Resources

A framework for the allocation of water resources in Samoa has been drafted with plans to finalise by 2012/13. The framework will outline the principles, roles, responsibilities, and methodologies for relevant stakeholders involved with water resources management and regulation.

A Water Abstraction Licensing Scheme has been in effect since 2009. However compliance to the Scheme has been slow with only six water abstraction licences and one drilling permit application received. At the moment the IWSA and SWA are working in submitting their applications.

The main water uses are for domestic and commercial water supply (a key element of this Sector Plan and described in detail later in this report), irrigation and hydropower. The latter two uses do not form part of this Sector Plan but are briefly discussed below.

3.3.4 Irrigation

There are no major irrigation schemes for agriculture in Samoa. All crop production and cattle farming use natural rainfall at present although this may change in the future as the national focus on agricultural development increases. The Penina Golf Course however, has an irrigation system fed from a borehole.

3.3.5 Hydropower

Surface water is also used for power generation. There are five micro-power stations all in Upolu, at Afulilo, Lalomauga, Samasoni, Faleolefee and Alaoa, the latter three all within the same Vaisagano watershed. Only Afulilo power station is regulated by a dam. All other stations have head-ponds fed by the water course. The 5 power stations have a combined generation output of 7.25 Mega Watts, which typically provides about 40% of the national demand. During the wet season hydropower can provide up to 70% of demand but this can reduce to 20% in the dry season.

While the Water Resources Division (WRD) has worked collaboratively with the Electric Power Corporation (EPC) through the provision of data for the design of new hydropower stations, there is very little involvement of the Sector in hydropower and vice versa.

3.3.6 Rainwater Harvesting

Rainwater harvesting has evolved as an important issue within the water sector. It has always been part of the overall strategy of water provision. However, it was left largely to individuals and Non Government Organisations (NGOs) to undertake projects in communities in response to local needs. As pressure has mounted, particularly following the 2011 drought, on the resources available for such projects it has become essential that a Sector approach incorporate the need for such projects, the priority placed on each project and the standards to which the projects are delivered. Such projects should be delivered to communities in conjunction with the development of sanitation facilities, and the provision of education and training around safe practices.

With the establishment of the Community Sector Support Programme (CSSP) and the emergence of Samoa Red Cross as a funder and programme deliverer for rainwater harvesting and household on-site sanitation systems, it is timely that a number of initiatives be undertaken to enhance programme work in this area. Work to be done includes:

- Research into best practice, and the subsequent development of guidelines for the implementation of projects in both rain water harvesting and sanitation.
- Development of expertise in the implementation of quality rain water harvesting and sanitation projects.

- Provision of support to communities implementing rain water harvesting and sanitation projects.
- Monitoring and evaluation of projects.
- Development of education and training programmes for health and sanitation.

Samoa Red Cross, through its work in tsunami recovery and its international expertise in water and sanitation, has developed skills and expertise in this area, and is ideally placed to be the connection between the Sector and the community in programme delivery in these areas.

3.4 Water Supply

Significant support to the rural and urban water sector has been provided over the last decade and this has resulted in significant benefits to communities. However, the water sector continues to face significant challenges, foremost being the ability of the core service providers (SWA and IWSA) to operate and maintain their water supply systems, and reduce unacceptable levels of water wastage. The current status of the water supply sub-sector is discussed below in terms of its key defining characteristics.

3.4.1 Access to Water Supply

SWA provides piped water service to approximately 80% of the population of Samoa within discrete service areas. These are divided as follows:

- Urban treated water supply – Malololelei (2%), Alaoa (10%), Fuluasou (11%);
- Urban untreated supplies in 7 service areas on the outskirts of Apia (6%);
- Rural treated and supplementary bore supply – Fuluasou (20%)
- Remaining rural service areas (16%)
- Savai'i services areas (15%)

SWA is currently rationalizing its customer database to confirm the actual numbers of households connected in each service area since there are some customers that are registered twice, some customers are connected but not registered, and some abandoned houses are still registered. This rationalization process will ensure that all listed customers are confirmed, double connections⁷ removed and past recording errors eliminated.

Overall SWA coverage is reported in Table 3 below:

Table 3: SWA Service Coverage by Geographic Zone and Service Area

Operations Division	% in Geographic Zone	% in SWA Service Area	% of Supply Treated and Disinfected
Urban - Apia	95%	95%	80%
Rural	80%	60%	50%
Savai'i	80%	78%	0%

Source: Samoa Water Authority

The greatest room for improvement with respect to service coverage is in the Upolu rural areas and this work is ongoing. The target is to achieve 95% coverage of households within each of SWA service areas over the next few years⁸ and to maximize customer service and SWA returns on capital investment.

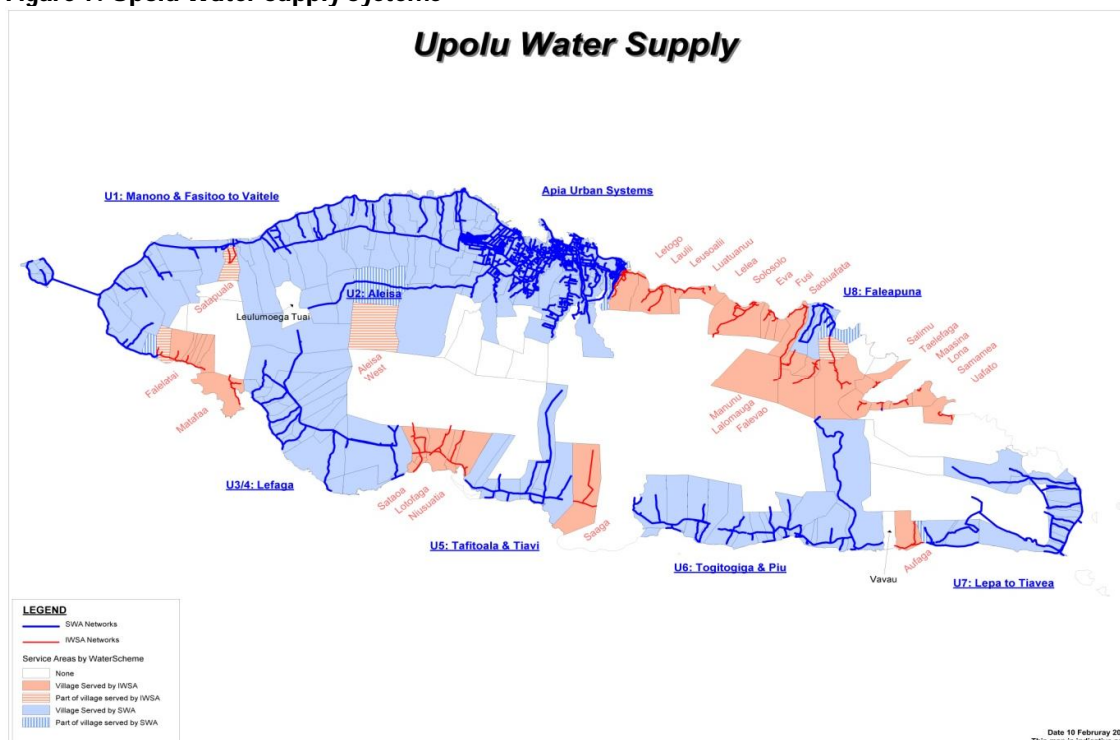
⁷ that were likely the result of customer transfer from manual to computerized database

⁸ Ideally within the Sector Plan period

A program of works to improve chlorination facilities throughout all service areas in a phased approach has been included in SWA's 10-year investment plan. This will expand coverage of clean and safe water supply.

The remainder of the population obtains water from 33 independent water schemes or from rainwater harvesting. IWSA currently serves approximately 30,000 people, equivalent to 17% of Samoa's population. Eleven IWSs have been upgraded, resulting in approximately 15,000 people with access to improved water supply. Improved community capacity in governance, plumbing, water quality and other areas continue with the IWSA training sessions.

Figure 7: Upolu Water Supply Systems



Source: Samoa Water Authority

3.4.2 Levels of service

With respect to Levels of Service, the principal areas monitored by SWA are: (a) the reliability of supply; (b) pressure control in the network; (c) water quantity provided to each household, and; (d) water quality.

a. Reliability of Supply

Customers supplied from the five main slow sand filter water treatment plants (WTPs) and the package plants⁹ and receive good quality treated water on a 24-hour basis provided the source supply is sufficient. Customers receiving water from springs and river intakes get 24 hours supply, but the water is untreated and not disinfected. Customers supplied from boreholes receive an intermittent supply¹⁰ (usually 10 to 12 hours a day) of untreated water. To cope with this situation, households generally have invested in storage tanks to even out the intermittent supply, giving them in effect a

⁹ To date there are five package WTPs in operation, and two more under construction (during 2012/13). Package WTPs use conventional treatment (ie rapid sand filters).

¹⁰ Supply is intermittent but at regular times of the day.

24-hour supply¹¹. As a result of the recent long dry spell¹² which negatively impacted water supply to its customers, SWA is working on a programme to identify and provide alternative sources to counter future prolonged dry spell events. However this will need to be phased over several years and will be dependent on budget availability and priorities.

b. Pressure Control in the Network

SWA controls pipe network pressures to comply with its design standards: target minimum pressure of 15 metres (m) with absolute minimum of 10m; and maximum pressure of 60m. A random survey carried out on a sample of 75 customers within the three urban treated water service areas identified four customers that had a connection pressure less than the absolute minimum standard required (a 95% success rate) and a further nine customers failing to meet the target minimum pressure (an 82% success rate).

c. Water Quantity

With regards to the water quantity provided by SWA to each household, SWA's records of all customers billed and the overall usage of water by category (domestic and commercial) and by location were used to determine the average usage for 2010/11 as presented Table 4:

Table 4: Water Consumption

Location	Domestic Usage - L/connection billed (Monthly)	Commercial Usage - L/connection billed	Domestic Consumption L/c.d
Upolu – urban	1190	7240	165
Upolu - rural	1020		125
Savaii	1140	3550	140

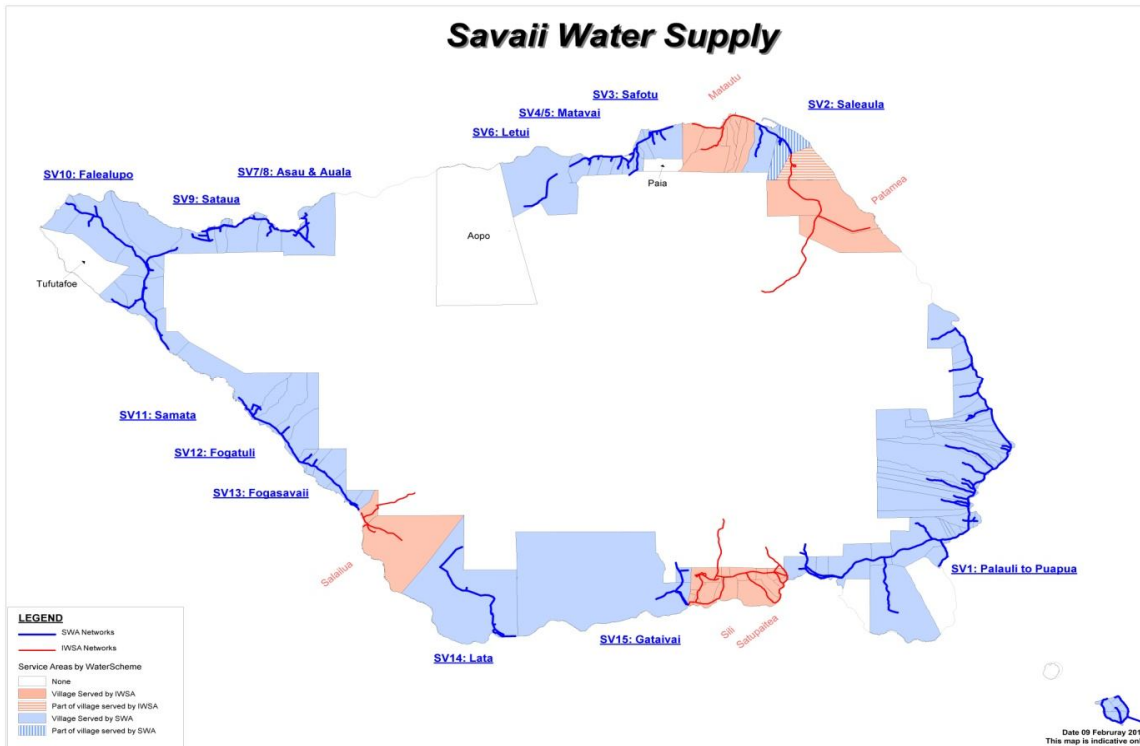
Note: Domestic consumption is calculated at an average of 8.2persons /household in Savaii and rural Upolu and 7.5persons/household in Urban Upolu (from 2006 census data) – Source: Samoa Water Authority

The above figures should be considered as indicative only at this stage. For instance, approximately 5% of urban charges are for flat rate customers where water usage is not metered. It is likely that the urban consumption is somewhat higher than the 165 litres per capita per day (L/c.d) indicated above. The SWA design standard is to provide 250L/c.d subject to resource availability. This is a relatively high standard in comparison with international norms of between 150 and 200L/c.d.

¹¹ provided they have a tank of sufficient capacity to meet their daily needs

¹² which occurred from May to October 2011

Figure 8: Savaii Water Supply Systems



Source: Samoa Water Authority

d. Water Quality

SWA strives to provide a quality of supply that complies with the Samoa National Drinking Water Standards (SNDWS) and is required to achieve annual Sector targets¹³ for water quality, as set by the MoH. At present SWA provides a treated and disinfected supply to customers in the Malololelei, Aloa and Fuluasou service areas in urban Apia. The water quality in these areas is independently regulated by the MOH. . On average, about 70% of all water samples taken per month during the financial year 2010-2011 complied with the SNDWS. This is significantly more than the required Sector target of 62% compliance for the year.

Treated and disinfected supply is also provided to some rural customers but this supply is not yet quality regulated. Borehole water supplies are safe to drink at the source but because the pipe network is not secure and the supply not provided on a 24-hour basis, the water at the tap may not be safe to drink. It is SWA’s intention to expand the coverage of treated and disinfected supply to peri-urban areas of Apia, Savaii and Upolu rural areas in a phased approach.

The MoH in efforts to commit water service providers to the provision of safe supplies have taken ownership of the Water Safety Planning Approach which is a holistic and practical approach to addressing water quality issues from the catchment to the end consumer. This approach has been successfully piloted with the Matautu IWS and SWA’s Fuluasou System with technical assistance provided by the South Pacific Applied Geo Science Commission (SOPAC). A phased national rollout programme is underway and funding will target and prioritise those critical areas identified for

¹³ For the current year the target is 66% of samples meeting the SNDWS standards, increasing to 80% by 2016 (refer Table 6.2)

immediate interventions while medium to long term interventions are addressed progressively and accordingly.

Bottled water companies are also being monitored and tested on a quarterly basis through a service contract between MoH and the Scientific Research Organisation of Samoa (SROS). Testing of Bottled Water Companies started in 2011 and is currently funded by GoS. However, Bottled Water Companies should be held legally responsible for carrying out independent drinking water quality tests with the results provided to MoH on a quarterly basis.

3.4.4 System Efficiency

With respect to system operational efficiency, the principal areas monitored by SWA are: (a) water loss management; (b) staff utilization; and (c) water treatment plant utilization.

a. Water Loss Management

A water loss investigation was undertaken as part of an Asian Development Bank (ADB) Technical Assistance project to prepare the Apia Integrated Master Plan for the Water Sector. This investigation indicated that NRW in the three main treated water service areas in Apia was about 70% (or about 3,900 Litres/connection/day). Lack of working bulk meters at WTPs and boreholes, and lack of household meters on many premises, has precluded the establishment of regular monitoring of this indicator. However, the majority of bulk meters have now been installed and a program of meter installation is ongoing.

SWA has established NRW units with metering and leak detection teams in both Upolu and Savaii working concurrently with customer mapping and connection detail surveys. In addition, SWA has contracted with a company to provide expert advice and assistance to their leakage detection teams.

b. Staff Utilization

The utilization of labour is one of the most important operational aspect that impacts upon overall efficiency¹⁴. SWA has examined labour efficiency on the basis of staff per thousand connections. The ratio for SWA overall is currently about 12 staff / thousand connections billed. This is rather high in comparison with international norms for the operation of urban water supply infrastructure and reflects the fact that SWA serves a significant rural component of supply and high numbers of staff needed for meter reading and for disconnection teams.

c. Water Treatment Plant Utilization

Because of the high levels of NRW, SWA WTPs in Apia are all operating at well above design levels (when the source is unrestricted) – Alaoa 152% design capacity; Malololelei 178% design capacity and Fuluasou (Urban) 268% design capacity. These operating levels are not sustainable in the long-term and SWA is working hard to get NRW under control so that these plants work at a more optimal level and also so that during the dry season more water is available to customers.

Despite the upgrades, IWSA had encountered some problems along the way. Some of the upgrades did not deliver the results expected due to poor technical design work. There was also inadequate time given for commissioning and testing the new systems and since the rehabilitation only impacted on selected components weaknesses in other parts of the network affected performance. The expected improvements in performance were also affected by the poor quality of household plumbing, and by excessive rates of household consumption. The lessons learnt from the first

¹⁴ The cost of labour for Rural Upolu and Savai'i is about 22% and 18% respectively of direct operational costs. The cost of labour for Urban Operations is about 40% of direct operational costs.

upgrades have been taken into account in planning the subsequent works and community engagement. A recent review of the WaSSP indicated that the participatory approach adopted by IWSA for development of IWS is commendable and could serve as a model for other water sector interventions. IWSA have noted that a more flexible approach to implementation of water schemes leads to greater community support, increasing overall prospects for success.

3.4.5 Financial Performance

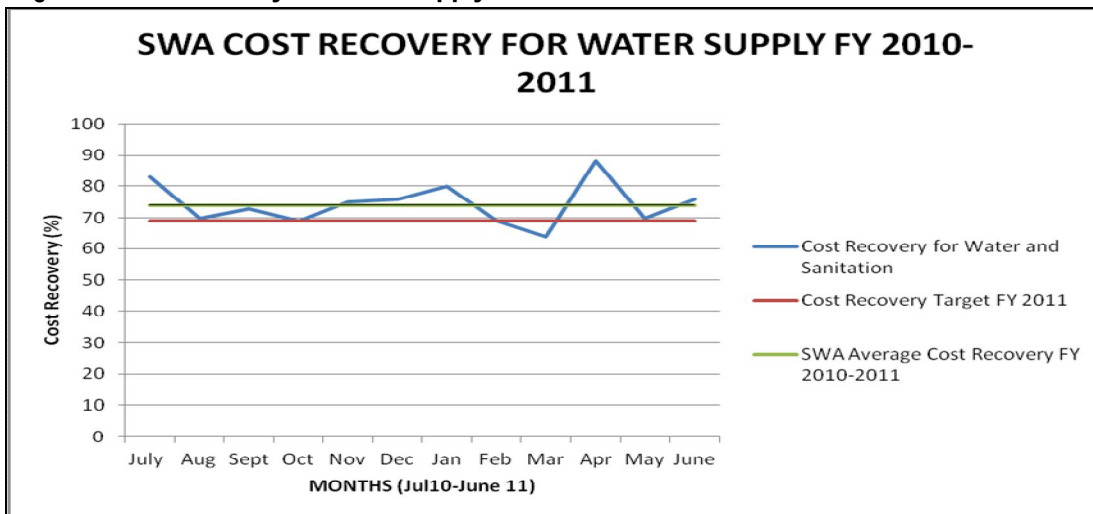
With respect to Financial Performance, the principal indicators monitored by SWA are: (a) cost recovery; (b) billing efficiency; (c) operational unit cost of supply.

a. Cost Recovery

Figure 9 indicates the cost recovery results for SWA for FY) 2010 / 2011. This is the ratio of revenue from water sales to total operational costs excluding depreciation. The annual average target to be achieved for this financial year was 69% and SWA achieved an annual average of 74% - nearly 10% above the Sector target.

It is important to note that the wastewater tariff has only just been approved by GoS and is only in the initial stages of implementation. The costs for wastewater operations and maintenance are included in the calculation of cost recovery but there was no revenue so this has impacted on the overall profitability of SWA.

Figure 9: SWA Recovery for Water Supply



Source: Samoa Water Authority

b. Collection Efficiency

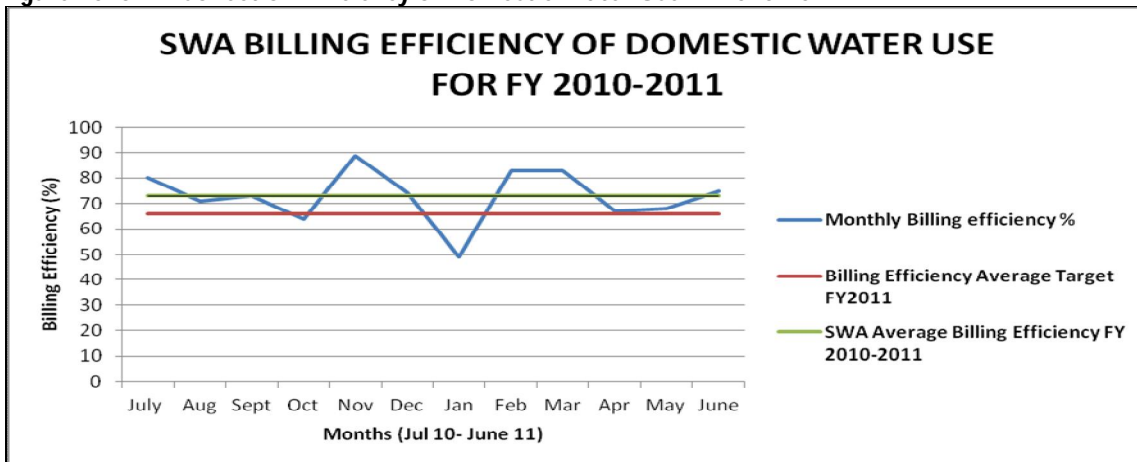
Financial year 2010/2011 was the second full year of the new tariff structure introduced in March of 2009. Water sales were less by 9% from the previous year as customers became more conscious of their water consumption as they experienced an increase in water bills. This was also reflected in reduction of collections by 3% but despite these reductions, water sales still funded 77% of SWA operations costs excluding depreciation.

To further improve collections and customer relations, a new customer service and collection booth was opened at the Vaitele New Market. A dedicated senior position was also recruited to help collect

the SAT 7.7 million of outstanding debt owed in water bills, as well as to manage an additional disconnection team to assist the two existing teams deployed to cover the whole of Upolu.

Figure 10 presents the Collection Efficiency for domestic water use for the period July 2010 to June 2011. This is the ratio of water usage payments received to water use charges. SWA achieved an average Collection Efficiency of 73% compared with our target of 66% - a very satisfactory result. The dip in the figure in January reflects household funds being used for other activities over the Christmas / New Year period and household preparations for the commencement of schools.

Figure 10: SWA Collection Efficiency of Domestic Water Use FY 2010-2011



Source: Samoa Water Authority

c. Operational Unit Cost Analysis

An important measure of performance is the unit cost of water sold. Figures calculated for FY 2010-2011 indicate a unit cost for SWA operations overall, excluding depreciation, of just over SAT 2/m³:

It should be appreciated that some 23% of the costs of SWA water supply are in fact subsidized through CSO grants particularly for payment of power for borehole pumping and for some capacity building activities.

The figure above can be compared with the current domestic water tariffs of SAT 0.5/m³ for the first 15m³, SAT 1.4/m³ for the next 25m³ and SAT 1.9 for above 40m³ and the commercial tariff of SAT 1.5/m³ for the first 40m³ and SAT 2.0/m³ thereafter. The cost of the SWA service even excluding depreciation is greater than all of these tariff rates. It is expected that the unit cost will reduce significantly as SWA implements its NRW reduction program over the next few years and as service coverage is increased. However, householders also have to use water wisely and they must pay their bills for this essential service.

3.5 Sanitation

3.5.1 Access to basic sanitation

As noted in the previous Sector Plan period, data on access to basic sanitation is neither adequate nor available to present a reliable assessment on the status of access to basic sanitation and quality of the facilities in relation to public health standards. Basic sanitation in this case is defined at the minimum of a VIP latrine for each household. Further, the previous Sector Plan period gives a detailed overview of the main types of sanitation facilities per household in Samoa in 2001 and 2006 respectively. This updated Sector Plan period is unable to provide a current overview of the statistics and draw comparisons with regard to the main types of sanitation facilities per household in Samoa for the year 2011 as the recent Census results will not be published until sometime in August-September of 2012.

Although attempts were made in the past to engage with the Bureau of Statistics to revise sanitation related parameters, proposed changes were not considered due to time constraints. This triggered a sector-wide dialogue to look at ways to improve the Sector's data collection and availability to improve the quality of information produced on the status of sanitation in the country. It is anticipated that a full scale National Water and Sanitation Survey will be designed and undertaken in the first 2 years of this Sector Plan period with the intention to mainstream it into the National Census so that it becomes part of the national data collection every five years.

A number of small studies (Dorsch 2004 and GHD 2009) including the first ever National Sanitation Survey was conducted by PUMA of the MNRE from August-November 2010. The survey targeted 1,457 urban residential households, 81 urban commercial businesses, 185 rural households and 62 rural commercial businesses. The survey findings indicate that only a small proportion of households have access to well-functioning septic tanks. Less than half of the total households surveyed had emptied their septic tanks in the last five years. Furthermore the findings indicate a very high level of leakage into the environment, groundwater sources and bay areas. Although findings from the survey provide a relatively good understanding of the current situation, a more comprehensive and detailed survey nationwide will need to be undertaken to present more substantial and conclusive findings on the status of sanitation in the country.

3.5.2 Sanitation coverage levels

An assessment of levels of service for sanitation was carried out as part of an overall ADB funded PPTA from May 2010 to May 2011. The study found no set, established levels of service for sanitation overall except for those required under the new wastewater treatment plant (WWTP) serving the CBD. Most sanitation facilities are privately owned and standards for such facilities are covered under the national Building Code 1992 and the National Sanitation Masterplan once it becomes approved. Key areas requiring target levels of service to be established for the duration of the new Sector Plan, are in effluent standards for private package WWTP's and the Sogi WWTP, regularity of septic tank pump-outs, monitoring and operation of the new septage disposal facilities and maintenance of public sanitation facilities.

3.5.3 Septic tank desludging and septage disposal

A number of private sector companies provide septic tank pumpout services on a user-pay basis. In the past, private operators used to transport septage waste to unlined pits at Tafaigata Landfill site in Upolu and Vaiaata Landfill in Savaii. Both sites had the potential for groundwater contamination and other environmental/health risks.

A new Sludge Treatment Facility is now opened and operational in Tafaigata, Upolu within the Landfill compound while a second facility is currently being constructed to be completed in mid 2012 for Vaiaata in Savaii, within the Vaiaata landfill compound. The facilities are managed and operated by the MNRE DEC who is also responsible for solid waste management and chemicals management. Maintenance of roads and grass cutting at the site has been outsourced to private contractors.

3.5.4 Wastewater Collection and Treatment

Year 2010 saw the successful completion and handover of the Samoa Sanitation and Drainage Project incorporating a wastewater collection and treatment system for the central business district (CBD) of Apia. The system comprises a pressure sewer collection network of 6.7km of sewers, 2.4km of property service lines and 77 pump stations connecting over 120 commercial customers. The sewer network delivers wastewater to a WWTP located at Sogi with average dry weather flow capacity (ADWF) of 1250m³ per day. A belt press for dewatering sludge was commissioned in March 2011 reducing the costs of sludge transport significantly.

The collection system has been effectively managed and operated by the seven staff of the SWA Wastewater Division (WWD) since the end of 2010. The treatment plant is managed by the WWD but operation services are outsourced.

There were on average about 47 call outs per month during the latter months of 2010/2011 and over 85% of these were for pump failure or blockages caused by the disposal of rags and wipes, mainly from public facilities. There were also occasions when odour was noticed at the WWTP. Odour issues are dealt with as a matter of urgency. For most months 100% of all complaints and call-outs were dealt with within 2 hours. This can be compared with the SWA performance target of 90%.

a. WWTP Utilization

WWTP utilization compared with the plant capacity of 1250m³/d is shown below in Table 5. The plant is able to treat about 2 times ADFW in wet weather without overflowing. The plant has ample capacity to accept wastewater from more commercial properties and connection of more properties is high priority for SWA.

Table 5: WWTP Utilization

Time Period	Average daily flows into WWTP (m ³)	Plant Utilization – Inflow / Dry Weather Flow Capacity
July to September 2010	750	60%
October to December 2010	800	64%
January to March 2011	570	46%
April to June 2011	520	42%

Source: Samoa Water Authority

b. WWTP Effluent Quality

WWTP effluent that discharges into Vaiusu Bay is sampled and quality tested on a weekly basis. SWA strives to achieve 100% compliance with Secretariat of the Pacific Regional Environment Programme (SPREP) standards although our official target is 90% compliance by June 2012.

The overall impact of the system has been beneficial to the environment. In the CBD, the most obvious impact is the absence of odour and the decline in odour complaints from those who are living around the small package plants that used to serve the commercial and institutional properties in Apia. Those areas not yet served by the sewerage system are noticeably odorous (such as along Fugalei Street).

Table 6: WWTP Effluent Quality

Time Period	Percentage of samples complying with SPREP standards
July to September 2010	100% BOD ₅ tested only
October to December 2010	86%
January to March 2011	88%
April to June 2011	90%

Source: Samoa Water Authority

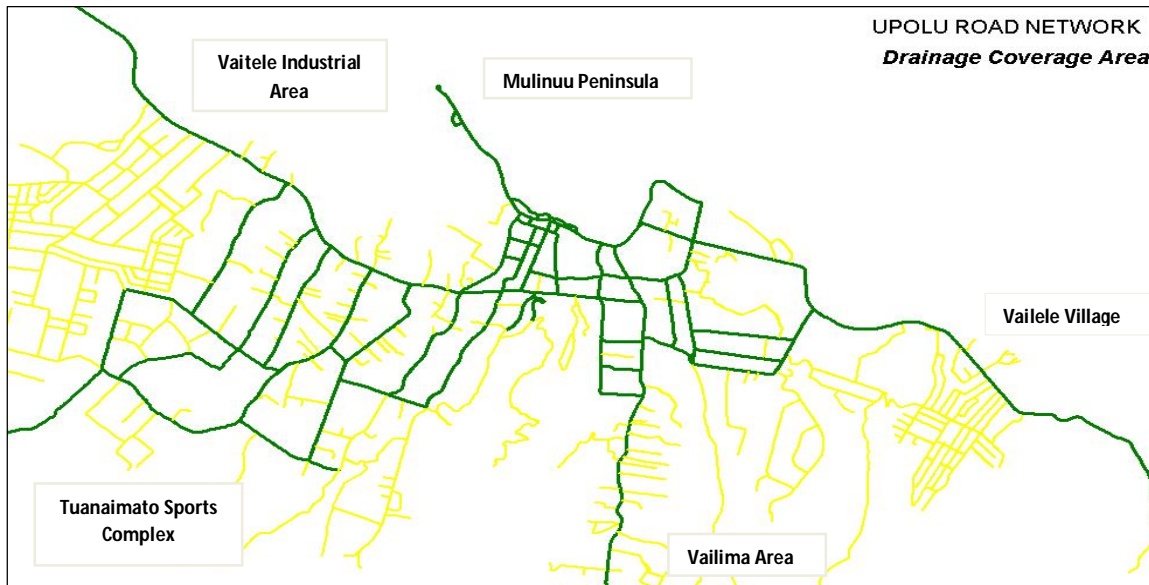
3.6 Flood Mitigation

The chronic inundation and flooding problems suffered in the Apia catchment area after intense heavy rains has urged the Sector to look at strategies to reduce the risk of flooding and to minimise damage and disruption through improved watershed conservation and improved drainage infrastructure. The existing urban drainage network in Apia CBD consists of underground pipes, closed/covered rectangular/trapezoidal and open drains. These drains discharge to the Gasegase river system (including Fugalei and Asaga) on the east of the CBD to Mulivai River on the west with a few directly to Apia Bay on the north of Apia.

In 2010 the sector allocated SAT2 million to deepen the Mulivai Stream based on detailed engineering designs by Woods and Partners. The designs are currently under review and the outcome will assist the Sector in reviewing the feasibility of going ahead with this option.

The current focus of developments has been in the Apia CBD and will remain a critical area for future Sector interventions. Climate change is expected to result in increased heavy rainfall events and this will necessitate further drainage improvements as well as improved maintenance. Drains are frequently blocked as they are used for rubbish disposal in many areas. Since Apia is built on a flood plain the severity of flooding is expected to worsen with sea level rise and future planning of urban development should consider a shift to higher ground. Future investment priorities for drainage rehabilitation and development will be guided by the *Integrated Apia Masterplan for Water Supply, Sanitation and Drainage 2011*.

Figure 11: Upolu Urban Area Drainage Network



Source: Land Transport Authority

Chapter 4: Sector Opportunities and Constraints

4.1 Overview

The approach for assessing the key opportunities and constraints for the Sector involved looking at casual links between economic activities and livelihoods. The assessment of relevant driving forces and pressures on the Sector, the consequent state of the Sector and its impacts and responses undertaken as well as the inter-linkages between each of these elements resulted in the identification of the following key opportunities and constraints. The subsequent sub-sections expand on the main opportunities and the constraints that must be addressed for the Sector Plan to realise its objectives.

4.2 Major Opportunities

Strong Political Will and Commitment to WFL

There is strong and proven political commitment at the highest level of GoS to address water and sanitation issues. This rare opportunity will be important for the realisation of the Sector Plan strategic objectives, given that across the developing world, the need to realise economic growth has often resulted in difficult trade-offs where long term resource management concerns are sacrificed to realise economic returns.

Appropriate Institutions with Policy and Legal Mandates

Over the last 5 years or so, the GoS has established and has been building capacity of national public institutions with responsibilities for policy formulation, planning and implementation and monitoring of the Sector. Namely a WRD was established in MNRE in 2008 as well as the shifting and funding of the WSCU to MNRE in 2010.

Effective Monitoring and Coordination

The Sector will need to maintain its spirit of team work and partnership that has been built over the past few years to meet the many challenges set out above. Leadership is required in continuing the planning process to agree on a prioritised and realistic medium term investment plan. In addition, the Sector will have to develop a comprehensive capacity building plan, which will strengthen the implementing agency's systems and staff capability to improve the quality of services and maintenance of infrastructure. The WSCU will need to sustain emphasis on performance monitoring of key indicators and milestones until monitoring systems are firmly established within IAs. The Sector will aim to continue to build alliances with development partners and stakeholders to further reinforce the sector wide programme approach and meet agreed targets.

Climate Change Financing

Growing international donor support for climate related financing provides a good opportunity for the Sector to address increasing climate variability and subsequent impacts on water resources management, water supplies, sanitation, and drainage. For water resources management, emphasis is placed on sustainable watershed management with a strong advocacy for replanting/reforestation of degraded watersheds, regulation of watershed activities, and building a strong monitoring network to provide essential data on the status of water resources.

Rain Water Harvesting

With the establishment of the Civil Society Support Programme (CSSP) and the emergence of Samoa Red Cross as both a funding and implementation agency in this area, it is timely that a number of initiatives be undertaken to enhance programme work in this area. Samoa Red Cross, through its work in tsunami recovery and its international expertise in water and sanitation, has developed skills and

expertise in this area, and is ideally placed to be the bridge between the sector and the community in programme delivery in these areas.

Quality of Plumbing

Water conservation has received renewed attention following prolonged drought conditions in 2011 and one of the key areas being targeted is enhanced water use efficiency at the user level through improved plumbing. The sector through its new partnership with the Plumbers Association will provide both technical and financial support to strengthen the plumbing profession, licensing of qualified service providers, capacity building and establishment of standards and guidelines.

Collaboration between SWA and IWSA

The challenges facing the provision of improved and clean water supplies to the rural villages throughout Upolu and Savaii require constructive collaboration between SWA and independent village schemes. Already there is engagement on this process from the SWA rural management team and IWSA, supported by the Ministry of Women, Community and Social Development (MWCSO). There is now a framework for dialogue between IWSA, MWCSO and SWA on the interface between village and SWA schemes, which is further strengthened through the Water Services Policy. The aim of this dialogue is focused on a clear division of service coverage between IWS and SWA. There is a strong need to develop this dialogue into a constructive relationship between the two service providers where they can agree to share the water resources and technical expertise for the benefit of all. This will be formalized through the development and signing of an MoU between SWA and IWSA.

Participatory Approach to Sanitation

With the success of the participatory approach adopted by IWSA, as stated in a recent WaSSP review, there is an opportunity to incorporate these strategies in sanitation interventions through adoption of the SWAp methodology which would encompass the various programmes being implemented by MWCSO, PUMA, MWTI and MoH. A pilot could be completed within the IWS and co-ordinated by the IWSA

4.3 Major Constraints

Weak Institutional Capacity of Sector Implementing Agencies

The majority of Sector agencies have identified the need for dedicated and skilled human resources. Weak institutional capacities may slow down the implementation of the planned programme activities. It may also hinder mobilization of resources and create a risk of funding backlash if the resources allocated to the Sector are not absorbed. The use of private sector partnerships for contracting out selected services will be encouraged where appropriate.

Watershed Management and Conservation

Increased effort is required to target communities living in critical watershed areas to enlist their support for conservation measures. This is particularly important in view of the expected variability of rainfall patterns due to climate change with increased risk of storms as well as periods of drought. Engaging the communities in watershed management is therefore critical requiring a participatory approach which takes time and dedicated personnel to see it through. Changing negative behaviour will take time particularly when there are conflicting messages from other sectors (eg. Agriculture) regarding watershed development within critical areas. Land ownership also remains an important issue and challenge, leading to GoS taking strategic steps in establishing the proper framework for regulating developments, and by zoning and securing critical watershed areas to be conserved.

Water Resources Monitoring

There is a strong need to develop and sustain WRD's capacity in monitoring water resources by strengthening the national hydrometric network. This will allow the WRD to effectively monitor the impacts of climate change on water resources, including the status of aquifers and the risk and impact of saline intrusion on groundwater quality. The constant evolution in modern technology also poses a risk to water resources monitoring as additional costs and knowledge is required in operating and replacement of equipment models which have become obsolete. This challenge to the operation and maintenance of the hydrometric network is exacerbated by the high staff turnover of the specialised staff within the WRD. To mitigate the risk WRD will need to broaden the knowledge base of staff and develop succession plans. In addition there is a need for increased capacity to analyse the water resource monitoring data that is being collected and to ensure that it is meeting the needs of users.

Inadequate financing

Sector budget allocations may be inadequate, resulting in reduction in the scale and scope of programmes. Furthermore external project funding, which currently constitutes a sizeable portion of anticipated expenditure, may be reduced or could become so unpredictable that programme-based Sector planning may be hampered.

SWA Governance

During the first phase of the Sector Plan the governance arrangements for SWA have been identified as a significant constraint to the development of a commercially oriented water authority operating on the basis of a clear performance framework. Under the new Water Services Policy the GoS has agreed to consider the introduction of a regulator for the water authority. It has been further suggested that the regulator should be focused on the financial and economic aspects of the operation. In addition, the GoS has committed to the removal of Ministers and most Government officials from State Owned Enterprises (SOE) Boards, with selection of new Boards dominated by private sector and civil society representation. The Sector is committed to ensuring that SWA is able to operate with an appropriate level of autonomy, a commercially driven orientation and clear performance targets against which management can be evaluated. This will require the Sector to engage with the new board and ensure a common vision for the future. In addition, a study will be undertaken to make recommendations regarding the role and institutional arrangements for the proposed regulator.

Non-Revenue Water

The most important challenge facing the SWA is the high level of NRW. The causes of this have been identified as: leakage from aging pipe networks; illegal connections; un-metered properties and un-registered customers, and; an out of date customer data base. All of these issues add to a significant level of NRW. In early 2011 the TA team undertaking the ADB funded preparation of the Apia Integrated WSS Master Plan analysed SWA data for the three main urban treated water supply systems and determined an average NRW level to be in excess of 70%¹⁵. Later in 2011 SWA undertook a NRW analysis of all 15 service areas in the Savaii operations. NRW levels ranged from 45% to over 80%. The NRW situation for SWA rural operations is currently being examined and is expected to be of the same order of magnitude, about 70%.

The high levels of leakage and wastage from illegal and unmetered properties makes it very difficult for SWA to provide reliable and safe water supplies to all its customers. It results in water production operations that are stretched to the limit with WTPs operating in some cases at double their design capacity. This leads to interruptions in supply to customers, poor quality of water, customer dissatisfaction and unwillingness to pay bills. In addition, SWA staff is required to take short-term actions to get water to customers with little time to work on longer term solutions.

¹⁵ NRW amounts to approximately 3,900 litres per connection per day.

Rural Operations and Maintenance

SWA continues to make progress with the household connections for the newly rehabilitated rural schemes completed under WaSSP. One of the constraints in this process is the payment of the connection fees which amounts to 200SAT or more. This requirement often delays the connection programme and is a major affordability issue for low income households. It has been proposed to incorporate the connection fee into the water tariff so as to facilitate future household connections. SWA will need to ensure effective operation and maintenance of these new systems and WTPs and to provide a high quality of service so that customers are willing to pay their monthly water bills. There is an opportunity to set up effective systems for the management of these newly rehabilitated schemes.

The Sector is already seeing the benefits of SWA's restructuring into regional teams leading to improvements in staff morale and motivation and a new focus on customer service. The Sector will need to support the rural management team to continue to strengthen the quality of the services they are providing. At the same time there is a demand for continued rehabilitation of water schemes to improve the quality of services in areas which have not benefited from investment under WaSSP. These costs will need to be subsidized by GoS for the foreseeable future. With the approval of the National Water Services Policy by Cabinet in 2010, the GoS has committed itself to ensuring the economic sustainability of SWA while continuing to serve certain rural areas as mandated under the Public Bodies Regulations 2002 through the provision of a government subsidy or community services obligation (CSOs).

Completion of the Tsunami Recovery Programme

During 2011 SWA managed the investigations, outline design options analyses and detailed designs of long-term water supply solutions for communities in south east Upolu, who relocated inland following the September 2009 Tsunami, and for the residents of Manono. An interim water supply system (via communal tanks) was installed for the new settlements in SE Upolu while residents of Manono continued to be supplied from their existing system which remained partially operational. A SE Upolu regional approach to the provision of water supply services to all communities from Tiavea to Lepa will be adopted. This optimises the use of a number of water sources using surface water intakes, lake water and borehole abstraction. It is expected that construction of this scheme will commence in 2013. Detailed design for the upgrade of the Manono water supply scheme has been completed involving the replacement of the submarine pipeline and reticulation systems on the island. Proposed construction works have been programmed on a priority basis with other service area improvement schemes.

Strengthening IWSA

Whilst there has been good progress over the last two years in establishing the IWSA and support to strengthen the quality of water services managed by local communities, there is still much to be improved. The IWSA needs to be further strengthened with diversified funding support to ensure its sustainability as it is currently heavily dependent on Government support. This could be achieved through further collaborative efforts with organisations such as CSSP and Pacific Water and Wastes Association (PWVA), which can also serve to address the current lack of institutional and human resource (HR) capacities. With the achievements already realised by IWSA it could also prove an appropriate time to review the membership fee structure for the IWSA.

Drinking Water Quality

A key underlying problem for all water supply systems in Samoa is the poor quality of water provided to customers. Improved water quality is a key indicator for the Sector and at present the majority of water systems in the country are failing to meet the national drinking water standards. Current water quality monitoring data indicates that the majority of IWS provide water of very poor quality. Even SWA treated systems in Apia are unable to meet the national standards consistently. This situation has

serious implications for the health of the population and must remain a prime consideration for all interventions in the Sector. This requires strong collaboration among sectors while the MoH provides leadership in the execution of its regulatory and monitoring roles to ensure compliance to both national drinking water standards and key health legislations that guides water safety and quality. MoH needs to be vigilant in order to ensure the national roll-out of the water safety planning methodology to systematically review water systems and identify the main sources of contamination so that action to improve water quality is carried out and adopted by IWS and SWA.

Data Availability and Sharing

There is currently limited information to document health and water quality problems resulting from poorly functioning systems. This is partly because of their widely distributed nature and the absence of a wastewater management information system. However, while complete quantitative information is lacking, several technical studies carried out over the last few years in Samoa have consistently highlighted that a substantial number of wastewater systems are not performing at acceptable levels of treatment or environmental protection.

Limited Sanitation Interventions

Sanitation has evolved as a new priority for the water sector over the past three years. Major investments are required to continue to develop wastewater management systems to minimise negative impacts on human health and the environment. Regulation must be strengthened to ensure that future developments plan effectively for wastewater treatment. Over the coming years the DEC will monitor the performance of the new sludge disposal facilities consider extension of this service to new sites as demand grows. Work will continue to improve standard and maintenance systems for public toilets. The country also has a backlog of poorly designed and constructed septic tanks, which must be replaced with working systems. The on-site sanitation pilot subsidy scheme which is pending approval from ADB to upgrade poorly performing septic tanks, if successful, will need to be rolled out on a national scale with the support of the sector budget support. The septic tank standards revised under the ADB funded PPTA will need to be formally approved, adopted, and monitored.

Access to Water Sources on Customary or Private Land

Under the Constitution of Samoa, natural water sources are owned by the GoS for the public good of the Country. However, access to the land on which a water source may be located is extremely problematic and can result in a significant constraint to the development of economic and financially viable water schemes. In addition, land access problems pose a potential security risk to water infrastructure already in place. There are no clear guidelines or processes for the approach that a utility can take to obtain access to such land. Consultative approaches are the norm but if a village does not agree with a fair and reasonable proposal put forward by the utility then the result is no access to the land for infrastructure development or to the water source.

A standard approach is required that can be applied nationally with set “royalty” rates appropriate to the benefits for allowing access to water sources that will not take excessive time, not impose unsustainable costs to implement and also take account of the priority for water rights for the wider community good. This would provide a clear understanding to all parties and allow for easier and quicker negotiations and enforcement. The advantages gained by being able to get quick access to land and prevention of future sieges on sources would outweigh the cost of royalty payments.

Coordinated Education and Awareness Campaigns

There is a continuous need to strengthen nationwide education and awareness campaign on promoting WfL issues specifically on sanitation, hygiene as well as wastewater discharge standards to minimise the occurrence of typhoid and dysentery. The Sector needs to maintain and upgrade public toilet facilities as well as undertake further research for appropriate and sustainable wastewater

technologies, such as waterless toilets, for sensitive low lying areas to prevent negative impacts on the environment, particularly on water resources and sensitive coral reef ecosystem. Effective monitoring and enforcement of existing regulatory framework is required of the Sector to ensure compliance. The initial focus of regulation and enforcement will be on large institutions including tourist resorts, companies and education institutions. The Sector will also need to develop partnerships to monitor the impact of waste water on the environment, particularly on public health, water resources and sensitive coral reef ecosystems.

Chapter 5: Sector Framework for Action 2012-2016

5.1 Overall Sector Goal

“Reliable, clean, affordable water and basic sanitation within the framework of Integrated Water Resources Management, for all people in Samoa to sustain health improvements and alleviate poverty”.

5.2 Sector Development Principles

The Sector will be guided by the following key principles adapted from the Dublin Principles in the pursuit of its goal and developments:

Principle No.1– Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment;

Principle No.2 – Water and sanitation development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels;

Principle No.3 – Women play a central part in the provision, management and safeguarding of water and sanitation practices;

Principle No.4 – Water has an economic value in all its competing uses and should be recognised as an economic good;

Principle No.5- Close collaboration and partnership with stakeholders and relevant partners is vital for effective implementation of services.

5.3 Sector Objectives

Based on the performance of the Sector to date, the following objectives will be targeted over the next four years of implementation:

1. To strengthen **sector governance** framework to guide and sustain sector developments;
2. To improve **watershed management** and reliability of water resource data through **integrated water resource management**;
3. To increase **access and improve provision of reliable, clean and affordable water supplies**
4. To improve surveillance of **drinking water quality** and water borne diseases;
5. To increase **access to basic sanitation, improved wastewater systems and improved hygiene practice**;
6. To strengthen effectiveness of **flood mitigation measures** to reduce incidence and magnitude of flooding in the Apia urban area.

5.4 Logical Framework

The framework for action during the Sector Plan 2012 - 2016 implementation period has been developed based on the opportunities, constraints and risks identified over the previous Sector Plan period. Specific strategies and key actions have been identified and are presented in a logical framework to present a more strategic and prioritised approach to addressing identified objectives individually.

Detailed Action Plans for each sub-sector are presented in Appendix 6.

5.4.1 Sector Summary Logical Framework

A summary of the logical framework for the Sector is presented below and identifies a total of 33 strategies to address the 6 sector objectives which provide the framework for action from 2012-2016.

Table 7: Sector Summary Logical Framework

Water Supply and Sanitation Sector					
GOAL: Reliable, clean, affordable water supply and adequate sanitation for all people in Samoa to sustain health improvements and alleviate poverty					
Objectives					
1. To strengthen sector governance framework to guide and sustain sector developments	2. To improve watershed management and reliability of water resource data through integrated water resource management	3. To increase access and improve provision of reliable, clean and affordable water supply	4. To improve surveillance of drinking water quality and water borne diseases	5. To increase access to basic sanitation, improved wastewater systems and improved hygiene practices	6. To strengthen flood mitigation measures to reduce incidence and magnitude of flooding in the CBD
Strategies					
1.1 To strengthen sector policy framework	2.1 To strengthen watershed conservation and management	3.1. To increase access to clean, reliable and affordable water supplies	4.1 To improve drinking water quality	5.1 To increase access to basic sanitation	6.1 To strengthen the enabling environment for flood mitigation initiatives
1.2 To develop effective and sustainable financial mechanisms for sector investments	2.2. To improve knowledge and understanding of water resources	3.2. To reduce non-revenue water with priority given to areas where this is impacting on cost and / or the performance of the systems	4.2 To increase surveillance of water-borne diseases	5.2 To develop and implement effective nationwide education and awareness campaign on wastewater management and sanitation	6.2 To mitigate flooding incidences within the CBD
1.3 To improve and sustain effectiveness of existing coordination mechanisms	2.3. To improve the enabling environment for water resources management	3.3.To improve drinking water quality through upgraded disinfection systems and implementation of approved drinking water safety plans	4.3 To build capacity of MOH to improve monitoring of drinking water quality and health surveillance of water-borne diseases	5.3 To strengthen regulatory framework and compliance	6.3 To build capacity of Implementing Agencies
1.4 To establish and operationalise an effective sector performance monitoring system	2.4 To strengthen community engagement in water resource management	3.4. To enhance financial sustainability in water supply delivery and commercial wastewater services	4.4 To increase public and sector stakeholder awareness on drinking water quality issues	5.4 To improve knowledge and capacity of Sanitation Implementing Agencies	6.4 To increase public awareness targeting communities with direct impact on the Drainage Network
1.5 To strengthen coordinated sector communication mechanisms		3.5. To improve responsiveness to customer issues in SWA service areas	4.5 To strengthen communication and coordination between SWA, IWSA, MNRE, bottled water companies and MOH	5.5 To develop sustainable wastewater and sanitation infrastructure	
1.6 To strengthen sector preparedness and response to natural disasters		3.6. To improve office facilities and staff skills to enhance operational performance			
		3.7. To improve community performance in the management of IWS rural water services.			
		3.8. To promote and implement rainwater harvesting for vulnerable households			
		3.9. To improve quality of plumbing			

5.4.2 Sector Governance Framework for Action

Six strategies have been identified to “**strengthen Sector governance framework to guide and sustain Sector developments**”. These strategies will address the need to guide and sustain Sector developments through the formulation of a **coherent Sector policy framework**, identification of **sustainable financial means to meet resourcing requirements**, building and sustaining **institutional capacity** to implement Sector investments, a **robust monitoring system** to measure Sector performance and an **effective clearing house mechanism** in place for effective communication to its key stakeholders including local communities. In addition, the Sector will also be focusing on **strengthening its disaster preparedness and response strategies** to better coordinate efforts and resources during natural disasters.

Table 8: Sector Governance Summary Logical Framework

Sector Governance					
OBJECTIVE 1: To strengthen sector governance framework to guide and sustain sector developments					
Strategies					
1.1 To strengthen sector policy framework	1.2 To develop effective and sustainable financial mechanisms for sector investments	1.3 To improve and sustain effectiveness of existing coordination mechanisms	1.4 To establish and operationalise an effective sector performance monitoring system	1.5 To strengthen coordinated sector communication mechanisms	1.6 To strengthen sector preparedness and response to natural disasters
Actions					
1.1.1 Develop and implement a practical and coherent framework for action 2012-2016	1.2.1 Annual review and update sector MTEF	1.3.1 Coordinate meetings of the high level Ministerial Coordination Committee (MCC) as required from time to time	1.4.1 Collect performance data on a quarterly basis from IAs	1.5.1 Develop and coordinate implementation of a Sector Communication Strategy	1.6.1 Strengthen collaboration with the Disaster Management Division
1.1.2 Implement and review of the National Water Services Policy	1.2.2 Mid-term review of the approved annual budget	1.3.2 Coordinate quarterly Joint Water Sector Steering Committee (JWSSC) meetings	1.4.2 Issue quarterly reports on sector's progress towards achieving performance indicators to the JWSSC and MCC	1.5.2 Upgrade and improve quality of sector website	1.6.2 Develop sector preparedness and response plans
1.1.3 Strengthen SWA's governance arrangements	1.2.3 Review and update long term investment plan for the sector	1.3.3 Undertake monthly Technical Steering Committee (TSC) meetings to monitor subsector progress and developments	1.4.3 Undertake Joint Water Sector Annual Reviews	1.5.3 Prepare and disseminate quarterly sector newsletters to all stakeholders including local communities	1.6.3 Conduct annual drills to prepare and familiarise IAs with expected coordination roles during a natural disaster
1.1.4 Establish a Utility Regulator	1.2.4 Develop, implement, review and update on an annual basis a 3 year capacity building plan for sector Implementing Agencies	1.3.4 Ensure regular sub-sector committee meetings (bi-monthly/monthly) are held to coordinate programme implementation	1.4.4 Implement evidence-based research to inform sector policy planning and to gauge external feedback on sector developments	1.5.4 Set up an information resource centre for key reports/documents in soft and hard copies	
1.1.5 Develop MOU between SWA and IWSA	1.2.5 Strengthen engagement with Development Partners		1.4.5 Publish Water & Sanitation Research /National Water Forum		
1.1.6 Design and Implement a National Water & Sanitation Survey to establish and confirm baselines					
1.1.7 Facilitate integration of National Water and Sanitation Survey into the National Census undertaken every 5 years					

5.4.3 Water Resource Management Framework for Action

Strengthening **watershed conservation and management** has been identified as a priority strategy out of the 4 key strategies required to “**improve watershed management and reliability of water resource data through integrated water resource management**”. This is in response to increasing developmental activities in key watershed areas that are water supply sources. Other key strategies include **expansion of the water resource monitoring network** for both groundwater and surface water resources to map out availability of water resources in the face of increasing climate variability and the likely threats to the quantity and quality of water resources, **improving enabling environment for water resource management and strengthening community engagement**.

Table 9: Water Resources Management Summary Logical Framework

OBJECTIVE 2: To improve watershed management and reliability of water resource data through integrated water resource management			
Strategies			
2.1 To strengthen watershed conservation and management	2.2. To improve knowledge and understanding of water resources	2.3. To improve the enabling environment for water resources management	2.4 To strengthen community engagement in water resource management
Actions			
2.1.1 Formulate, implement and enforce watershed management plans and regulatory tools in key watershed areas sustaining water supplies	2.2.1 Expand and Maintain the National Hydrometric Network	2.3.1 Implement and enforce the National Water Resources Policy, Water Resource Management Act, regulations and village bylaws	2.4.1 Develop new partnerships with NGOs/CSOs
2.1.2. Rehabilitate river banks	2.2.2 Quality Assurance of water resource data and information	2.3.2 Formulate the National Water Resources Management Plan (Composite Plan)	2.4.2 Develop a pilot for payments for ecosystem services in relevant watershed areas
2.1.3 Take critical watershed areas (upstream) as reserves	2.2.3 Build local capacity to ensure successful completion of drilling programme for groundwater mapping and modelling.	2.3.3 Ongoing administration of the Water Abstraction Licensing Scheme	2.4.3 Pilot and evaluate feasibility of community extension services in critical watershed areas for possible upscaling to strengthen engagement with key communities
2.1.4 Conduct effective awareness and educational programmes		2.3.4 Provide secretariat functions to the Water Resources Technical Committee and Water Resources Management Board;	
		2.3.5 Ongoing monitoring and evaluation of policies and plans	

5.4.4 Water Supply Framework for Action

The water supply subsector has identified nine specific strategies identified to address the sub-sector objective *“To increase access and improve provision of reliable, clean and affordable water supply”* to all people living in Samoa.

Six of these strategies primarily apply to the SWA as the prime agency for delivery of piped water supply services and will address the need to (1) **optimise the use and operation of the existing infrastructure and facilities through** NRW reduction programs including strengthening of meter management, pipe replacement, and overall network control improvements, rehabilitation of priority facilities including upgrade of the disinfection systems to improve water quality, improved asset management systems and implementation of improved preventative maintenance and improved financial management; (2) **to secure alternative sources of supply for the dry season** – this involves the drilling of standby boreholes and rehabilitation of spring and river intakes; (3) **to continue capacity building and enhance community consultation** – a program of continuous skills improvement, community consultation at grass roots level and public awareness programs; and (4) **to prioritise future water supply service area expansion investments** – investments prioritised taking account of social, technical and economic considerations.

Strategies and actions for the independent water schemes revolve around **upgrade of priority schemes** and **implementation of Drinking Water Safety Plans (DWSPs)** to improve service and water quality and **improved community management**. The remaining strategies and actions promote improved water use efficiency through improvements in the **plumbing trade** including emphasis on **rainwater harvesting** as the prime source of water supply for zones where piped supply is not economic or financially viable and for low income households.

Table 10: Water Supply Summary Logical Framework

Water Supply Sub-Sector								
OBJECTIVE 3: To increase access and improve provision of reliable, clean and affordable water supply								
Strategies								
3.1. To increase access to clean, reliable and affordable water supplies	3.2. To reduce non-revenue water with priority given to areas where this is impacting on cost and / or the performance of the systems.	3.3. To improve drinking water quality through upgraded disinfection systems and implementation of approved drinking water safety plans.	3.4. To enhance financial sustainability in water supply delivery and commercial wastewater services	3.5. To improve responsiveness to customer issues in SWA service areas	3.6. To improve office facilities and staff skills to enhance operational performance	3.7. To improve community performance in the management of IWS rural water services.	3.8. To promote and implement rainwater harvesting for vulnerable households	3.9. To improve quality of plumbing
Actions								
3.1.1 Construct SE Upolu Regional WS Scheme	3.2.1 Comprehensive pipe network improvements and pipe replacement program to reduce NRW	3.3.1 Upgrade of chlorination facilities at 5 major WTPs and 16 supplementary boreholes including comprehensive capacity building	3.4.1 Review of WS tariff structure and levels and implement	3.5.1 Establish Customer Care Centre at Vaitele Office	3.6.1 New and rehabilitated offices - Savaii, Rural Operations, Vaitele Compound	3.7.1 Strengthened institutional framework for regulation of IWS	3.8.1 Rainwater harvesting promoted and implemented through the development of guidelines	3.9.1 Establish legal framework to mandate the services provided by PAS
3.1.2 Construct Manono WS Scheme	3.2.2 Meter installation and relocation program including additional sub-mains	3.3.2 Phased establishment of chlorination facilities at all remaining SWA borehole sources	3.4.2 Update of Asset Register and re-evaluation of all system and non-system assets	3.5.2 Improve feedback on the performance of water systems from households and private sector groups	3.6.2 Implement capacity building and twinning arrangements to enhance SWA operational performance	3.7.2 Ongoing training of Village Water Management Committees	3.8.2 Develop expertise in the implementation of quality rain water harvesting	3.9.2 Qualified service providers certified and licensed to practice in line with approved plumbing standards/guidelines
3.1.3 Construct Falealupu WS Scheme	3.2.3 NRW reduction program - Savaii	3.3.3 Rehabilitate roughing and slow sand filters at all WTPs	3.4.3 Improve billing systems and reduce level of non-payment / outstanding debtors	3.5.3 Implement awareness programs and activities at priority schools	3.6.3 Procure operational equipment for increased performance	3.7.3 Strengthened institutional capacity of IWSA to carry out its functions	3.8.3 Identify and assess those households that are reliant on rainwater harvesting as their primary source of water	3.9.3 Targeted capacity building program for licensed service providers
3.1.4 Construct treatment facilities and new piped networks for Vaialele and Aleisa service areas	3.2.4 Further NRW reduction program - Upolu - as necessary	3.3.4 Rehabilitate Malololelei, Alaoa and Fuluasou JR WTPs including replacement of valves / fittings / fencing / buildings	3.4.4 Increase number of IWS collecting fees for maintenance on a regular basis	3.5.4 Establish closer relationship with Village Women's Committees to provide forum for awareness raising, consultation and understanding of community needs		3.7.4 Upgrade of 19 identified independent water schemes	3.8.4 Provide support to communities for a subsidized rainwater harvesting systems for the vulnerable groups/low income households.	3.9.4 Establish plumbing standards
3.1.5 Construct treatment facilities and new piped networks for currently untreated systems on Apia outskirts	3.2.5 Maintain up to date and accurate customer database and improve billing performance	3.3.5 Prepare 12 SWA and 16 IWS drinking water safety plans					3.8.5 Monitor and evaluate projects	3.9.5 Improve quality of plumbing services
3.1.6 Construct Falelauniu WS		3.4.6 Measure progress of IWS towards achieving NDWQ standards through use of the IWSA tiered water quality scale					3.8.6 Deliver education training programmes for improved hygiene linked to health	
3.1.7 Alternative source works for drought protection								

5.4.5 Drinking Water Quality Framework for Action

Five strategies have been identified to “improve surveillance of drinking water quality and water borne diseases”. These revolve around surveillance of drinking water quality to increase access to safe water supplies, surveillance of water-borne diseases as a measure of improved drinking water quality and good hygiene practice, capacity building and improved coordination and information sharing between key stakeholders.

Table 11: Drinking Water Quality and Health Surveillance Logical Framework

Drinking Water Quality Sub-Sector				
OBJECTIVE 4: To improve surveillance of drinking water quality and water borne diseases				
Strategies				
4.1 To improve drinking water quality	4.2 To increase surveillance of water-borne diseases	4.3 To build capacity of MOH to improve monitoring of drinking water quality and health surveillance of water-borne diseases	4.4 To increase public and sector stakeholder awareness on drinking water quality issues	4.5 To strengthen communication and coordination between SWA, IWSA, MNRE, bottled water companies and MOH
Actions				
4.1.1 Review National Drinking Water Standards.	4.2.1 Identify data needs for collection, analysis and reporting	4.3.1 Upgrade water quality laboratory	4.4.1 Design and implement targeted awareness and educational programs on drinking water quality issues through media and other IEC materials	4.5.1 Develop MOU to strengthen coordination and information sharing between MOH, IWS, MNRE and MOH
4.1.2 Finalize and implement Guidelines for Drinking Water Quality Standards.	4.2.2 Circulate monthly surveillance bulletins on water borne diseases to sector stakeholders	4.3.2 Recruit qualified staff for drinking water monitoring and health surveillance		4.5.2 Engage SWA, IWSA and MNRE continually through subsector committee meetings
4.1.3 Monitor development and implementation of water safety plans	4.2.3 Circulate Alert Reports to relevant Authorities when diarrhoea and typhoid exceed threshold level	4.3.3 Upgrade knowledge and skills of staff on water safety plans. (study tour)		
4.1.4 Monitor water service providers including bottled water companies	4.2.4 Map out prevalence of typhoid fever and diarrhea cases	4.3.4 Upgrade public health officials knowledge on epidemiology		
4.1.5 Conduct annual audits of the water safety planning process				
4.1.6 International accreditation of drinking water quality tests every 2 years				
4.1.7 Formalise certification process for compliant bottled water companies.				
4.1.8 Publish water quality results for bottled water companies				
4.1.9 Procure and install water treatment system for all health centers				

5.4.6 Sanitation Framework for Action

A total of five strategies have been identified to “**increase access to adequate sanitation, improved wastewater systems and improved hygiene practices**”. These strategies will ensure **nationwide awareness programs on sanitation and wastewater management issues**, all households will have access to basic sanitation at the minimum of a VIP latrine in applicable areas, **increased compliance** to sanitation and wastewater standards and regulations, **improved capacity of Implementing Agencies** to implement statutory roles and responsibilities relating to sanitation and **expansion of the sewer network** to connect commercial properties within the CBD.

Table 12: Sanitation Summary Logical Framework

Sanitation Sub-sector				
Objective 5: To increase access to basic sanitation, improved wastewater systems and improved hygiene practices				
Strategies				
5.1 To increase access to basic sanitation	5.2 To develop and implement effective nationwide education and awareness campaign sanitation and wastewater management	5.3 To strengthen regulatory framework and compliance	5.4 To improve knowledge and capacity of Sanitation Implementing Agencies	5.5 To develop sustainable wastewater and sanitation infrastructure
Actions				
5.1.1 Explore and pilot alternative onsite wastewater technologies such as biogas and waterless technologies etc for upscaling where applicable	5.2.1 Coordinate and Implement awareness programmes for targeted groups/communities on good hygiene practice, maintenance of wastewater	5.3.1 Develop and implement MOU to guide programme implementation in line with agreed institutional arrangements and roles including coordinated monitoring with relevant	5.4.1 Conduct annual surveys to gauge level of compliance and feedback with 2010 National Sanitation Survey as a baseline	5.5.1 Construct new public toilets where feasible and upgrade existing public toilet facilities at the Flea Market in Savalalo and possibly Mulinuu.
5.1.2 Provide subsidised support targeting installation of VIP toilets for those low income and vulnerable families reliant on open privies and in rain water harvesting areas	5.2.2 Strengthen collaboration with local services providers to increase understanding on existing sanitation related policies, legislation, regulations and standards	5.3.2 Enforce and update on a regular basis the approved Code of Environmental Practice for Odour control for Wastewater Treatment Plants	5.4.2 Conduct an assessment of Vaiusu Bay, Apia Harbour/ Fugalei, Asaga, Vaiusu and Mulivai stream to determine level of contamination from leaking septic tanks	5.5.2 Monitor and maintain sludge facilities at Tafa'igata and Vaiaata
5.1.3 Develop best practice guidelines for the construction and maintenance of VIPs	5.2.3 Annual commemoration of the World Toilet Day targeting schools	5.3.3. Develop and implement national effluent discharge standards	5.4.3. Identify and address human resource development needs where relevant	5.5.3 Monitor and maintain Public Toilet Facilities
5.1.4 Provide subsidised support targeting improvements to septic tank systems for low income households in reticulated water supply areas	5.2.4. Strengthen community engagement and feedback using existing initiatives such as the Aiga ma Nuu Manuia and National Beautification Committee (NBC) led by MWCSO, village committees such as Komiti	5.3.4 Enforce and undertake periodic reviews of the National Sanitation Guidelines for school sanitary facilities and public toilets		5.5.4 Model existing sewer network and design expansion of network
	5.2.5 Strengthen political advocacy on sanitation related issues through the SPAGL			5.5.5 Connect remaining commercial properties within existing service area to the wastewater treatment plant
				5.5.6 Reduce ingress of storm water to sewer network
				5.5.7 Upgrade Wastewater Office

5.4.7 Flood Mitigation – Drainage Rehabilitation Framework for Action

Four strategies have been identified to mitigate impacts of flooding in the CBD. These will address first and foremost clarification on the roles of LTA, MWTI, MNRE and the existing Drains Committee, the need for regular and routine maintenance of the drainage system including upgrades and rehabilitation of drains, capacity building for key implementing agencies and strengthening of awareness programs to address negative behaviours toward care of public drains and river channels.

Table 13: Flood Mitigation Logical Framework

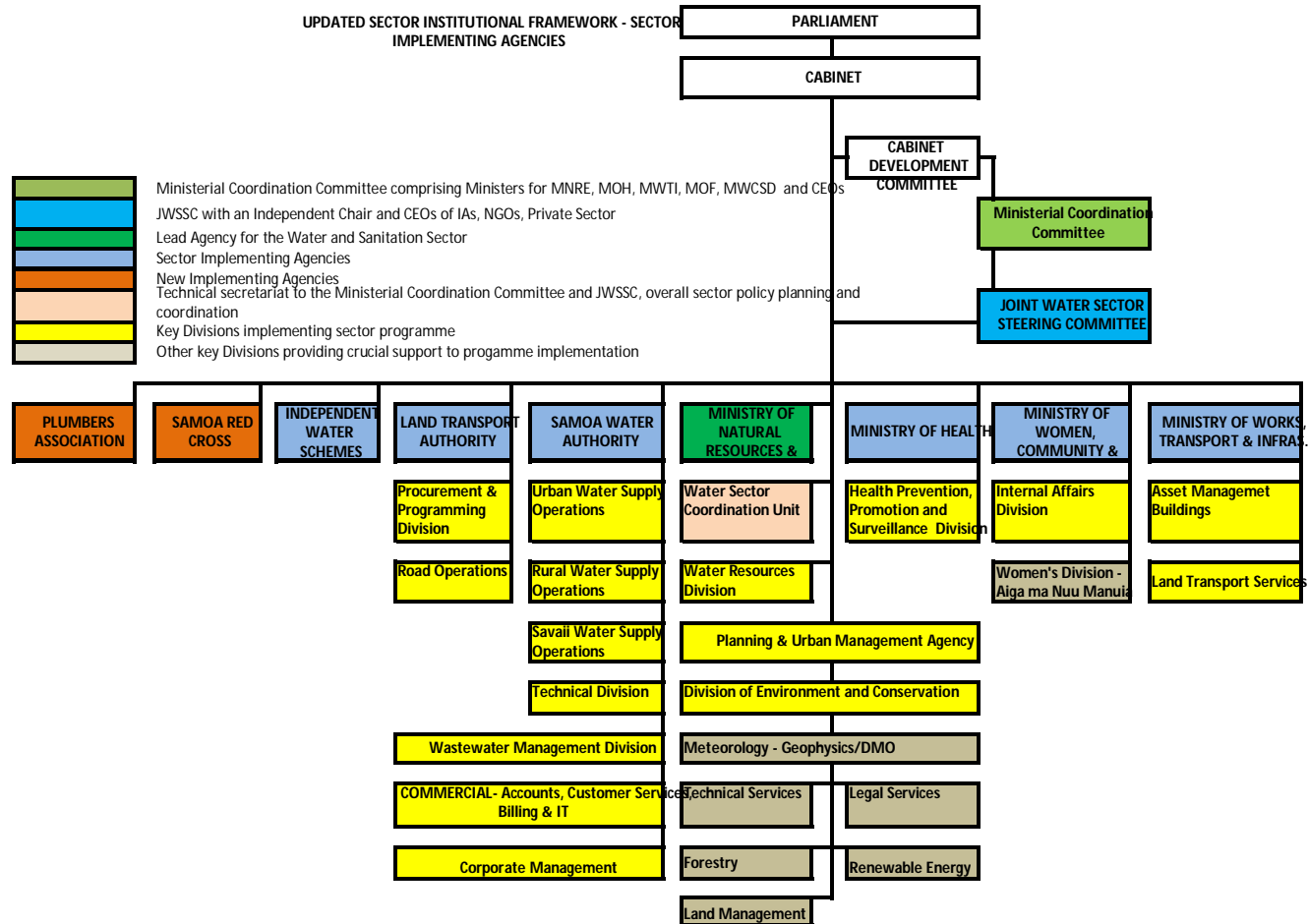
Flood Mitigation-Drainage Sub-Sector			
OBJECTIVE 6: To strengthen flood mitigation measures to reduce incidence and magnitude of flooding in the CBD			
Strategies			
6.1 To strengthen the enabling environment for flood mitigation initiatives	6.2 To mitigate flooding incidences within the CBD	6.3 To build capacity of Implementing Agencies	6.4 To increase public awareness targeting communities with direct impact on the Drainage Network
Actions			
6.1.1 Develop MOU to clarify roles and responsibilities of LTA, MWTI, MNRE and existing Drainage Committee	6.2.1 Develop drainage design manual	6.3.1 Provide Technical Assistance to assist in establishing a complete asset management register for drainage systems in the CBD	6.4.1 Implement community drains programme targeting villages of Vaisigano, Lalovaea, Togafuafua, Mulivai, Vaimoso and Lepea
6.1.2 Develop Flood Management/Mitigation Policy	6.2.2 Undertake routine maintenance of the drainage network within specified zones - Vaitale to Laulii (Eastern/Western) and Apia to Vailima (Northern/Southern)	6.3.2 Recruit qualified staff	6.4.2 Design and implement a TV campaign to encourage a 'no pollution' and 'no rubbish' policy in targeted river and drainage systems
6.1.3 Review Ministry of Works Act 2002 and Public Drains Regulations	6.2.3 Expand the perimeter for routine maintenance of the drainage network to other suburban outskirts of the CBD		6.4.3 Erect signages to warn people not to dump solids and liquids in targeted river and drainage systems
6.1.4 Set discharge /run-off standards for the drainage systems to prevent drainage problems like blockages as a result of debris and oil (from restaurants)	6.2.4 Prepare detailed designs for drainage upgrade within the CBD		
	6.2.5 Construct drainage upgrades		
	6.2.6 Set up a complete Asset Management System/Database for all existing and newly constructed drainage infrastructure		

Chapter 6: Implementation Arrangements

6.1 Institutional & Organisational Structure

Since 2005, Samoa has taken vigorous steps to revamp the water sector and establish a comprehensive institutional framework for the management and development of the country's water resources. This has gone hand in hand with other national initiatives including privatisation and decentralisation which were geared towards the redefinition of the roles of the different levels of government, with the central government creating the enabling environment for action by communities and the private sector. The promotion of rainwater harvesting as a new strategy to increase access vulnerable households to reliable, clean and affordable water and adequate sanitation has resulted in a new partnership with the Samoa Red Cross. The Sector has also struck a partnership with PAS to improve poor quality plumbing at the household level and water supply and wastewater systems. The updated sector institutional arrangements for sector IAs is reflected in Figure 12.

Figure12: Updated Sector Institutional Framework Sector Implementing Agencies



6.2 Institutional Roles and Responsibilities

The Water & Sanitation Sector is an institutionally complex Sector, with a diverse range of stakeholders and no one agency/institution with sole responsibility for all water management and development functions. This results in challenges of coordination and integration of activities across the Sector. A summary of the functions and roles of the key Sector stakeholders is presented in Table 14:

Table 14: Implementing Agencies and Key Sector Stakeholders with Core Functions

Institution	Core Functions and Roles
Government Agencies	
MNRE	Lead agency responsible for secretariat role to JWSSC via WSCU. Responsible for policy guidance, coordination and regulation of all water and sanitation activities including provision of oversight and support services to the local governments and other water supply service providers. Also responsible for water resource management (WRD), waste management systems (DEC), lead agency for sanitation policy and programme (PUMA) and disaster preparedness and coordination (DMO)
MWCSD	Leads the facilitation of community engagement towards achieving sector objectives and in particular monitors services provided by Independent Water Schemes through a Performance Contract with the IWSA. The Ministry also oversees overall administration and implementation of the MDG Initiative: Increased Access to safe Drinking Water, Improved Sanitation and Food Security.
MoH	Provides regulatory and monitoring services to promote quality water supply, improve sanitation, increase health promotion programs and provide technical advice at all levels for effective decision making.
MoF	Mobilisation and allocation of financial resources including coordination of donor inputs and the privatisation process. Also responsible inter-sector coordination, the SDS and higher level performance monitoring. Performance monitoring of SOEs (SWA and EPC)
MWTI	Monitoring and regulation of works transport and infrastructure related development including water supply and drainages. New mandate currently under review following the creation of LTA
MAF	Planning, coordination and implementation of all agriculture development in the country including irrigation development, aquaculture and livestock development.
MESC	Promotion of sanitation and hygiene education in schools and monitoring of school sanitation facilities.
Government Corporations	
EPC	Semi-autonomous entity responsible for the delivery of electricity supply including generation of hydropower
SWA	Semi-autonomous SOE responsible for the delivery of a piped water supply service to approximately 80% of the population of rural and urban areas of Upolu and Savaii; and a sewerage service to approximately 70% of commercial properties in Apia CBD. Approximately 35 river and spring intakes, 10 water treatment

	plants and 60 reservoirs and tanks and 43 bore supply systems for rural and urban water supply and 1 urban sewerage system.
LTA	Semi-autonomous entity responsible for road maintenance including public drains affecting the road reserve.
Civil Societies and Communities	
IWSA	Registered as an Incorporated Society (NGO) under the Companies Act 2006. Main role is to provide strategic advice and management of the Independent Scheme developments. One of the key NGOs involved in water sector activities have formed a network called the Independent Water Schemes Association (IWSA) for providing strategic services to 33 schemes that are not currently part of the SWA network. Was established with funding from the EU WaSSP in 2008 with continued core funding being provided via MWCSA in the 2009/10 and 2011/12 annual budget.
Plumbers Association Society	Newly formed organisation with the main goal of providing guidance and establishing standards for national plumbers to ensure consistency in quality and services. The PAS will greatly contribute towards improved water use efficiency at the user /household level.
SUNGO	Supplement the public sector efforts and ensure that concerns of the underprivileged/poor are catered for. Also provide financial and planning support to CBOs and NGOs who are affiliated with them.
Samoa Red Cross	Provision of technical oversight to rain water harvesting projects, development of standards for rain water harvesting and provision of advice and guidelines for project implementation. Delivery of rain water harvesting projects either through Red Cross funding or in conjunction with other stakeholders as a development partner. Supplement the provision of water supplies such as water tanks during disasters. Provision of education and training regarding sanitation, health and hygiene issues around water storage and use.
Development Partners	
Development Partners	Provide financial and technical resources for implementation of water and sanitation sector activities. Monitoring and evaluation of performance. EU is recognised as key development partner providing support to the sector. Other current partners include JICA, ADB, AusAID and SPC/SOPAC
Private Sector	
Contractors, private firms etc.	Valuable resource for design, construction, operation and maintenance of water and sanitation facilities. Also conduct training and capacity building for both government and NGOs. Provision of other commercial services including mobilisation of financial and human resources for water sector development activities.

6.3 Sector Monitoring and Evaluation

6.3.1 Sector Monitoring and Review Process

The current reporting and monitoring framework has ensured coordinated and periodic reporting on all Sector activities by the different stakeholders and has greatly improved on information flow between the government, development partners, NGOs and the private sector. The key features of the current water sector monitoring and reporting framework include:

- Establishment of short, medium, and long term national and Sector targets based on national development priorities and objectives.
- Establishment of performance targets and measurable indicators for the different sub-sectors.
- Submission of monthly and annual progress reports by key Sector agencies to WSCU and JWSSC.
- Submission of consolidated quarterly and annual progress reports by WSCU to JWSSC for onward transmission to MoF.
- Quarterly monitoring and quality assurance visits to selected community/business sites for on-the-spot assessment of their performance and quality of outputs.
- Hosting of annual joint government/donor Sector performance reviews.

The WSCU among other functions carries out periodic monitoring, evaluation and quality assurance of all water and sanitation related activities. WSCU currently coordinates the following monitoring and reporting activities to assess performance of Sector agencies against set targets and make recommendations on corrective measures during the subsequent reporting period:

- Monthly Progress Reports to Technical Steering Committee (TSC) and Sub-Sector Working Groups
- Quarterly Progress Reports to JWSSC; and
- Annual Sector Status Reports.

One of the key processes is the annual sector review usually held in October/November and attended by Sector ministries, civil society and political leaders, NGOs, private sector and representatives of development partners. During these reviews, a comprehensive review of the performance of the Sector is carried out, shortcomings discussed and undertakings for addressing priority issues during the following year agreed upon. Annual Sector Status Reports are prepared and circulated to all stakeholders for review and information.

The Sector will focus on providing periodic service delivery surveys and specific independent surveys to be conducted by different stakeholders. This will complement and assist with monitoring policy benchmarks, national and Sector targets, performance indicators, reporting guidelines and standards that have to be followed by all stakeholders in the Sector.

6.3.2 Independent Evaluation

An independent evaluation on the implementation of the Sector Plan will be conducted every two years. A specific Terms of Reference will be designed to identify the scope of the evaluation process and will focus on measures of efficiency, effectiveness, intermediate impacts and outcomes and sustainability issues.

6.3.3 Key Sector Performance Framework

An enhanced Sector performance monitoring framework with set targets over the next four years is summarised in Table 15. The framework contains a total of 61 performance indicators which will now be used to monitor and guide the formulation of the annual budget performance framework that GoS has introduced for all Ministries in the 2011/12 annual budget estimates.

Table 15: Key Sector Targets for WfL Sector Plan 2012-2016

1. Sector Governance

No	Strategy	Key Performance Indicators and Targets	Unit	Baseline 2010/11	2012 /13	2013 /14	2014 /15	2015 /16	Means of Verification	Assumptions and Risks	IAs responsible for monitoring	
1.1	To strengthen sector policy framework	Updated sector policy framework approved by cabinet	Sector Plan		X				Updated Water for Life Sector Plan 2012-2018	Development Partners will continue to prioritise and provide funding for sector programme	MNRE-WSCU	
1.2	To develop effective and sustainable financial mechanisms for sector investments	Updated sector MTEF report (on an annual basis)	Report	MTEF 2010-13	X	X	X	X	Updated sector MTEF Report	sector funding available	MNRE-WSCU	
		Improved institutional capacity to implement and sustain sector investments	Capability Plan	nil	Plan Developed				3-year capacity building plan	Availability of funding to implement plan and staff will not move outside scope of the sector programme	MNRE-WSCU	
1.3	To improve and sustain effectiveness of existing coordination mechanisms	Regular JWSSC, TSC and subsector meetings (monthly, bi-monthly or quarterly basis). Note: based on current meeting schedule a total of 74 meetings per year should be convened.	No. of meetings	35	45	50	55	60	Approved Minutes (signed)	IAs meet on a regular basis	MNRE-WSCU	
1.4	To establish and operationalise an effective sector performance monitoring system	Performance monitoring system in place and operational	Data collection	PMS 2009-2013	X	X	X	X	Quarterly Performance Monitoring Report / Annual Review Reports / Bi-Annual WfL evaluation reports	Performance indicators are measurable and data is available i.e. IAs monitor and collect reliable performance data.	MNRE-WSCU	
		Sector annual reviews	Annual Review	4th Annual Review 2010/11		6th Joint Annual Review	7th Joint Annual Review	8th Joint Annual Review	9th Joint Annual Review	Sector Annual Review Report	sector performance monitoring data is collected and analysed with meaningful results	MNRE-WSCU
		Independent bi-annual WfL Evaluations	Evaluation	new			X		X	WfL Evaluation Report	Sector Plan is practical and will be adopted by all the Implementing Agencies	MNRE-WSCU
		Annual Water Forums	Forum	2nd Forum	3rd Forum	4th Forum	5th Forum	6th Forum	6th Forum	Publication of annual forum proceedings	Funding for research grants will be available	MNRE-WSCU
1.5	To strengthen coordinated sector communication mechanisms	Sector Communication Strategy	Output	nil	X				Sector Communication Strategy	IAs will agree to coordinate efforts in sector communication and / or community engagement	MNRE-WSCU	
1.6	To strengthen sector preparedness and response to natural disasters	Coordinated Sector Preparedness and Response to Natural Disasters	Output	nil	X				Sector Preparedness and Response Plans	Implementing Agencies will adopt plans	MNRE-WSCU	

2. Water Resource Management

No	Strategy	Key Performance Indicators and Targets	Unit	Baseline 2010/11	2012 /13	2013 /14	2014 /15	2015 /16	Means of Verification	Assumptions and Risks	IAs responsible for monitoring
2.1	To strengthen watershed conservation and management	Number of Watershed Management Plans developed and approved	No. of Plans	3	5	3	3	3	Watershed Management Plans endorsed by JWSSC and CDC	MNRE has the capacity to develop watershed management plans	MNRE-WRD
		Percentage of watershed management plans under implementation	%	20%	25%	30%	35%	40%	Audit of Watershed Management Plans	MNRE has the capacity and resources to develop and implement watershed management plans	MNRE-WRD
		Cumulative total hectares of prioritized watershed areas rehabilitated and / or declared reserves	ha	182	202	222	242	262	Field reports, Watershed Database, Minutes of Monthly Meetings, Maps of rehabilitated areas produced on an annual basis.	MNRE has the expertise and resources (personnel) to rehabilitate (replant) critical watersheds. Communities are actively engaged and support watershed conservation. Funding is available to purchase highly critical watershed areas for reserve purposes.	MNRE-WRD
2.2	To improve knowledge and understanding of water resources.	Groundwater potentiometric map developed using established monitoring boreholes	%	3%	5%	10%	15%	20%	Borehole monitoring Reports, WRTC reports, Data Available	Successful drilling programme to establish sufficient number of boreholes in addition to securing SWA abandoned boreholes	MNRE-WRD
		Number of Monitoring boreholes drilled and feasible for groundwater monitoring	No. of bores	3	2	3	3	3	Borehole Monitoring Reports,	Rig is available and drillers are qualified to operate rig. Communities in particular landowners agree to use land (through lease agreement) for monitoring purposes. Sufficient funding is available to run full programme.	MNRE-WRD
2.3	To improve the enabling environment for water resources management	Number of strategies under implementation including regulatory tools enforced in proportion to the number of policies, strategies, legislative and regulatory tools in place	%	baseline to be set by 2012	5% on top of baseline	10% on top of baseline	15% on top of baseline	20% on top of baseline	Audit of Policy, Legislative and Regulatory Framework for Water Resource Management	Plans, strategies, legislation and regulations are implemented and / or enforced adequately	
2.4	To strengthen community engagement in water resource management	Established community extension services within critical watershed areas	No. of pilots	nil	1	1	1	1	Pilot Evaluation Reports	Communities are supportive and accept policies and legislation	

3. Water Supply

No	Strategy	Key Performance Indicators and Targets	Unit	Baseline 2010/11	2012 /13	2013 /14	2014 /15	2015 /16	Means of Verification	Assumptions and Risks	IAs responsible for monitoring
3.1	To increase access to reliable, clean and affordable water supply	Water Supply Coverage - % of all households with access to reliable, clean and affordable water supply - (Served by SWA, IWS and Improved rainwater schemes)	%	76%	82%	84%	86%	88%	National Water and Sanitation Census	All customers are registered, metered and pay water bills for SWA & IWS services; for rainwater harvesting systems, all households have the capacity to manage and maintain systems to ensure reliability and safety of water stored	SWA-(URBAN/RURAL/SA VAI) - IWSA - SRC
3.2	To reduce non-revenue water with priority given to areas where this is impacting on cost and / or performance of the systems	Non-Revenue Water - water losses in Apia urban treated service areas (Malololelei, Alaca and Fuluasou)	L/corn/day	2,570 (Baseline 2011-12)	2,350	2,150	2,000	1,900	SWA non-revenue water data	Water production / consumption / loss data is available in SWA defined areas; complete asset registration	SWA-URBAN
3.3	To improve drinking water quality through upgraded disinfection systems and implementation of approved drinking water safety plans	Water Quality Compliance - % of water tests for total coliform and E. coli at the user level in SWA treated service areas complying with the SNDWS	%	58%	66%	70%	75%	80%	MOH Monthly Drinking Water Quality Reports	Water safety plans in place and operational; communities with rainwater harvesting systems are able to maintain these systems to ensure safety of drinking water and MOH has high level capacity to carry out drinking water quality testing and collaborates positively with SWA	MOH/HPPSD
		IWS schemes with water quality tests of less than 10 e.coli/100ml measured at the customers tap	Schemes	5	6	7	8	9	Bi-annual water quality testing	That MoH will complete testing of Schemes	MOH/HPPSD
		IWS schemes with DWSP approved and implemented	Schemes	4	8	12	16	20	Approved DWSP	The communities will adopt and implement the DWSP	MWCS-DIA/IWSA
3.4	To enhance financial sustainability in water supply delivery & commercial wastewater services	Billing Efficiency - % of all customers billed	%	85%	88%	91%	93%	95%	SWA audited accounts / financial statements / water sales	Customer rationalisation is completed successfully and SWA customers are registered and billed and customers willing to pay	SWA-COMMERCIAL
		Collection Efficiency - domestic customers - payments received / water use billed	%	66%	72%	76%	80%	85%			SWA-COMMERCIAL
		Collection Efficiency - all customers (domestic and commercial) - payments received / water use billed	%	80%	84%	86%	88%	90%			SWA-COMMERCIAL
		Collection Efficiency - wastewater customers - payments received / wastewater billed	%		60%	70%	80%	90%			SWA-COMMERCIAL
3.5	To improve responsiveness to customer issues within SWA service areas	Responsiveness Index - % of all customer complaints resolved within 3 days	%	67%	75%	80%	82%	85%	SWA customer satisfaction surveys	A customer care center is established for SWA customers. SWA has established partnerships with communities in defined service areas to facilitate feedback on services provided	SWA-CORPORATE
3.7	To improve community performance in the management of IWS rural water services	IWS schemes with completed upgrades	Schemes	10	15	20	25	30	Certificate of completion of upgrade	Funding is available	MWCS-DIA/IWSA
3.8	To promote and implement rainwater harvesting for vulnerable households	Number of households that are reliant on rain water harvesting that meet minimum storage standards	No. of Households	To be done in July/Aug 2012	Baseline +100	Baseline +400	Baseline +700	Baseline +1,000	Project Completion Report	SRC has the capacity to undertake project Households support and accept initiative	SRC
3.9	To improve quality of plumbing	Legislative framework established and in force	Legislation	nil	X				Legislation	Legislation is passed and accepted by plumbing trades and industries. PAS is established and fully operational.	PAS
		Percentage of certified plumbers	%	nil	5	10	15	20	PAS list of certified plumbers	Plumbers comply with National Plumbing Standards	PAS

4. Drinking Water Quality and Health Surveillance

No	Key Performance Indicators and Targets	Unit	Baseline 2010/11	2012 /13	2013 /14	2014 /15	2015 /16	Means of Verification	Assumptions and Risks	IAs responsible for monitoring
4.1	Frequency of testing for SWA end points against NDWQS 2008	No. of Tests/year	12	12	12	12	12	Drinking Water Quality Reports	MOH has the resources and expertise to conduct and analyse reports	MOH-HPPSD
	Frequency of Testing for SWA Treatment plants against NDWQS 2008	No. of Tests/year	2x	2x	2x	2x	2x			
	Frequency of Testing for SWA Boreholes against NDWQS 2008 (Note: frequency will increase once borehole supplies become treated)	No. of Tests/year	4x	4x	4x	4x	4x			
	Frequency of Testing for IWS against NDWQS 2008	No. of Tests/year	1x	2x	2x	2x	2x			
	Frequency of Testing for Registered Bottled Water Companies against NDWQS 2008	No. of Tests/year	4x	4x	4x	4x	4x			
	Effective monitoring and enforcement of Water Safety Plans	Audit	nil	X	X	X	X	Water Safety Planning Audit Report	Water Service Providers adopt Water Safety Plans and have the resources to implement accordingly; Regular auditing of water safety plans	
4.2	Prevalence (incl. Geographical distribution) of water borne-diseases in the country	Map	nil	1	2	2	2	Map of critical areas produced on a 6-monthly basis	MOH has the expertise and resources (personnel, funding) to monitor prevalence of water-borne diseases	
	Baseline information on prevalence of water-borne diseases in the country identified and continually monitored	%	nil	X				Baseline data on water borne diseases	Sufficient and reliable data is collected and available	
4.3	Number of monthly bulletins on status of water-borne diseases widely circulated	bulletin	3	7	12	12	12	Monthly Bulletins	Data is collected	

5. Sanitation, Wastewater and Hygiene

No	Strategy	Key Performance Indicators and Targets	Unit	Baseline 2010/11	2012 /13	2013 /14	2014 /15	2015 /16	Means of Verification	Assumptions and Risks	IAs responsible for monitoring
5.1	To increase access to basic sanitation	Percentage of households using improved sanitation facilities at the minimum of a VIP latrine	%	To be established	baseline + 2%	baseline + 5%	baseline + 10%	baseline + 15%	National Water & Sanitation Census / National Census	MNRE, MOH, MWTI & SRC have the capacity and funding to collect data ; Households adhere to improved sanitary facilities and good hygiene practice requirements	MNRE-PUMA MOH-HPPSD MWTI-AMB
		Percentage of urban Apia households with approved septic tank systems	%	24%	29%	34%	39%	44%	Annual Subsidy Scheme Reports Annual Urban Sanitation Survey	(1) Urban households accept subsidy scheme and recipients are aware and have the capacity for J&M following upgrades to septic tank systems; (2) Adequate responses from urban residents are received; and (3) Proactive tracking by authorities (MNRE, MWTI, MOH)	MNRE-PUMA MOH-HPPSD MWTI-AMB
		Number of targeted vulnerable households reliant on open privies	No. of Households	To be done in July/Aug 2012	Baseline +100	Baseline +400	Baseline +700	Baseline +1,000	Project Completion Report	SRC has the capacity to undertake project Households support and accept initiative	MVCSD SRC
		Percentage of targeted schools with improved sanitation facilities and good hygiene practice	%	To be established	baseline + 2%	baseline + 5%	baseline + 10%	baseline + 15%	National School Sanitation Assessment	MOH has the capacity to undertake assessment to collect data; Schools adhere to improved sanitary facilities and good hygiene practice requirements	MOH-HPPSD
		Number of households using alternative onsite wastewater technologies (biogas)	No. of Households	0	2	3	4	5	Pilot Repots	Funding is available. Biogas pilot is successful and lessons learned are replicated and sustained.	MNRE-RED
5.2	To develop and implement effective nationwide education and awareness campaign on wastewater management and sanitation	Percentage of targeted households with improved awareness on sanitation including wastewater management and good hygiene practice	%	To be established	baseline + 2%	baseline + 5%	baseline + 10%	baseline + 15%	National Sanitation Survey	MNRE has the capacity and resources to conduct survey; Targeted households accept sanitation messages; nationwide education and awareness campaigns are effective.	MNRE-PUMA MOH-HPPSD MWTI-AMB
5.3	To strengthen regulatory framework and compliance	Percentage of new developments (residential, commercial and public) complying with existing policies, legislation and regulations (National Building Code (septic tank standards), PUM Act 2004, National Sanitation Policy, Health Ordinance 1959 etc)	%	To be established	baseline + 2%	baseline + 5%	baseline + 10%	baseline + 15%	Applications for Development Consents and Building Permits; Inspection Reports	All new developments (residential/commercial/public) go through the Development Consent process	MNRE-PUMA MWTI-AMB
5.4	To improve knowledge and capacity of Sanitation Implementing Agencies	Number of assessments conducted in critical areas including research on key sanitation issues	No. of Assessments	To be established	baseline + 2	baseline + 5	baseline + 7	baseline + 9	Assessment Reports and Research Publications	Funding and expertise is available to carry out assessments and research in hotspot areas. Findings from assessments and/or research are published.	MNRE-PUMA MOH-HPPSD MWTI-AMB
5.5	To develop sustainable wastewater and sanitation infrastructure	Utilization of the Wastewater Treatment Plant - Wastewater treated / design capacity	%	55	65	70	75	80	SWA Annual Reports	GoS approves expansion of the sewerage network; Funding is available to make new connections.	SWA-WWD
		Number of Public Toilets upgraded (including construction of new facilities)	No. of Public Toilets	1	1	1	1	1	MNRE Annual Reports	Funding is available.	MNRE-DEC
		Number of Public Toilets fully operational and comply with national sanitation / hygiene guidelines	No. of Public Toilets	1	2	3	4	5	MNRE / MOH Annual Reports	Public Toilets are monitored and maintained on a regular basis.	MNRE-DEC
		Volume of sewerage received by the Wastewater Treatment Plant in Sogi in proportion to the Plants design capacity	Volume	To be established	baseline + 2%	baseline + 5%	baseline + 10%	baseline + 15%	SWA Annual Reports	Storm water ingress to sewer network is greatly reduced; New connections are made.	SWA-WWD
		Volume of sludge (from desludging) at the Sludge Treatment Facilities on a monthly basis in proportion to the Plants treatment capacities	Volume	To be established	baseline + 2%	baseline + 5%	baseline + 10%	baseline + 15%	MNRE Annual Reports	On-site sanitation septic tanks (residential and commercial not connected to the sewer line) are emptied and treated at the Sludge Facilities. Pump-out services contractors have the capacity to undertake service. Sludge Treatment Facilities are monitored and maintained on a regular basis.	MNRE-DEC

6. Flood Mitigation

No	Strategy	Key Performance Indicators and Targets	Unit	Baseline 2010/11	2012 /13	2013 /14	2014 /15	2015 /16	Means of Verification	Assumptions and Risks	IAs responsible for monitoring
6.1	To strengthen the enabling environment for flood mitigation initiatives	MOU developed and entered into	Document	n/a	MOU DEVELOPED				Signed MOU	Relevant Implementing Agencies agree to the terms of the MOU and adopt for implementation.	MWTI-LTD
		Flood Management/Mitigation Policy in place	Policy	n/a		POLICY DEVELOPED			Policy Approved by Cabinet	GoS prioritises flood mitigation as an important policy issue.	MWTI-LTD
		Drainage Design Manual in place	Manual	n/a		MANUAL IN PLACE			Manual	LTA has the capacity and resources to develop and operationalise manual	LTA-PPD
6.2	To mitigate flooding incidences within the CBD	Number of flooding events during the wet season reduced	No. of Floods	To be established	baseline - 2%	baseline - 5%	baseline - 10%	baseline - 15%	Flood monitoring reports by MNRE - WRD	Flood monitoring programs are vigilant and have reliable data with which to measure indicator	LTA-PPD, MNRE-WRD
		Cumulative number of kilometers of drains (re)constructed and upgraded	Kilometers	2.1	3.7	5.3	6.9	8.5	Works and supervision Contracts	LTA has the capacity outsource and manage works contracts.	LTA-PPD, Private Contractors
		Cumulative number of kilometers of drains being maintained on a regular basis	Kilometers	75	80	85	90	95	Maintenance contracts	LTA has the capacity to manage maintenance contracts; Availability of funding; Private contractors have the capacity to provide maintenance services	LTA-PPD, Private Contractors
		Number of drains registered (asset management)	No. of Drains	75	80	85	90	95	Asset Register Database	LTA has the capacity and resources (personnel and funding) to register all the drains within the CBD area	LTA-PPD

6.4 Implementation Strategy

6.4.1 Sector-wide Approaches and Sector Coordination

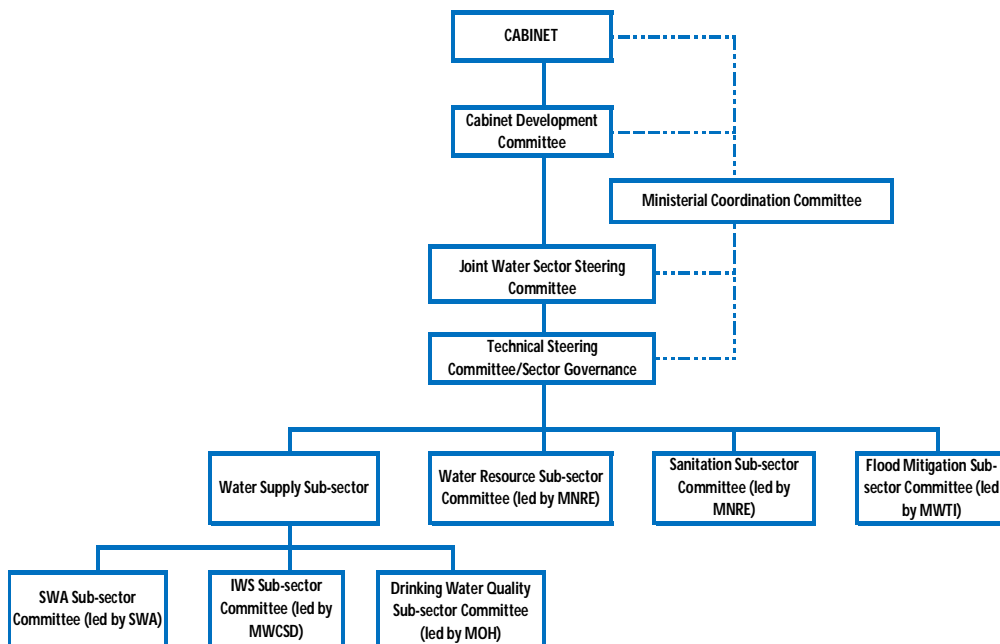
An effective and elaborate framework has been put in place to coordinate and facilitate integration of planning, programming, implementation, monitoring and evaluation across the Sector. Nine committees have been established and make up the sector coordination framework (refer Figure 13). The TOR for these committees is presented in Appendix 7 for reference purposes.

A new **Ministerial Coordination Committee (MCC)** has been established to strengthen political advocacy and support and comprises Ministers from MNRE, MoH, MoF, MWCS D, MWTI and respective CEOs. This committee is the interface between CDC, Cabinet and the Sector. Their main task is to review policy issues affecting the Sector and advocate Sector issues at the political arena.

The **JWSSC** chaired by an independent chairperson, comprises CEOs from key IAs, Private Sector and NGOs with representatives from key development partners and reports to the MCC on national issues. The WSCU provides secretariat functions and support to the JWSSC as well as to the MCC.

Reporting to the JWSSC is the **Technical Steering Committee (TSC)** chaired by the WSCU. The role of the TSC is twofold; (1) monitors technical and financial progress of agreed sub-sector programmes and (2) leads the development and / or review of Sector policies/strategies. The TSC is made up of IA coordinators or chairs of each sub-sector committee as presented in Figure 13 below. **Six subsector committees** have been set up to facilitate and coordination implementation of Sector developments including policy development, regulation etc. These committees meet on a monthly/bi-monthly basis and are responsible for coordination of programme implementation, planning, budgeting and monitoring. They report to the TSC on a monthly basis on subsector financial and technical progress.

Figure 13: Sector Coordination Framework



6.4.2 Information Management Strategy

A crucial element of the Sector Plan is to intensify networking and advocacy to mainstream water and sanitation management principles both within the Sector as well as across other sectors. To do this effectively, innovative approaches to gathering, storage, packaging and dissemination of information, especially on lessons learnt and good practices in sustainable water resource and supply management will be adopted. The strategy, targeting all levels and all stakeholders, will inter alia, entail the following:

- Engaging the media through sound and long term partnerships to communicate Sector issues to different audiences, and empowering the media personnel with requisite skills and incentives e.g. short term courses, study visits etc;
- Disaggregating the information by district or village levels, so as to encourage local actions and local reporting;
- A clear framework for feedback and regular interactions of central government agencies and between central and community levels, so as to improve data accuracy policy analysis by ensuring that issues are focussed and practical;
- Fully utilise existing dialogue platforms and communication frameworks – e.g. the annual Sector performance reviews, community consultations etc;
- Mobilise and empower community/village level structures (e.g. Sui o Tamaitai, Sui o Nuu etc) including associations to analyse and communicate Sector information to grassroots based stakeholders. In this regard, the information management capacity of Sector offices will be developed to coordinate information dissemination activities at levels closer to the communities;

6.4.3 Sector Institutional Capacity Building Support

GoS is now focusing on building capacity of the water and sanitation sector institutions as well as promoting increased private sector participation and effective community participation in all water and sanitation sector activities. A critical constraint is the limited skilled human resources in Samoa and the need for institutions to attract and retain key personnel and provide continuous opportunities for skills upgrading.

To address this constraint the WSCU is currently developing a capacity building strategy and action plan for the Sector as a whole that will draw on the capacity building plans of the separate implementing agencies. The key objectives of such a strategy and action plan will be:

- to ensure that Sector institutions planning processes recognise that the ultimate source of value is people – the organisations employees
- to develop a human resources management approach to include annual performance assessments, career path development, incentives, performance rewards and targeted training
- to design and manage culture, work environment, and organisational processes that will retain good staff and ensure everyone does their job better
- to identify the Sector institution's competencies and match people to these
- to match skills with job requirements
- to ensure the resourcing activities contribute to the development of competencies for now and into the future
- to assess and satisfy performance requirements to meet Sector institution's objectives
- to continually review and build organisational commitment.

The SWA developed and adopted a Capacity Building Action Plan and human resources strategy in mid-2011, refined its organizational structure and recruited a number of managers and engineers to implement the increasing investment program and to improve service performance. The capacity building plan focuses on in-country training and promotes in-house training.

A key part of the sustainable approach to capacity building will include the restructuring of WSCU to ensure the appropriate support and skill-set are developed within the focal coordinating body for the Sector.

6.4.4 Resource Mobilisation and Management Strategy

Experience in the last four years demonstrates that committed public funding into the Sector increased progressively as institutional capacity is developed, although actual disbursement of committed funds have been rather slow. Reliable and adequate financing and human resources are important for achieving the Sector targets, but remain a major challenge. A three-pronged strategy will be employed to mobilise and ensure availability of sufficient resources for the Sector:

- clear demonstration of the links between sustainable WfL management with outcomes in the key SDS targets, especially for the WfL dependant sectors such as health, infrastructure etc;
- ensure measures take into account absorption capacity and ensure effective utilisation and accountability of both technical and financial skills/resources;
- undertake clear performance assessment that indicates the returns on investments in terms of the results. This will particularly target mobilising more resources from the public purse (Budget);
- design of large scale, integrated programmes themes with a medium to long term scope rather than small short-term project;
- proactive identification of resource shortfalls for key investments by the sector in light of time-bound funding commitments by major development partners e.g. EU Budget Support Programme commitments only up to 2016;

Chapter 7: Resource Requirements

7.1 Overview

The GoS has adopted the SWAP framework and the EU has initiated its sector budget support programme for water in 2009. This has given the Sector a high degree of flexibility in allocating both local and donor financial resources according to the national priorities and development objectives.

A long term Investment Plan¹⁶ for the Sector was prepared in early 2009, and approved in principle by the JWSSC in September 2009. The implementation of the plan has been limited and to a large extent hindered following the events of the tsunami in September 29, 2009. Hence, this has resulted in the reprioritization of Sector investments to focus on the provision of interim water supplies to the affected areas whilst finalising long term water supply options. In addition, the relocation of people from coastal to inland areas following the tsunami has prompted the Sector to consider settlement issues in its investment programme.

SWA has developed a rolling 10year investment plan and implementation program drawing on the recommendations of the Apia Integrated WSS Master Plan. The plan prioritises investments that will optimise the social, operational and financial performance of existing facilities and systems; secure alternative sources of supply for the dry seasons and service area expansion investments. The plan envisages an expenditure of approximately SAT 120million over the next 10 years.

There has also been a renewed focus on climate change and its implications on the Sector investments overall. As climate change leads to more extreme weather variations, the Sector is committed to explore and adopt 'climate smart' water solutions/plans/designs to cope with extreme rainfall and extreme droughts. Strategies to strengthen the promotion of rainwater harvesting in rural areas particularly in drought prone areas are receiving more and more attention within the sector. More in-depth discussions and analysis on rainwater harvesting including proper institutional arrangements to operationalise such arrangements will be pursued under this Sector Plan.

Existing capacity of IAs to plan, implement and sustain investments in the long run remains a constraining issue and one that should always be at the forefront of any future investment considerations in the Sector. Until these capacity gaps are addressed effectively through systematic capacity building initiatives the Sector will continue to face difficulties in achieving its objectives and overall goal. In addition, the Integrated Masterplan for Apia developed under the ADB funded PPTA has assisted in consolidating a scoped and costed long term investment plan for Apia area. The Institutional Development Adviser to SWA has assisted through the development of a long term investment plan for SWA which will prioritise the reduction of NRW among other key investments.

7.2 Costing Process of Planned Activities

Investments in the 4 years of this Sector Plan focus on reducing NRW, improving financial and asset management, continuous strengthening of resources and staff capacity and expansion of service to priority areas.

Delivery of the 4-year programme will cost approximately SAT 112 million, inclusive of national and project funds against total resources of about SAT 111 million. More than 70% of the total resource envelope is provided through the EU Sector budget support which, together with GoS funding makes up 85% of national funding requirements. The balance (15% ie approximately SAT 15 million) will be

¹⁶ SOPAC funded the recruitment of a regional TA to develop this Plan.

made up from project funding from JICA (subject to approval) and includes 1.4% from existing Global Environment Fund (GEF) IWRM and NAPA 4 Projects. The summary of key programme expenditure is noted below:

- An enhanced and effective **governance framework** to guide and sustain Sector developments will cost roughly SAT 5 million over the next four years.
- **Integrated water resource management** for sustainability of water supplies will cost the sector approximately SAT 15 million and will give emphasis to improved watershed management through the development and implementation of watershed management plans, conservation of critical watershed areas as reserves to sustain water supplies and access to reliable water resource data through the implementation of a realistic resource monitoring programme.
- **Increased access and improved provision of reliable, clean and affordable water supply** will cost the Sector approximately SAT 70 million in four years and will address SWA priority issues, strengthening of Independent Water Schemes and improvements to drinking water quality including rainwater harvesting and strengthening of the plumbing association in the country.
- **Increased access to adequate sanitation, improved wastewater systems with emphasis on improved hygiene practice** will cost about SAT 5.5 million with additional funding provided through the MDG Initiative Project targeting vulnerable groups/households at SAT 6.8 million and includes provisions for rainwater harvesting and food security.
- Strengthening of **flood mitigation measures** will cost SAT 11.8 million and will be largely funded under the Global Climate Change Alliance (GCCA) project at approximately SAT 9 million.

The distribution of the funds by programme is summarised in Table 16:

Table 16: Sector Budget Performance and Annual Distribution

SECTOR PLAN SUMMARY BUDGET	2012-13	2013-14	2014-15	2015-16	Total 4-year programme
	SAT (m)				
Increased access and improved provision of reliable, clean, safe and affordable water supply	\$20,625,000	\$19,310,000	\$15,980,000.	\$12,385,000	\$68,300,000
Watershed rehabilitation and resource monitoring	\$4,350,000	\$4,350,000	\$4,050,000	\$2,300,000	\$15,050,000
Targeted support to Vulnerable groups		\$1,360,000	\$2,720,000	\$2,720,000	\$6,800,000
Increased access to basic sanitation, improved wastewater systems/ infrastructure & and improved hygiene practice	\$850,000	\$1,685,000	\$1,445,000	\$1,375,000	\$5,355,000
Flood Mitigation measures	\$1,500,000	\$4,100,000	\$4,100,000	\$1,200,000	\$10,900,000
Community engagement and awareness campaigns	\$700,000	\$650,000	\$650,000	\$650,000	\$2,650,000
Capacity building programme and sector governance orientation	\$555,000	\$500,000	\$500,000	\$500,000	\$2,055,000
Total Programme Budget	\$28,580,000	\$31,955,000	\$29,445,000	\$21,130,000	\$111,110,000

7.3 Financing Mechanisms

The main sources of Sector financing are from domestic revenues and development partners. Current funding trends show that the primary instrument for Sector financing over the medium and long-term will be Sector budget support and specific project support directly to sector Ministries, Corporations, and NGOs such as IWSA and possibly SUNGO and Plumbers Association as noted below:

- **Sector Governance Programme**
 - MNRE – funding for the WSCU is provided to MNRE as recurrent budget as well as specific project grants.
- **Water Resources Programme**
 - MNRE - funding for water resources management activities is channelled directly as budget support to WRD within MNRE. There are also still a few project based funding arrangements (e.g. IWRM) which are expected to phase out as the budget/programme based funding takes effect.
- **Water Supply and Quality Programme**
 - SWA - funding for water supply and sanitation activities is provided to SWA by MoF as conditional loans, unconditional grants and CSO grants. The conditional loans and project grants are for the delivery of wastewater sewerage services, personnel, operational and capital works related to the delivery of water supply. The CSO grants are special funds meant to cover for inadequate revenue sources and where service levels are not financially viable.
 - IWSA– funding for water supply activities for independent schemes are provided through the MWSCD as a conditional grant. The conditional grants cater for IWSA personnel and operating costs
 - Funding for priority capital works related to the delivery of water supply to selected independent schemes is channelled through MWSCD.
 - MOH - funding is provided directly as annual recurrent and development project allocations by MoF to the Water Quality Unit (MOH).
- **Sanitation Programme**
 - Funding for sanitation related activities is provided to three key ministries including MOH, PUMA (MNRE) and SWA as conditional grants and annual recurrent and development projects allocations by MoF.
- **Flood Mitigation Programme**
 - Funding is provided directly as annual recurrent and development project allocations by MoF to MWTI, PUMA (MNRE) and LTA.

In order to realise reliable and sustainable financing, the following additional funding mechanisms will be explored during the Sector Plan period.

- **General budget allocation to the Sector** is the main source for the bulk of the activities. The anticipated risk lies however in the inadequate annual allocations;
- **Project support to specific sub-sectors within the Sector.** Ongoing projects under MNRE and other key agencies will provide funding for some of the activities included in the Sector Plan. This implies that the on-going and planned projects within the Sector will have to align with the priorities in the Sector Plan since these are based on the overall national priorities as reflected in the SDS;
- **General budget and project support to other sectors** in which water and sanitation issues are a key component. The main strategy to ensure this will be to enhance awareness raising, advocacy and networking activities, to engage the sectors in question and demonstrate how WFL issues are important in their sector. In addition support will be given to mainstream

WfL issues into their sector plans, actions plans and budgets. The main sectors targeted include infrastructure, trade, agriculture, health, community and education. Table 17 shows the indicative amounts by source.

Table 17: Indicative Commitments/Funding for the Sector Plan by Source

Resources Available/ Sources of Funding	2012-2013	2013-2014	2014-2015	2015-2016	Total Resources Available for the 4-year programme
SAT					
General and Sector Budget Support					
EU Sector Budget Support	\$16,877,778	\$21,359,000	\$23,136,332	\$19,261,332	\$80,634,442
MDG Initiative - Additional Budget Support		\$1,364,000	\$2,730,000	\$2,730,000	
Global Climate Change Funding - Flood Mitigation - Additional Budget Support	\$1,550,000	\$3,900,000	\$3,900,000		
Government Contribution	\$3,400,000	\$3,400,000	\$3,400,000	\$3,400,000	\$13,600,000
Project Support					
EU Technical Facility Cooperation Fund	\$250,000	\$200,000	\$200,000		\$650,000
IWRM - Rehabilitation of the Apia Catchment		\$105,000			\$105,000
NAPA 4 - Groundwater monitoring programme	\$250,000.00	\$250,000	\$250,000		\$750,000
Samoa Consolidated Urban Untreated water Supply Schemes Rehabilitation Project - JICA ¹⁷	\$3,750,000	\$3,750,000	\$3,750,000	\$3,750,000	\$15,000,000
Total Funding/Budget Available from 2012-2016	\$24,527,778	\$29,064,000	\$30,736,332	\$26,411,332	\$110,739,442

A comparison of funding estimates for the programme and budget commitments to the Sector (both budget and projects) indicates that the Sector Plan will face significant funding gaps in the first two years of implementation (Table 18). This entails the need for the Sector to identify additional funding sources to ensure Sector programmes and targets and met within the agreed timeframe.

¹⁷ in the pipeline - still to be approved by JICA

Table 18: Funding Gaps 2012-2016

	Funding Request/Commitments by year				
	2012-13	2013-14	2014-15	2015-16	Total 4-year programme
	SAT (m)				
Total Programme Budget	\$28,580,000	\$31,955,000	\$29,445,000	\$21,130,000	\$111,110,000
Total Funding/Budget Available	\$24,527,778	\$29,064,000	\$30,736,332	\$26,411,332	\$110,739,442
Funding Gap	-\$4,052,222	-\$2,891,000	\$1,291,332	\$5,281,332	-\$370,558

7.4 Resources Allocation and Financial Management

The allocation of funds to the programmes, sub-programmes and activities has been guided by the priorities set for each of the 5 sub-sectors included in the Sector Plan. Expenditure will be incremental, and based on annual action planning and expenditure management. Current resource levels and budgetary allocations through the budget system are only set or available at Ministry level (set by negotiated ceilings) not by sector level which to some degree has limited the effectiveness and predictability of resource allocation for agreed sub-sector programmes. However, the Sector now has a better idea of the available level of resources over the next 3-5 through the EU funded WaSSP (set by fixed and variable resources depending on performance of sector) and detailed investments as the above Tables. Within the priorities reflected in the sector performance framework, the following constitute major instruments for priority expenditure and resource allocation as well as accountability.

7.4.1 Rolling Medium Term Expenditure Framework

To be implemented, policies and plans need financing which is usually provided through public budgets. In Samoa, as in most other countries, legally binding budgets (approved by parliament) cover only one year. The current forward estimates process undertaken by the MoF is similar to an MTEF in terms of coverage for three years. However, the approach is different and the results of the plus two years are not publicly available. This essentially means, the multi-year investment plans in the Sector are implemented through annual budgets which limit its effectiveness in terms of delivery and resource allocation.

The initial MTEF developed by external TA for the sector in 2008 was a highly technical and complicated process which was not adopted by the Sector. Subsequent reviews led to the 3rd update of the Sector MTEF in-house and led by WSCU. It involved an extensive consultative process with IAs in reaffirming priorities and cost estimates.

The three-year rolling expenditure plan is one of the key instruments guiding the expenditure priorities for the Sector. Similar to other sectors this plan sets out clearly how the priorities for each sub-sector will be implemented during the three years. However priority re-setting is expected subject to the size of the annual resource envelope, Ministry expenditure ceilings set by MoF and any unanticipated changes that might affect the priority arrangements. The current scope of the Sector MTEF only covers public funded expenditures of key agencies involved in Sector governance, water resources, water supply and quality, sanitation and flood mitigation sub-sectors. Linking the sector MTEF with annual budget programmes is still a challenge and will have to be improved over the Sector Plan period.

7.4.2 Annual Resource Performance Assessment

The process and criteria for allocating the identified resources into the respective sub-sectors is currently being refined and key steps towards this include:

1. Establish an annual Sector resource ceiling.
2. Determine the appropriate annual resource allocations (%) per sub-sector
 - a. Sector Governance
 - b. Water Resources
 - c. Water Supply (SWA & IWS) including Drinking Water Quality
 - d. Sanitation and Wastewater
 - e. Flood Mitigation
3. Develop annual expenditures per sub-sector based on agreed Sector outputs and sub-outputs.
4. Allocate agreed sub-sector expenditures and projects to appropriate annual budget Ministry outputs for implementation.

Chapter 8: Conclusion and Way Forward

Implementation of the reform recommendations will not only be challenging but will also inevitably have significant financial, technical and legal implications which have to be addressed in order to ensure successful and timely realisation of targets. Some of the pre-requisites have been addressed in detail in the different sub-sector strategies and investment plans but there is still more to be done.

Effective sector governance mechanisms are crucial to ensuring the sustainability of the sector-wide approach and should go beyond funding availability. An important achievement from the WaSSP is improved coordination, communication and cooperation between and within agencies. It is this sense of oneness and team spirit that has enabled the Sector to move forward in pursuing its goals and should be maintained and improved upon in order to see through the implementation of the new framework for action and beyond.

Building and maintaining capacities of Sector institutions for effective implementation of sub-sector investment plans, and putting in place the necessary implementation and coordination mechanisms for the efficient delivery of services to end users is imperative and the Sector urgently needs to develop a comprehensive medium term capacity building plan to identify and prioritise critical needs for targeted funding. The capacity building plan will need to be closely linked to an agreed and prioritised Sector investment plan to ensure that required expertise and means to deliver the Sector's agreed programme are available.

Increased engagement with communities on rehabilitation and conservation of critical watershed areas will require effort, time and resources and is a necessary and crucial ingredient in sustaining water supplies, economic development and the environment. The Sector is therefore prioritising watershed conservation and management as a key issue and calls for a greater need to implement IWRM more effectively.

Improving the governance systems and performance monitoring mechanisms of SWA will facilitate and sustain current and future improvements to the Authority's overall operations. One of the significant challenges faced by the Sector is the high levels of NRW and a major effort is necessary to overcome this and facilitate improvements in water services. This further requires the need to replace ageing water supply infrastructure and ensure that it complies with new environmental requirements, and; the need to mobilise and allocate financial resources in order to provide access to clean, ultimately safe water, and basic sanitation across the country.

This Sector is promoting rainwater harvesting as the prime source of water supply for low income / disadvantaged households and for those areas where it is uneconomic or financially not viable to provide a piped supply. For the Sector to address the potential of rainwater harvesting to meet these needs, and the standards to which the projects are delivered, further initiatives and research must be undertaken to enhance programme work in this area.

Although there have been improvements to drinking water quality, the majority of water systems in the country are failing to meet NDWQS and the Sector will need to continue investing in the water safety planning to ensure targeted funding towards improving critical water systems. In addition, the Sector will need to enhance linkages with MoH to target areas and households at risk due to water quality, poor sanitation and hygiene practices.

Sanitation has quickly evolved as a priority in the Sector owing to its strong linkages to water availability and accessibility issues. As a new priority in the Sector, there is currently very little information/data available on the status of sanitation in the country. The Sector will therefore need to ensure that there is sufficient focus on establishing baseline information for informed planning purposes.

The impacts of climate change are being carefully considered under the new framework for action and the Sector will need to look into alternative water supply options such as supplementary boreholes, rainwater harvesting for areas without access to piped water supply (SWA & IWSA) and possibly waterless toilets as an alternative sanitation technology. Investment plans will need to be continuously reviewed to ensure designs utilise the latest information on expected impacts including potential resettlement scenarios. Flood mitigation measures to reduce incidence of flooding in the urban area will need to be strengthened and maintenance improved. In addition, the Sector will need to develop linkages with the Disaster Management Division in MNRE to plan for resource mobilization and coordination in case of future natural disasters including droughts, flooding, cyclones and tsunamis.

It is envisaged that the private sector and the local communities will play a more active role in the management and delivery of water and sanitation services in the new liberalised and decentralised water sector. The challenge in this case will be building the capacity of both the local communities and the private sector to enable them to play their role effectively. Increased stakeholder participation in the Sector activities will also call for more effective coordination mechanisms and a coherent monitoring, evaluation and reporting framework to ensure transparency and accountability in the Sector and to minimise duplication of efforts and wastage of resources.

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Appendix 1: Key Review Areas

Specific Review Areas	Specific Key Review Questions
Alignment of sector goals/objectives	<ul style="list-style-type: none"> a. What current objectives need to be changed/updated? And why? b. Are goals/objectives clearly set out? c. Are the vision, goals, objectives aligned with themselves and the SDS?
Sector Achievements/Failures including Constraints	<ul style="list-style-type: none"> a. What objectives or actions in the current plan have been achieved? b. Are there objectives under which there has been no progress? c. What the main reasons are for lack of progress/failure/What are the constraints affecting achievement? d. Do strategies need to be reviewed/changed or added to?
Policies and Legislation	<ul style="list-style-type: none"> a. Are the policies in place still appropriate and facilitating the aims of the sector? b. Is there any legislation that needs to be updated/ amended to achieve progress? c. Is there a reasonable division of tasks amongst implementing agencies (policy/regulation separate from service delivery)
Sector Stakeholder Analysis	<ul style="list-style-type: none"> a. Are all interested and relevant stakeholders engaged in the sector? Consider especially NGOs, associations, clients or customer reps, and private sector organizations.
Clients or customers	<ul style="list-style-type: none"> a. Do we have enough information/ feedback from our primary clients or customers in the sector b. Who are we providing services for and are they satisfied with the services?
Performance Measures	<ul style="list-style-type: none"> a. Are the performance measures aligned to the objectives of the sector strategy? b. Are there measurable performance indicators, which are being used to monitor progress? c. Are new indicators needed? d. Do data collection systems need to be improved? e. Are performance measures presented and discussed at sector review meetings? f. Do performance measures influence resource/budget decisions?
Institutional Arrangements and Capacity	<ul style="list-style-type: none"> a. Does the sector have effective institutional structures to bring together all stakeholders to plan, implement and monitor the programme? b. Is there an effective steering committee with appropriate sub-committees? c. Is there an effective sector coordination unit in place to drive the process? d. Is there an annual review process established to present achievements, e. Performance indicators constraints and future challenges? f. How can external and annual monitoring be improved? g. Do the key institutions in the sector have an appropriate structure and adequate capacity to implement the sector plan? h. If capacity building/technical support has been provided in the past - has it been effective? If not, why not? i. Is there a need to develop a comprehensive capacity building plan for the sector?
Cross-cutting Issues	<ul style="list-style-type: none"> a. Has the sector given proper attention to cross-cutting factors or issues such as: <ul style="list-style-type: none"> - Environmental impact of actions/policies -Expected impacts of climate change - more extreme weather/ storms/ floods/ sea level rise b. Giving adequate consideration to the needs of the poor/minorities/ women/disabled people/ children

Resource Needs/Availability	<ul style="list-style-type: none">a. Does the sector have adequate resources to implement its programmes / reform improvements?b. Are appropriate revenue/ fee rates being applied?c. Are investments economically sustainable i.e. generating revenue to cover operation and maintenance?d. Is there an MTEF for the sector - does it show all the sources of funds?e. Is there a priority investment plan linked to the MTEF and agreed by all stakeholders?
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Appendix 2: List of Persons Consulted

Name	Designation	Agency
1. Hon. Minister Faamoetaulua Dr Tu'umali'i	Minister	MNRE
2. Taulealeausumai Laavasa Malua	CEO	MNRE
3. Nola Talaepa	Watershed Officer-WRD	MNRE
4. Siatua Lautua	Principal Watershed Officer-WRD	MNRE
5. Latu Afioga	Principal Marine Officer-DEC	MNRE
6. Lesaisaea Niualuga	Principal Terrestrial Officer-DEC	MNRE
7. Gillian Malielegaoi	Legal Officer –Legal Services	MNRE
8. Seumalo Afele Faiilagi	Project Manager, IUCN Project - WRD	MNRE
9. Malaki Iakopo	Principal Policy Officer – WRD	MNRE
10. Fiasosoitamalii Siaosi	Senior Watershed Officer-WRD	MNRE
11. Suluimalo A Penaia	Assistant Chief Executive Officer-WRD	MNRE
12. Sam Semisi	Project Manager, IWRM Project-WRD	MNRE
13. Toiata Apelu	Snr. Policy Officer-WRD	MNRE
14. Lameko Asora	Principal Hydrology Officer – WRD	MNRE
15. Mataia Mataia	Deputy Coordinator, WSCU	MNRE
16. Frances Reupena	Sector Coordinator – WSCU	MNRE
17. Siavalua Tiatia	Senior Officer - WSCU	MNRE
18. Toai Bartley	Snr. Environmental Engineer, PUMA	MNRE
19. Peni Allen	Performance Monitoring and Communications Officer	MNRE
20. Siatua Lautua	Principal Watershed Officer - WRD	MNRE
21. Naomi Auvae	Senior Land Development Officer - LMD	MNRE
22. Aleluia Taise	Principal Urban Management Officer, PUMA	MNRE
23. Katenia Rasch	Officer - DEC	MNRE
24. Petania Tuala	Senior Mapping Officer-TECHNICAL	MNRE
25. Falaniko Avaese	Senior Land Registration Officer-LMD	MNRE
26. Ofeira Vitoria Faasau	Principal Sustainable Development Officer - PUMA	MNRE
27. Jude Kohlhase	ACEO – PUMA	MNRE
28. Tavita Apulu	Land Registration Officer, LMD	MNRE
29. Suifua Suifua	Project Coordinator, NAPA4	MNRE

30. Leituala Kuiniselani Toelupe Tago	CEO	MWCSD
31. Laumua Leia	Principal Water Programme Officer, DIAF	MWCSD
32. Tupa'imatuna Iulai Lavea	CEO	MOF
33. Foketi Imo-Evalu	DCEO, Operations	MOF
34. Noumea Simi	ACEO, Aid Coordination and Debt Management	MOF
35. Oscar Malielegaoi	ACEO-Budget	MOF
36. Nick Roberts	Budget Support Adviser	MOF
37. Ruth Afele	Senior Aid Officer	MOF
38. Oscar Malielegaoi	ACEO-Budget	MOF
39. Abigail Lee Hang	Principal Planning Officer	MOF
40. Sarah Faleotese	ACEO - Planning	MOH
41. Mele Tanielu	Principal Water Quality Officer	MOH
42. Miriama A	Senior Sanitation officer, HPPSD	MOH
43. Filisoa Faaiu	Senior Drinking Water Quality Officer, HPPSD	MOH
44. Lameko Tesimele	Project Manager-Health Waste, HPPSD	MOH
45. Paulino Pania	Acting ACEO, Land Transport Services	MWTI
46. Elsa Fruen	ACEO, Asset Management Building	MWTI
47. Tainau M Titimaea	MANAGING DIRECTOR	SWA
48. Tafeamaalii Philip Kerlake	Manager, Technical Division	SWA
49. Ruth Uesilai	Project Coordinator, Technical Division	SWA
50. Martin O'Dell	Institutional Development Adviser	SWA
51. Heseti Sione	Manager, Commercial Division	SWA
52. Ekiumenai Fauolo	Manager, Urban Water Supply	SWA
53. Timothy Betham	Team Leader-Laboratory, Technical Division	SWA
54. Masina Ngau Chun	Engineer Officer, Technical Division	SWA
55. Johnwilliam Sala	Engineer, Rural Water Supply	SWA
56. Jammie Saena	Manager, Wastewater Division	SWA
57. Leasi Ioane Galuvao	CHIEF EXECUTIVE OFFICER	LTA
58. Anna Aiolupotea	Acting Manager, Procurement and Programming Division	LTA
59. Cassandra Betham	SWAp Coordinator	NHS
60. Tologata Tile Tuimaleliifano	ACTING MANAGING DIRECTOR	EPC

61. Lance Lameko	Manager	EPC
62. Tony Atilua		EPC
63. Seumanutafa Malaki Iakopo	Independent Chair	JWSSC
64. Vui Sebastian	Managing Director	OSM Consultants
65. Morwenna Petaia	Research Officer	KEWConsult
66. Roina Vavatau	CHIEF EXECUTIVE OFFICER	SUNGO
67. Raymond C Voigt	President	SUNGO
68. Leiataua Tofae Alailima	Principal IWS Programme Officer	IWSA
69. Sulutumu Sasa Milo	PRESIDENT	IWSA
70. Mike Syred	Engineer	IWSA
71. Manu Asafo	IWSA Executive Member	IWSA
72. Vaofanua Naseri	IWSA Executive Member	IWSA - Falevao Scheme
73. Tuautu S Maposua	IWSA Executive Member	IWSA - Laulii Scheme
74. Vailuutai Lave	IWSA Executive Member	IWSA - Solosolo Scheme
75. Maposua Fealofani Lima	IWSA Executive Member	IWSA - Letogo Scheme
76. Maulitaua T Sione	IWSA Executive Member	IWSA - Letogo Scheme
77. Mao Laufau	IWSA Executive Member	IWSA - Saoluafata Scheme
78. Asotasi Toaliua	IWSA Executive Member	IWSA - Saoluafata Scheme
79. Sua Leo	IWSA Executive Member	IWSA - Saoluafata Scheme
80. Foletogoi Auelua	IWSA Executive Member	IWSA - Aufaga Scheme
81. Tom Tinai	Patron	Plumbers Association of Samoa
82. Robert Bartley	Land Transport Planning Officer, Land Transport Services	MWTI
83. Ken Faamoe	Inspection Officer, Asset Management Building	MWTI
84. Jamie Newton	EU Consultant	Final WASSP Evaluation
85. John Stanley	Head of Office	EU Office
86. Patricia Nelson	Programme Officer	JICA Office
87. David Neal	Programme Manager	Samoa Red Cross
88. Opetaiia Opetaiia	Assistant Programme Officer	Samoa Red Cross

Appendix 3: Sector Progress on National Goals and Targets

Alignment of Sector Vision, Goal, Development Principles and Objectives

An assessment of the existing goal and objectives indicated that there is a need to refocus the goal and objectives of the sector to better alignment with current practices and priorities. The following table highlights the feedback received from focus group workshops discussions:

Existing Goals and Objectives	Proposed Revision	Reasons why
Sector Vision: "Improve quality of life of all"	No change	Currently aligned to the SDS 2008-2012 vision. However, the SDS is under review and may therefore need to adapt the sector vision statement to align with the agreed vision for the next SDS.
Sector Goal: "Ensuring community access to water of suitable quality and appropriate quantities to meet all reasonable health, environmental, and economic development needs"	" Improving community access to water and sanitation of suitable quality and appropriate quantities to meet all reasonable health, environmental, and economic development needs"	Stakeholders felt the current emphasis on 'ensuring' community access to water of suitable quality and appropriate quantities was overly ambitious and difficult to achieve, especially in view of the current constraints on the water resource. The inclusion of sanitation in the sector's overall goal statement was overwhelming supported by stakeholders given the importance of sanitation.
Sector Development Guidelines: 1. To ensure benefits and opportunities are shared by all sections of the community and across both urban and rural areas 2. To set development within an integrated water resources management framework which addresses institutional, social, economic and environmental aspects 3. To adopt a flexible and phased approach to development which responds to demand and is compatible with the capacity to manage and operate systems 4. To integrate the provision of improved water supplies with appropriate sanitation and wastewater disposal measures to maximize public health and environmental benefits	Suggestions included <ul style="list-style-type: none"> • Merge No. 1,2 & 7. • Mainstream climate change adaptation • Promote budget support systems or mechanisms in the sector (MTEF planning) • Increased political/government advocacy • Promote water conservation 	Need to reassess and refine based on four core principles under the Dublin Statement: <i>(Rio June 1992)</i> <i>Principle No. 1 - Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment</i> <i>Principle No. 2 - Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels</i> <i>Principle No. 3 - Women play a central part in the provision,</i>

<ol style="list-style-type: none"> 5. To promote independent and financially viable service provision through appropriate cost-recovery tariffs and user-pays policies 6. To ensure co-ordination of domestic and external financing and resources within the framework of a sector-wide approach 7. To build partnerships across public, private and civil society for effective implementation 		<p><i>management and safeguarding of water</i></p> <p><i>Principle No. 4 - Water has an economic value in all its competing uses and should be recognized as an economic good"</i></p>
<p>Sector Objectives:</p> <ol style="list-style-type: none"> 1. To strengthen sector governance and orientation 2. To secure sustainable water resource management 3. To increase access to safe and reliable water supplies 4. To maximize the benefits of other water uses (non- water supply) 5. To improve sanitation, drainage, and wastewater treatment and disposal 	<ol style="list-style-type: none"> 1. No change 2. Change: <i>To integrate and implement sustainable water resource management across all relevant sectors.</i> 3. No change 4. Change: Merge as part of Objective 2. 5. Change: To improve sanitation and wastewater systems, to meet health and environment objectives. 6. To improve drainage network system (on-road/off-road) 	<p>Objective 2: Stakeholders indicated the need to better focus on integration and implementation of sustainable water resource management across all sectors given the significant role water and sanitation play in these sectors.</p> <p>Objective 4: Given the lack of implementation of the related strategies, key stakeholders including WRD indicated that this could be addressed as part of the integrated water resources management approach under objective 2.</p> <p>Objective 5 – stakeholders believed it would be better and logical to separate drainage from sanitation and wastewater and make them two different objectives.</p> <p>Objective 6 – new objective given the current priority placed on improving drainage systems.</p>

Sub-Sector Performance and Targets

Water Resources

Indicator	Description	Baseline (July 2008)	Targets				Progress
			2009 /10	2010 /11	2011 /12	2012 /13	
E1	Number of watershed management plans approved and under implementation or implemented (cumulative)	1	2	4	7	10	Not Achieved – the set targets were not achieved within the plan timeframe mainly due to limited technical capacity within WRD, limited watershed mapping and lengthy consultation process needed before the plans could be approved. It was noted that 2 management plans (Fuluasou and Faleseela) were completed but are currently under review. The drafts for Togitogiga and Vaipouli were prepared in March 2010 but are not yet approved.
E2	The cumulative total hectares of watershed area that has been rehabilitated (fenced, planted and with human activity effectively controlled).	15	19	23	27	30	Achieved/Ongoing – the target of 27ha have been rehabilitated. However, there are ongoing concerns with vandalism, limited human resources and impact of natural disasters.
E3	Number of developed rating curves, Q10, Q50, Q90 data for all gauged rivers	0	2	4	5	6	Achieved/Ongoing – the target of 5 gauging sites have been established however, there are still more sites to be monitored and issues relating to the irregular river flows and rivers running dry during the dry season are impacting on the results.
E4	Cumulative number of groundwater monitoring boreholes completed and data being recorded on a regular monthly basis by WRD.	1	4	8	12	16	Not achieved – the target of 12 boreholes has not been met with only 3 completed and 4 under construction. Delays due to natural geology of site, high costs, lengthy procurement procedures, limited drilling expertise on island and faulty technical equipment. An average of 4-5 months needed for construction per site.
E5	Groundwater Potentiometric map developed using the monitoring boreholes established (see E4)					X	Not Achieved – currently in progress but delays associated with limited capacity/expertise available.

	plus SWA abandoned boreholes						
E6	Groundwater abstraction licensing system in place and operational			X			Achieved/Ongoing – the policy and scheme was established in 2009 however the main constraint now is the lack of compliance of key water users such as the SWA and IWSA.
E7	Minimum environmental flow requirements established for priority water sources (2 in Upolu and 1 in Savaii)			X			Not Achieved – Only one e-flow has been established (Vaipu) and key constraints related to limited expertise and capacity.
E8	Baseline survey conducted & Water Resources Policy reviewed		X				Achieved – Baseline survey is completed and the updated NWRP was approved in 2010.
E9	Water resource users' registration & licensing scheme in place.		X				Achieved – refer to E6 above.
E10	Appropriate Water Resources Allocation policy in place		X				Not Achieved – the final draft is going through the final community consultation process and will be submitted to CDC for endorsement.
E11	Watershed Conservation Policy developed			X			Not Achieved – feedback indicated that this was on hold due to watershed management issues being complemented under other policies and laws. However recent developments of critical upland areas have led to discussions on refocusing the policy to look at these issues and challenges.
E12	National Water Resources Management Strategy 2007-2017 in place				X		Achieved – the National Water Resources Management Strategy 2007-2017 is currently under implementation.

Water Supply Sub-Sector

SWA Water Supply

Indicator	Description	Baseline (July 2008)	Targets				Progress
			2009 /10	2010 /11	2011 /12	2012 /13	
B1	Percentage (%) of recovery of revenue from domestic customers billed in the financial year.	60%	63%	66%	69%	72%	Achieved/Ongoing – will need to closely monitor and verify achievements based on annual financial reports.
B2	Water Losses in a Defined Service Area of SWA	2.755	2.5 55	2.3 55	2.1 55	1.9 55	Not Achieved – Once off measurement during 2010 indicated an average loss in the three main urban treated service areas of 3.9m ³ /connection/day. Currently awaiting arrival of bulk meters for continuous monitoring.
B3	Percentage (%) of annual expenditure of waste water & sewage services covered from revenues from ww & sewage service sales.	65%	70%	75%	78%	81%	Not Applicable – Implementation of wastewater scheme delayed. Tariff structure and levels approved in October 2011 and will be applied commencing March 2012.
B4	Percentage (%) of water tests by MOH at user/ household level for SWA Treatment Plants complying with National Drinking Water Standards 2008.	54%	56%	58%	62%	66%	Not Achieved – SWA advised that the target was achieved for 11 out of the 12 months in the 2010 – 2011 financial year.
B5	Percentage (%) of water tests by MOH at user/household level for SWA Boreholes complying with National Drinking Water Standards 2008	38%	39%	41%	42%	46%	Not Applicable – the borehole sources are not disinfected and leakage in the pipe network makes it impossible to achieve any compliance target. The indicator will be changed in the updated sector plan.
B6	Number of households receiving metered and treated water from SWA at the end of each monitoring period.	14,490	14, 990	15, 490	15, 990	16, 490	Achieved/Ongoing – need detailed analysis and records of exact number of households being served by all SWA service areas.
B7	Water Tariff increase implemented						Achieved/Ongoing – however, SWA have indicated that they will review the tariff again in 2012 given the last increase was in 2009.
B8	Service Charter			X			Achieved – currently being

	approved by SWA Board and disseminated to the public						implemented. Will need to monitor service levels and whether it complies with the Charter. (It is appreciated that this is a milestone rather than indicator. Levels of service indicators will be used in the updated sector plan.)
B9	Asset register and technical maps brought up to date and accessible to all			X			Not Achieved/Ongoing –SWA have been able to update some key supply areas. However, capacity and human resources constraints have limited work in this area. SWA has recruited additional staff to progress this work.
B10	Permanent leak detection with measurement systems and measurement of NRW in place for Fulwasou and Alaoa service areas		X				Partial/Ongoing – delays associated with limited financial and human resources allocated for leak detection work.
B11	5 year Medium-term Investment plan for SWA drafted		X				Achieved – a 10 year Investment Plan was developed in early 2011. Need to prioritise and sequence according to sector priorities and available resources.

IWSA Water Supply

Indicator	Description	Baseline (July 2008)	Targets				Progress
			2009 /10	2010 /11	2011 /12	2012 /13	
C1	Percentage (%) of water tests by MOH at intake or first receiving IWS registered household complying with National Drinking Water Standards (for ecoli)	7%	9%	11%	14%	21%	Not Achieved – all of the systems including the five rehabilitated under WaSSP do not have any water treatment facilities or disinfection systems. Appropriate and affordable treatment systems/options need to be explored. Limited capacity of MOH to effectively monitor all 33 schemes and assist with water safety planning also pose constraints for IWSA in meeting this indicator.
C2	Number of Independent water schemes having basic governance structure, gender equity and cost recovery mechanisms in place. The	0	3	6	9	12	Partially Achieved/Ongoing – main areas of achievement include the governance systems which have been setup at the IWSA and village water committee level. 29 of the 33 schemes have received formal training with 3 to go. However, continuous training and

	<p>minimum requirements for this indicator are as follows:</p> <ul style="list-style-type: none"> -IWS Water Committee in place with Chairman, Secretary and Treasurer and holding regular meeting (at least once per quarter) and record of minutes - At least 2 female members on the IWS Water Committee - System in place for regular collection of fees from households (minimum 10WST per month) with funds held in a bank account and records showing use of funds for maintenance/ improvements to water services. 						<p>support is needed and the inclusion of women on the water committees is still limited with key schemes such as Sili and Aufaga not agreeing to include women. Need to explore alternative options for ensuring women are involved in the village water committees as they play a key role.</p>
C3	% of IWS Committees with female representation						<p>Partially Achieved/Ongoing –It was noted that this indicator did not have a baseline or assigned targets. However, based on feedback on C2 above it was deemed partially achieved and it is an ongoing initiative.</p>
C4	Roll out of training to all IWS members completed		X				<p>Partially Achieved – refer to C2 above</p>
C5	Number of village water schemes registered under Independent Water Schemes Association complying with the ecoli provisions of National Drinking Water Standards at user/household level.	2	4	6	8	10	<p>Partially Achieved – IWSA indicated some schemes including Saoluafata, Aufaga, Satupaitea, Salailua and Sili complied with the standards when they were tested in 2008.</p>

Water Uses Sub-Sector

Indicator	Description	Progress
Hydropower	% hydropower increase from previous year (KWH/year)	Partially Achieved/Ongoing – Currently 40% of electricity is generated by hydropower. However, EPC want to increase the capacity of hydro generation and optimise its utilisation which includes the monitoring of potential hydro sites in both Savaii and Upolu, with the view to initiate the development of one new hydro site by 2014.
Irrigation	Reassess potential & demand for irrigation and consider development of an irrigation strategy	Partially Achieved – an assessment was undertaken in 2008 however an irrigation strategy was not developed as there was lack of interest and commitment from key agencies such as MAF.
Environmental Flows	Ensure appropriate % for minimum environmental flow maintained.	Not Achieved – refer to D16 below.

Sanitation Sub-Sector

Off-Site Sanitation

Indicator	Description	Baseline (July 2008)	Targets				Progress
			2009 /10	2010 /11	2011 /12	2012 /13	
MNRE							
D4	Sanitation Policy approved by the CDC		X				Achieved – the policy was approved in 2009 however there are still constraints with implementation related to capacity to enforce and level of priority accorded to sanitation.
D5	Sanitation national masterplan developed		X				Not Achieved – the final draft is to be completed following endorsement of the Apia Integrated Masterplan for water supply, sanitation and drainage in 2011.
D3	Percentage (%) of SWA commercial customers in CBD connected to the Apia off-site sanitation system		0%	33%	66%	100%	Achieved/Ongoing – ongoing monitoring and enforcement of regulations is encouraged.
D16	Water quality profile data in selected lagoons collected and analysed		16	20	25	30	Not Achieved – lack of capacity and standards to adequately assess. There is no baseline given. Suggested to be shifted to Water Resources Sub-Sector. Need to establish national standards for e-flow as DEC currently using SPREP standards to monitor discharge into the ocean.
MWTI							
D14	Septic tanks design compliance						Achieved/Ongoing – the revised standards for septic tanks are now

	(enforcement)						incorporated into Building Code but there is a continuous need for proper enforcement and will need to develop external monitoring/compliance partnerships with organisations such as Plumbers Association and IPES.
D15	Septic tanks upgraded in at risk areas (pilot areas)						Partially Achieved – only a few selected households in Apia area were covered under the SSDP Phase 1 project and over 100 schools and 3 hospitals under the WaSSP project. Need to decide on the septic tank subsidy scheme and implement as appropriate.
MOH							
D1	Percentage (%) of primary schools and hospitals with acceptable level of sanitation facilities	25%		90%	95%	98%	Achieved/Ongoing – see D15 above
D8	Cabinet Approval of the Draft National Drinking Water Standards 2008						Achieved – the policy was approved in 2008 and is now under implementation.

On-Site Sanitation

Indicator	Description	Baseline (July 2008)	Targets				Progress
			2009 /10	2010 /11	2011 /12	2012 /13	
D2	Use of sludge drying beds for (3) (Dec 09 Tafaigata, June 2010 Vaiaata & Togitogiga) for septic tank disposal	0%	0%	33%	66%	100 %	Partially achieved – only Tafaigata has been completed with Vaiaata to be finalised once the contractual issues have been resolved. Togitogiga facility deferred for 3 years due to lack of demand. Key constraints include lack of skills and capacity to properly monitor the works.
D7	Construction of sludge waste treatment facilities (X1 Savaii, X2 Upolu)			X			Not Achieved – refer to D7 and suggested by working group to combine D2 and D7.

Drainage Sub Sector

Indicator	Description	Baseline (July 2008)	Targets				Progress
			2009 /10	2010 /11	2011 /12	2012 /13	
D11	Kilometers (km) of off-road drains maintained			0.5	1	2	Achieved/Ongoing – key constraint is associated with unclear institutional responsibilities and roles between MNRE and LTA on who is responsible for maintaining all the drainage systems. Land issues associated with compensation and data sharing are also some of the key concerns raised.
D12	Kilometers (km) of road drainage systems maintained						Not Achieved – budgetary constraints have affected the program however it is foreseen that the pipeline will be implemented within the FY 11/12
D13	Apia township flood model developed						Not Achieved – budgetary constraints and limited technical capacity have led to the delay in the contract. Lack of specifications in the procurement of the contract to safeguard the government was also raised as a key concern.

Sector Orientation Sub Sector

Indicator	Description	Baseline (July 2008)	Targets				Progress
			2009 /10	2010 /11	2011 /12	2012 /13	
A1	New Water Services Policy approved by the CDC		X				Achieved - This indicator has been achieved with the official endorsement of the policy by CDC in December 2010. The next challenge now is ensuring the implementation of the policy.
A2	Bi-annual update of Water For Life sector plan approved by the CDC						Not achieved – The review of the sector plan is currently underway and an updated plan is to be submitted to CDC by within the FY 2011/12 for approval.
A3	Bi-annual update of Water Sector Investment Plan approved by the JWSSC						Achieved – Investment plan is reviewed on an annual basis together with the MTEF. An initial draft Water Sector Investment Plan was developed in June 2009, however, it was not approved by JWSSC.

						Other key investment plans developed during the review period include the SWA 10 Year Investment Plan (2010) and the Apia Integrated Masterplan for Water Supply, Sanitation and Drainage (15 year Investment Plan).
A4	Annual update of Medium Term Expenditure Framework approved by the JWSSC					Achieved/Ongoing - The initial sector MTEF framework was developed in 2008 as part of the sector plan. It was updated in June 2009 as part of the Water Sector Investment Plan process and the 3 rd update 2010-2013 MTEF was done in-house by the sector agencies and subsequently approved by JWSSC.

Appendix 4: Key Water and Sanitation Policies

Sub-Sector	Policy	Progress
Water Resources	National Water Resources Policy (NWRP)2010	The NWRP provides the framework for the conservation, sustainable management and development of Samoa's water resources. It replaces the 2001 NWRP and being implemented. All key challenges and strategies identified are still valid – refer to details in Annex 3
	Water Abstraction Licensing Scheme 2009	A Water Abstraction Licensing Scheme has been in effect since 2009. However compliance to the Scheme has been slow with only six water abstraction licences and one drilling permit application received. At the moment the IWSA and SWA are working on submitting their applications. Users have indicated payment of extraction fees will impact on tariffs and ultimately on the affordability by consumers.
	National Water Allocation Policy	Draft and undergoing further public consultations.
	National Water Conservation Policy	On hold and considered not necessary given the similarity with the resource allocation policy.
Sanitation	National Sanitation Policy 2009	Approved and currently being implemented. Key challenges and strategies identified are still valid and key remaining challenges include the need to finalise and approve the draft National Sanitation Masterplan; and allocation of resources to identified investments highlighted in Apia Integrated Masterplan – refer to details in Annex 3
	National Building Code 1992	Sections pertaining to onsite systems standards have been revised but main challenge is ensuring compliance. The review of the whole policy/code is yet to be finalised.
Water Services (Supply)	National Water Services Policy 2010	Replaces the draft 2003 Water Services Policy. Approved in November 2010 but not yet implemented. All key challenges and strategies identified are still valid however will need to review the timelines for establishment of a Utility Regulator and ensuring interim measures are put in place. Sector will need to prioritise and revise some of the suggested activities due to unforeseen delays. Refer to details in Annex 3.
	National Drinking Water Quality Standards 2009	Approved and currently being implemented. Main concerns in implementation relate to lack of water safety planning by both SWA and IWSA in managing the quality of their supply systems.
	Drainage	Public Drains Regulations 2006

Key policies which were developed recently and provide a thorough analysis of critical challenges and key policy objectives include:

National Water Resources Policy 2010

Policy Goal
To develop and manage water resources in a sustainable manner to ensure access to water of suitable quality and quantity to meet all health, environmental and development needs of present and future generations.
Policy Outcomes/Benefits
Long Term Benefits: <ul style="list-style-type: none">• Increased public awareness of water resources issues• Increased community involvement in water resources management• Improved preparedness and response to water-related disasters (floods & droughts)• Enhanced resilience to Climate Change impacts• Increased carbon sink• Improved watershed management nationwide including rehabilitation, conservation and protection to provide appropriate water quality at the catchments• Increased knowledge and understanding of water resources• Efficient allocation of water resources• Improved water use efficiency• Improved water infrastructure• Lower costs for water treatment• Equitable access to water of high quality• Increased investment opportunities• Effective planning and development Direct Benefits: <ul style="list-style-type: none">• Improved water quality in watershed areas therefore improved health prospects• Reduced water rations / shortages• Increased replanting of fruit trees and high value native trees for timber providing avenues for income generating activities• Increased understanding and adoption of agro-forestry practices• Increased ecotourism opportunities
Policy Objectives
<ol style="list-style-type: none">1. To strengthen institutional setting & capacity building programs in water resource management2. To create greater community awareness of water resources issues and increase community participation in water resources management3. To improve knowledge and understanding of water resources4. To strengthen watershed conservation and management5. To ensure long term sustainability of water resources through efficient water use and allocation6. To maintain appropriate water resource quality7. To improve water conservation and efficiency8. To strengthen a nationally coordinated flood forecasting and warning system9. To ensure effective drought management10. To enhance financial sustainability in water resource management

Strategies
<p><u>Short-term (3-5 years)</u></p> <p>Strengthen the capacity of the MNRE to implement the policy</p> <ol style="list-style-type: none"> 1. Recruit additional staff (2 seniors and 6 officers) under the Water Resources Division to strengthen monitoring and assessment of water resources (hydrology), watershed management and monitoring and enforcement of policies and legislation; 2. Identify and implement capacity building programmes; 3. Set up the Water Resources Advisory Board; 4. Enforce water resources regulatory functions; 5. Develop pricing mechanisms for water resources allocation 6. Develop and implement Watershed Management Plans; 7. Monitor and maintain off-road drainage; 8. Strengthen and expand existing community awareness programmes; 9. Develop and enforce water resources quality standards; 10. Establish and expand monitoring and assessment networks for water resources; 11. Set up flood monitoring systems; 12. Update databases for the collection, analysis and dissemination of water resources information; 13. Implement the Integrated Water Resources Management (IWRM) GEF funded project for the rehabilitation of the Apia Catchment (Vaisigano and Fuluasou catchments); 14. Implement the IUCN-WANI II (Water and Nature Conservation Initiative Phase II) for the rehabilitation of the Togitogiga catchment; 15. Develop and implement mechanisms for water resources allocation; 16. Coordinate relevant stakeholder participation; 17. Encourage private sector (including NGOs) participation in water resources management programmes; 18. Establish and facilitate the work of the Implementation Task Team including annual reviews;
<p><u>Medium to long-term 5 -10 years</u></p> <p>Establish a national framework for the sustainable management of water resources</p> <ol style="list-style-type: none"> 19. Continue watershed rehabilitation programmes 20. Continue capacity building programmes for watershed and scientific assessment of the quantity and quality of surface and groundwater 21. Expand water resources monitoring and assessment 22. Develop a land-use classification system; 23. Promote alternative sources of water: for example, rain water and coastal springs; 24. Incorporate water resources considerations into development planning and assessment and enforce procedures for environmental impact assessment 25. Enact appropriate environmental standards for the protection of water bodies from the impacts of development; 26. Support regional efforts on international waters; 27. Support the convention on wetlands and make use of funding opportunities under the convention to facilitate conservation of wetlands in Samoa 28. Support global river basin initiative and strengthen dialogue with international partners; 29. Conduct the tri-annual independent evaluation of the policy

National Water Services Policy 2010

Policy Goal
The global objective of the policy is to enhance all aspects of water supply services provision in Samoa.
Policy Outcomes
<p>To ensure the sustainable provision and management of water services in Samoa, the policy aims to achieve the following outcomes:</p> <ul style="list-style-type: none"> • Water supply services provided by the Samoa Water Authority and the Independent Water Schemes are efficient, effective and sustainable; • Improved regulation and monitoring of water supply services; • Water supply services that are compliant with Samoa's National Drinking Water Standards; and • Improved collaboration and coordination amongst water service providers and other stakeholders.

Policy Objectives

1. Improving SWA performance

The policy aims to improve SWA's performance through the provision of a reliable service to an increasing number of customers in a sustainable manner through:

- A performance management contract;
- Improved regulatory mechanisms;
- Increased financial autonomy; and
- Improved water safety.

2. Improving community performance in the management of rural water services

The policy aims to improve community performance by formalising rules for Water Committees (WC) to abide by and providing support so that they can:

- Handle and operate independent water systems in a professional way;
- Recover full O&M costs; and
- Promote the sharing of water resources with the aim of improving the quality of life for all Samoans (building partnerships between communities and/or between communities and government).

The Government of Samoa (through MWCSO) will support the professional Independent Water Schemes Association (IWSA) as a cost effective tool to enhance community capacities to manage their own water systems

Strategies

1. Regulating activities of the water services providers
2. Utility Regulator to monitor SWA performance
3. Tariff as the basis for SWA sustainability
4. CSO as a part of the National Water Services Policy
5. Water Quality
6. MWCSO to facilitate Government support to improve the quality of independently managed water schemes
7. MWCSO to support a professional association of independent schemes
8. Contracting IWSA to provide support to the communities for the sound management of water schemes
9. SWA area of service
10. Rules for transferring a system from independent management to SWA
11. Investigations into water service standards
12. Memorandum of Understanding between SWA and IWSA
13. Providing a legal framework for Private Sector Partnership (PSP)
 - SWA Outsourcing specific tasks
 - IWS – Use of professional service providers
14. Water Services for those Not Covered by IWS or SWA

National Sanitation Policy 2009

Policy Goal
The overall policy objective is to improve wastewater systems and management in Samoa.
Policy Outcomes
The sanitation policy is a holistic and integrated framework to improve wastewater management services in Samoa. The policy is committed to achieving the following outcomes: <ul style="list-style-type: none"> • An enhanced bio-physical environment that does not compromise human health and safety. • An improved and streamlined approvals process through all stages of the development including post-construction and the operational phase. • Increased capacity of all relevant stakeholders on wastewater management issues.
Key Strategies
<u>Short-term (0-5 years)</u> <ol style="list-style-type: none"> 1. Nationwide education and awareness campaign 2. Regulatory Framework strengthening 3. Knowledge and capacity building 4. Subsidy scheme <ul style="list-style-type: none"> • Residential Households • Educational Institutions and Community Facilities 5. Wastewater infrastructure planning 6. Monitoring and review
<u>Medium to long-term 5 -10 years</u> <ol style="list-style-type: none"> 7. The continuous implementation of the above strategies and revisions where required.
<u>Long term 10-20 years</u> <ol style="list-style-type: none"> 8. Development of a Wastewater authority to deal primarily with wastewater systems and waste.

Appendix 5: Key Institutional Bodies

Institutional Body	Legal Mandate and Roles	Composition	Issues
Water and Sanitation Ministerial Coordination Committee	Ad hoc high-level committee established to strengthen political support and engagement in water and sanitation developments.	<ol style="list-style-type: none"> 1. Chair – Minister for MNRE 2. Minister for MOF 3. Minister for MWTI 4. Minister for MOH 5. Minister for MWCS D 6. CEO MNRE 7. MD SWA 8. DG MOH 9. CEO MWCS D 10. CEO MWTI 	Strengthen political support and engagement in sector developments.

<p>Samoa Water Resources Board</p>	<p>Established under the Water Resources Act 2008, Section 16 (Clause 1-7).</p>	<ol style="list-style-type: none"> 1. Chair – Minister (MNRE) 2. CEO – MNRE 3. CEO – MOF 4. CEO – MWCSO 5. CEO – MAF 6. CEO – MOH 7. Commissioner – FESA 8. GM – EPC 9. MD – SWA 10. CEO – An agency in Samoa having responsibility for waste management (if any) 11. President – IWASA 12. President – SUNGO 13. Not more than four (4) reps of the community who may be appointed by the Minister for a period of up to 3 years. 	<p>Not yet established or functioning. However, MNRE have indicated that this body is to be activated to provide the high-level ownership and engagement needed for effective water resource management. .</p>
<p>Samoa Water Authority Board</p>	<p>Established under the SWA Act 2003. Key functions pertain to the management of all water services provided for by Government.</p>	<ol style="list-style-type: none"> 1. Chair – Independent Private Sector Member 2. CEO – MOH 3. CEO – MWTI 4. CEO – MNRE 5. MD – SWA 6. Up to 5 Private Sector Members. 	<p>Following recent changes in the composition of SOE Boards, the new board will feature mainly private sector members with few CEOs of key ministries represented. All SOE Boards will no longer be chaired by Ministers or CEOs.</p>
<p>Joint Water Sector Steering Committee</p>	<p>Cabinet Directive (FK) 2009 – appointed by Cabinet in 2009 as the permanent Committee and national apex body for the sector providing overall leadership, policy guidance and monitoring for the Water Sector.</p> <p>Reports to CDC for the formal approval of new policies and projects.</p>	<ol style="list-style-type: none"> 1. Chair – Independent 2. CEO – MNRE 3. CEO – MOF 4. CEO – MOH 5. CEO – MWCSO 6. CEO – MAF 7. CEO - SWA 8. CEO – LTA/MWTI 9. CEO – EPC 10. President – IWASA 11. CEO – SUNGO 12. President – CoC 	<p>The JWSSC, supported by the WSCU, has been instrumental in coordinating the implementation of a range of successful institutional and regulatory reforms, and should continue to do so. However the future effectiveness of the JWSSC is confronted by the persistent challenge of attracting CEO level stakeholders to its quarterly meetings, which is considered essential if the committee is to effectively fulfil a decision making and coordination role.</p> <p>The long-term viability of the JWSSC as the apex body to coordinate the sector has been questioned by many stakeholders.</p>

			<p>One of the options suggested during the course of the consultations included the possibility of elevating the JWSCC representation to include key Ministers from MNRE, MWTI, MOH, MAF and MWCS D to ensure ownership and commitment to priority reforms. The suggested TOR would be similar to the one used for the National Energy Coordination Committee – refer Annex 5.</p>
Water Sector Coordination Unit	<p>Technical secretariat for Joint Water Sector Steering Committee</p> <p>Established as a mechanism to promote a more consultative and participatory approach in the management of public funds, and to increase transparency and accountability in the planning and utilisation of resources in the sector.</p>	<ol style="list-style-type: none"> 1. Sector Coordinator (ACEO level) 2. Deputy Sector Coordinator (Principal level) 3. Senior Procurement Officer 4. Performance Monitoring Officer 	<p>WSCU has been instrumental in facilitating and driving sector processes during the transition to budget support, though there has been limited high-level support for the key challenges facing the sector. More assistance is required to strengthen planning and implementation capacity especially in the areas of procurement, contract management and performance monitoring.</p> <p>WSCU has acknowledged that less emphasis should be placed on recruiting external TA rather the focus now is to build the capacity and staffing levels of the Unit. A proposed restructuring of the unit is being developed to identify additional core positions/functions which are critical to address the challenges identified. A proposed restructuring is highlighted in Annex 6.</p>
Technical Steering Committee	<p>Monitors operational progress of sub-sector developments and advises JWSSC accordingly. The TSC also assumes the role of the sector orientation sub-sector and therefore responsible for developing a comprehensive and coherent policy and regulatory framework to</p>	<ol style="list-style-type: none"> 5. WSCU Coordinator (Chair) 6. Chairperson's of Sub-Sector Committees 	<p>Consistency of representation and reporting was raised as concerns.</p>

	guide and govern sector developments.		
Sub-Sector Committees	Monitors progress of sub-sector developments and provides technical advice to key agencies within the working group. Working group chairs all report to TSC on technical progress.	<ol style="list-style-type: none"> 1. SWA Water Supply Sub-Sector (SWA Divisions, MNRE (WRD), IWSA) 2. IWSA Water Supply Sub-Sector (SWA, MNRE, MWCSO (Chair), IWSA, MOH) 3. Water Quality Sub-Sector (MOH, SWA, MNRE, IWSA, MWCSO) 4. Water Resources Management Sub-Sector (MNRE (WRD), EPC, SWA,) 5. Sanitation Sub-Sector (MNRE (PUMA, DEC), MOH) 6. Drainage and Flood Mitigation Sub-Sector (MWTI, LTA, MNRE) 	Reporting mechanisms and frequency of reporting are an issue and the sector may need to look at streamlining with the existing reporting requirements under the MOF central planning and budgeting timelines.

Appendix 6: Sector Action Plan

Strategies to strengthen sector governance to guide and sustain sector developments							
Action Plan			Timeframe				Responsible Agency
Ref	Strategy	Actions	2012/13	2013/14	2014/15	2015/16	
1.1	To strengthen sector policy framework	1.1.1 Develop and implement a practical and coherent framework for action 2012-2016	X	X	X	X	MNRE - WSCU
		1.1.2 Implement and review of the National Water Services Policy	X	X	X	X	MNRE-WSCU, SWA, MWCSO, IWSA
		1.1.3 Strengthen SWA's governance arrangements	X	X			MOF-SOEMD, SWA, MNRE-WSCU
		1.1.4 Establish a Utility Regulator	X	X			MOF-SOEMD, SWA, MNRE-WSCU
		1.1.5 Develop MOU between SWA and IWSA	X				MNRE-WSCU, SWA, IWSA
		1.1.6 Design and implement a National Water & Sanitation Survey to establish and confirm baselines	X	X			MNRE-WSCU, Bureau of Statistics
		1.1.7 Facilitate integration of National Water and Sanitation Survey into the National Census undertaken every 5 years		X	X		MNRE-WSCU, Bureau of Statistics
1.2	To develop effective and sustainable financial mechanisms for sector investments	1.2.1 Annual review and update sector MTEF	X	X	X	X	MNRE-WSCU, MOF -BUDGET
		1.2.2 Mid-term review of the approved annual budget	X	X	X	X	MOF-BUDGET /MNRE WSCU
		1.2.3 Review and update long term investment plan for the sector	X		X		MNRE-WSCU, MOF- AID/SOEMD
		1.2.4 Develop, implement, review and update on an annual basis a 3 year capacity building plan for sector Implementing Agencies	Plan Developed	X	X	X	MNRE-WSCU
		1.2.5 Strengthen engagement with Development Partners	X	X	X	X	MOF-AID, MNRE-WSCU
1.3	To improve and sustain effectiveness of existing coordination mechanisms	1.3.1 Coordinate meetings of the high level Ministerial Coordination Committee (MCC) as required from time to time	X	X	X	X	MNRE-WSCU
		1.3.2 Coordinate quarterly Joint Water Sector Steering Committee (JWSSC) meetings	X	X	X	X	MNRE-WSCU
		1.3.3 Undertake monthly Technical Steering Committee (TSC) meetings to monitor subsector progress and developments	X	X	X	X	MNRE-WSCU
		1.3.4 Ensure regular sub-sector committee meetings (bi-monthly/monthly) are held to coordinate programme implementation	X	X	X	X	MNRE-WSCU
1.4	To establish and operationalise an effective sector performance monitoring system	1.4.1 Collect performance data on a quarterly basis from IAs	X	X	X	X	MNRE-WSCU
		1.4.2 Issue quarterly reports on sector's progress towards achieving performance indicators to the JWSSC and MCC	X	X	X	X	MNRE-WSCU
		1.4.3 Undertake Joint Water Sector Annual Reviews	X	X	X	X	MNRE-WSCU
		1.4.4 Implement evidence-based research to inform sector policy planning and to gauge external feedback on sector developments	X	X	X	X	MNRE-WSCU
		1.4.5 Publish Water & Sanitation Research /National Water Forum	X	X	X	X	MNRE-WSCU
1.5	To strengthen coordinated sector communication mechanisms	1.5.1 Develop and coordinate implementation of a Sector Communication Strategy	Plan Developed	X	X	X	MNRE-WSCU
		1.5.2 Upgrade and improve quality of sector website	Website Upgraded				MNRE-WSCU/IT
		1.5.3 Prepare and disseminate quarterly sector newsletters to all stakeholders including local communities	X	X	X	X	MNRE-WSCU
		1.5.4 Set up an information resource centre for key reports/documents in soft and hard copies	X				MNRE-WSCU
1.6	To strengthen sector preparedness and response to natural disasters	1.6.1 Strengthen collaboration with the Disaster Management Division	X	X	X	X	MNRE-WSCU/DMO
		1.6.2 Develop sector preparedness and response plans	X				MNRE-WSCU/DMO
		1.6.3 Conduct annual drills to prepare and familiarise IAs with expected coordination roles during a natural disaster	X	X	X	X	MNRE-DMO

Strategies to improve watershed management and reliability of water resource data through integrated water resource management

Strategies to improve watershed management and reliability of water resource data through integrated water resource management							
Action Plan			Timeframe				Responsible Agency
Ref	Strategy	Actions	2012/13	2013/14	2014/15	2015/16	
2.1	To strengthen watershed conservation and management.	2.1.1 Formulate, implement and enforce watershed management plans and regulatory tools in key watershed areas sustaining water supplies;	X	X	X	X	MNRE- WRD/Legal/LMD
		2.1.2 Rehabilitate river banks	X	X	X	X	MNRE (WRD, TS, WSCU), MESC, MWCSO (DFIA), SWA, IWS, EPC, NGOs, IPES.
		2.1.3 Take critical watershed areas (upstream) as reserves	X	X	X	X	
		2.1.4 Conduct effective awareness and educational programmes	X	X	X	X	
		2.1.5 Develop a pilot for payments for ecosystem services in relevant watershed areas		X	X	X	MNRE-WRD
		2.1.6 Pilot and evaluate feasibility of community extension services in critical watershed areas for possible upscaling to strengthen engagement with key communities		X	X	X	MNRE-WRD, MWCSO
2.2	To improve knowledge and understanding of water resources.	2.2.1 Expand and Maintain the National Hydrometric Network	X	X	X	X	MNRE-WRD/MET/LM, SWA, SLC
		2.2.2 Quality Assurance of water resource data and information within the National Water Resources Information Management System	X	X	X	X	SWA, IWS, EPC
		2.2.3 Carry out capacity building on how to develop and effectively implement a successful drilling programme for groundwater	X	X			MNRE-WRD, MET, LMD, TS
2.3	To improve the enabling environment for water resources management	2.3.1 Implement and enforce the National Water Resources Policy, Water Resource Management Act, regulations and village bylaws.	X	X	X	X	MNRE - (WRD, Legal, PUMA, WSCU) MWCSO, SWA, IWSA, EPC
		2.3.2 Formulate the National Water Resources Management Plan	X	X	X	X	MNRE-WRD
		2.3.3 Ongoing administration of the Water Abstraction Licensing Scheme	X	X	X	X	MNRE-WRD
		2.3.4 Ongoing secretariat functions to the Water Resources Technical Committee and Water Resources Management Board;	X	X	X	X	MNRE-WRD
		2.3.5 Ongoing monitoring and evaluation of policies and plans	X		X		MNRE-WRD
2.4	To strengthen community management in water resource management	2.4.1 Develop partnerships with NGOs/CSOs	X	X	X	X	MNRE-WRD
		2.4.2 Revitalise the community extension services dealing primarily with local communities on a regular basis		X	X	X	MNRE- (WRD, Legal, Forestry, WSCU) MWCSO, SWA/IWS, NGOs

Strategies to increase access and improve provision of reliable, clean and affordable water supplies							
Ref	Strategy	Action Plan	Timeframe				Responsible Agency
			2012/13	2013/14	2014/15	2015/16	
3.1	Increased access to clean, reliable and affordable water supplies	3.1.1 Construct SE Upolu Regional WS Scheme		X	X	X	SWA
		3.1.2 Construct Manono WS Scheme				X	SWA
		3.1.3 Construct Falealupo WS Scheme		X	X	X	SWA
		3.1.4 Construct treatment facilities and new piped networks for Vaialele and Aleisa service areas	X	X	X		SWA
		3.1.5 Construct treatment facilities and new piped networks for currently untreated systems on Apia outskirts - Tapatapao, Vaivase Uta, Mafanai, Vailima		X	X	X	SWA
		3.1.6 Construct Falealunuu WS Scheme	X	X			SWA
		3.1.7 Construct alternative source works for drought protection		X	X	X	SWA
3.2	Reduced non revenue water with priority given to areas where this is impacting on cost and / or the performance of the systems	3.2.1 Comprehensive pipe network improvements and pipe replacement program to reduce NRW	X	X	X	X	SWA
		3.2.2 Meter installation and relocation program including additional sub-mains	X	X	X	X	SWA
		3.2.3 NRW reduction program - Savaii	X	X	X	X	SWA
		3.2.4 Further NRW reduction program - Upolu - as necessary	X	X	X	X	SWA
		3.2.5 Maintain up to date and accurate customer database and improve billing performance	X	X	X	X	SWA
3.3	Improved drinking water quality through upgraded disinfection systems and implementation of water safety plans	3.3.1 Upgrade of chlorination facilities at 5 major WTPs and 16 supplementary boreholes including comprehensive capacity building		X			SWA
		3.3.2 Phased establishment of chlorination facilities at all remaining SWA borehole sources			X	X	SWA
		3.3.3 Rehabilitate roughing and slow sand filters at all WTPs	X	X	X	X	SWA
		3.3.4 Rehabilitate Maloiolele, Alaoa and Fuluasou JR WTPs including replacement of valves / fittings / fencing / buildings		X	X		SWA
		3.3.5 Prepare 12 SWA and 16 IWS drinking water safety plans	3 SWA 4 IWS	3 SWA 4 IWS	3 SWA 4 IWS	3 SWA 4 IWS	SWA, IWSA, MWCSO, MOH, MNRE
		3.3.6 Measure progress of IWS towards achieving NDWO standards through use of the IWSA tiered water quality scale	X	X	X	X	IWSA, MOH
3.4	Enhanced financial sustainability in water supply delivery and commercial wastewater services	3.4.1 Review of WS tariff structure and levels and implement	X			X	SWA, MOF
		3.4.2 Update of Asset Register and re-evaluation of all system and non-system assets	X		X		SWA
		3.4.3 Improve billing systems and reduce level of non-payment / outstanding debtors	X	X	X	X	SWA
		3.4.4 Increase number of IWS collecting fees for maintenance on a regular basis	X	X	X	X	IWSA, MWCSO
3.5	Improved responsiveness to customer issues within SWA service areas	3.5.1 Establish Customer Care Centre at Vaitele Office	X				SWA
		3.5.2 Improve feedback on the performance of water systems from households and private sector groups	X	X	X	X	SWA
		3.5.3 Implement awareness programs and activities at priority schools	X	X	X	X	SWA
		3.5.4 Establish closer relationship with Village Women's Committees to provide forum for awareness raising, consultation and understanding of community needs	X	X	X	X	SWA, MWCSO
3.6	Improved office facilities and staff skills to enhance operational performance	3.6.1 New and rehabilitated SWA offices - Savaii, Rural Operations, Vaitele Compound	X	X	X		SWA
		3.6.2 Implement capacity building and twinning arrangements to enhance SWA operational performance	X	X	X	X	SWA
		3.6.3 Procure operational equipment for increased performance			X	X	SWA
3.7	Improved community performance in the management of rural water services.	3.7.1 Strengthened Institutional Framework for regulation of IWS	X	X	X	X	IWSA, MWCSO
		3.7.2 Ongoing training of Village Water Management Committees	X	X	X	X	IWSA
		3.7.3 Strengthened institutional capacity of IWSA to carry out its functions	X	X	X	X	IWSA
		3.7.4 Upgrade of 19 identified Independent Water Schemes	Salailua, Laulii, Eva, Leusoalii, Luatuanuu	Nuusuaia, Lelea, Maasina, Taelafaga	Sili, Satapuata, Manunuu, Lona, Letogo	Salimu, Samamea, Uafato, Fusi, Saaga	IWSA, MWCSO
3.8	Rainwater harvesting promoted and implemented for vulnerable households	3.8.1 Rainwater harvesting promoted and implemented through the development of guidelines	X				SRC, MWCSO, MOH, MESC,
		3.8.2 Develop expertise in the implementation of quality rainwater harvesting	X				SRC, MWCSO, MOH, WSCU,
		3.8.3 Identify and assess those households that are reliant on rainwater harvesting as their primary source of water	X				SRC, SWA, IWSA, MWCSO, MNRE-WSCU,
		3.8.4 Provide support to communities for a subsidized rainwater harvesting systems for the vulnerable groups/low income households	X	X	X	X	SRC, MWCSO, MNRE-WSCU, CSSP
		3.8.5 Monitor and evaluate projects	X	X	X	X	SRC, MWCSO, MNRE-WSCU, CSSP
		3.8.6 Deliver education training programmes for improved hygiene linked to health	X	X	X	X	IWSA, MWCSO, MNRE-WSCU, CSSP, MOH
3.9	Improve Quality of Plumbing	3.9.1 Establish legal framework to mandate the services provided by PAS	X				PAS
		3.9.2 Qualified service providers certified and licensed to practice in line with approved plumbing standards/guidelines	X	X	X	X	PAS, SWA, IWSA, MWTI, Industries
		3.9.3 Targeted capacity building program for licensed service providers	X	X	X	X	PAS
		3.9.4 Establish plumbing standards	X	X	X	X	PAS, IPES
		3.9.5 Improve quality of plumbing services	X	X	X	X	PAS, NUS, GoS

Strategies to improve surveillance of drinking water quality and water-borne diseases.

Ref	Strategy	Action Plan	Timeframe				Responsible Agency
			2012/13	2013/14	2014/15	2015/16	
4.1	Improve drinking water quality	4.1.1 Review National drinking Water Standards.		X			MOH-HPPSD
		4.1.2 Finalize and implement Guidelines for Drinking Water Quality Standards.		X			MOH-HPPSD
		4.1.3 Monitor development and implementation of water safety plans	X	X	X	X	MOH-HPPSD, SWA, IWS, MNRE-WRD
		4.1.4 Monitor water service providers including bottled water companies	X	X	X	X	MOH-HPPSD, SROS (2012/13 only)
		4.1.5 Conduct bi- annual audits of the water safety planning process		X		X	MOH-HPPSD
		4.1.6 International accreditation of drinking water quality tests every 2 years		X		X	MOH-HPPSD
		4.1.7 Formalise certification process for compliant bottled water companies.	X	X	X	X	MOH-HPPSD
		4.1.8 Publish water quality results for bottled water companies	X	X	X	X	MOH-HPPSD
		4.1.9 Procure and Install water treatment system for all health centers	X	X	X	X	MOH-HPPSD
4.2	Increase surveillance and reporting of water-borne diseases	4.2.1 Identify data needs for collection, analysis and reporting	X	X	X	X	MOH-HPPSD
		4.2.2 Circulate monthly surveillance bulletins on water borne diseases to sector stakeholders	X	X	X	X	MOH-HPPSD
		4.2.3 Circulate Alert Reports to relevant Authorities (SWA, IWSA & MNRE) when diarrhoea and typhoid exceed threshold level	X	X	X	X	MOH-HPPSD
		4.2.4 Map out prevalence of typhoid fever and diarrhea cases	X	X	X	X	MOH - HPPSD, MNRE-TS
4.3	Build Capacity of MOH to improve monitoring of drinking water quality and health surveillance of water-borne diseases	4.3.1 Upgrade water quality laboratory		X			MOH-HPPSD
		4.3.2 Recruit qualified staff for drinking water monitoring and health surveillance		X			MOH-HPPSD
		4.3.3 Upgrade knowledge and skills of staff on water safety plans. (study tour)		X			MOH-HPPSD
		4.3.4 Upgrade public health officials knowledge on epidemiology		X			MOH-HPPSD
4.4	Increase Public and sector stakeholder awareness on drinking water quality issues	4.4.1 Design and implement targeted awareness and educational programs on drinking water quality issues through media and other IEC materials	X	X	X	X	MOH-HPPSD
4.5	Strengthen communication and coordination between SWA, IWSA, MNRE, Bottled Water Companies and MOH on drinking water quality issues	4.5.1 Develop MOU to strengthen coordination and information sharing between MOH, IWS, MNRE and MOH	X	X			MOH-HPPSD
		4.5.2 Engage SWA, IWSA and MNRE continually through subsector committee meetings	X	X	X	X	MOH-HPPSD, SWA, IWSA, MWCSO, MNRE-WSCU/WRD

Strategies to increase access to basic sanitation, improved wastewater systems and improved hygiene practices

Strategies to increase access to basic sanitation, improved wastewater systems and improved hygiene practices								
Ref	Action Plan	Strategy	Actions	Timeframe				Responsible Agency
				2012/13	2013/14	2014/15	2015/16	
5.1	To increase access to basic sanitation		5.1.1 Explore and pilot alternative onsite wastewater technologies such as biogas and waterless technologies etc for upscaling where applicable	X	X	X	X	MNRE-PUMA/Renewable Energy (RED)
			5.1.2 Provide subsidised support targeting installation of VIP toilets for those low income and vulnerable families reliant on open privies and in rain water harvesting areas	X	X	X	X	SRC, MNRE-PUMA, MOH-HPPSD, MWTI-AMB, IWS
			5.1.3 Develop best practice guidelines for the construction and maintenance of VIPs	X				SRC, MNRE-PUMA, MOH-HPPSD, MWTI-AMB
			5.1.4 Provide subsidised support targeting improvements to septic tank systems for low income households in reticulated water supply areas		X	X	X	SRC, MNRE-PUMA, MOH-HPPSD, MWTI-AMB
5.2	To develop and implement effective nationwide education and awareness campaign on wastewater management and sanitation		5.2.1 Coordinate and Implement awareness programmes for targeted groups/communities on good hygiene practice, maintenance of wastewater systems, septic tanks etc	X	X	X	X	MNRE-PUMA/DEC/RED, MOH-HPPSD, MWTI-AMB, MWCSD – DFIA/DFW, IWSA, SRC, PAS
			5.2.2 Strengthen collaboration with local services providers to increase understanding on existing sanitation related policies, legislation, regulations and standards	X	X	X	X	MNRE-PUMA/RED/DEC, MOH-HPPSD, MWTI-AMB, MWCSD – DFIA/DFW, IWSA, SRC, PAS
			5.2.3 Annual commemoration of the World Toilet Day targeting schools	X	X	X	X	MNRE-RED/PUMA, MOH-HPPSD, MWTI-AMB, MWCSD – DFIA/DFW, IWSA, SRC, PAS
			5.2.4 Strengthen community engagement and feedback using existing initiatives such as the Aiga ma Nuu Manuia and National Beautification Committee (NBC) led by MWCSD, village committees such as Komiti Tumāmā, STN, SN and other relevant initiatives.	X	X	X	X	MNRE-PUMA/DEC/RED, MOH-HPPSD, MWTI-AMB, MWCSD – DFIA/DFW, IWSA, SRC, PAS
			5.2.5 Strengthen political advocacy on sanitation related issues through the SPAGL	X	X	X	X	MOH-HPPSD
5.3	To strengthen regulatory framework and compliance		5.3.1 Develop and implement MOU to guide programme implementation in line with agreed institutional arrangements and roles including coordinated monitoring with relevant stakeholders	MOU DEVELOPED	X	X	X	MNRE-PUMA, MOH-HPPSD, MWTI-AMB
			5.3.2 Enforce and update on a regular basis the approved Code of Environmental Practice for Odour control for Wastewater Treatment Plants	X		X	X	MNRE-PUMA, SWA-WWD
			5.3.3. Develop and implement national effluent discharge standards	STANDARDS DEVELOPED	X	X	X	MNRE-PUMA
			5.3.4 Enforce and undertake periodic reviews of the National Sanitation Guidelines for school sanitary facilities and public toilets	X	X	X	X	MOH-HPPSD, MWTI-AMB, MNRE-PUMA/DEC
5.4	To improve knowledge and capacity of Sanitation Implementing Agencies		5.4.1 Conduct annual surveys to gauge level of compliance and feedback with 2010 National Sanitation Survey as a baseline	X	X	X	X	MNRE-PUMA
			5.4.2 Conduct an assessment of Vaiusu Bay, Apia Harbour/ Fugalei, Asaga, Vaiusu and Mulivai stream to determine level of contamination from leaking septic tanks	X	X			MNRE-PUMA
			5.4.3 Identify and address human resource development needs where relevant	X				MNRE-PUMA/DEC/RED, MOH-HPPSD, MWTI-AMB
5.5	To develop sustainable wastewater and sanitation infrastructure		5.5.1 Construct new public toilets where feasible and upgrade existing public toilet facilities at the Flea Market in Savalalo and possibly Mulinuu.	X	X	X		MNRE-DEC
			5.5.2 Monitor and maintain sludge facilities at Tafa'igata and Vaiaata	X	X	X	X	MNRE-DEC
			5.5.3 Maintain and monitor Public Toilet Facilities					MNRE-DEC
			5.5.4 Model existing sewer network and design expansion of network	X	X			SWA-WWD
			5.5.5 Connect remaining commercial properties within existing service area to the wastewater treatment plant	X	X	X	X	SWA-WWD
			5.5.6 Storm water ingress to sewer network reduced		X	X		SWA-WWD
			5.5.7 Upgrade Wastewater Office		X			SWA-WWD

Strategies to strengthen flood mitigation measures to reduce incidence and magnitude of flooding in the CBD

Action Plan		Timeframe				Responsible Agency	
Ref	Strategy	Actions	2012/13	2013/14	2014/15		2015/16
6.1	To strengthen the enabling environment for flood mitigation initiatives	6.1.1 Develop MOU to clarify roles and responsibilities of LTA, MWTI, MNRE and existing Drains Committee	X				MWTLTD, LTA-PPD, MNRE-WRD/PUMA, Drains Committee
		6.1.2 Develop Flood Management/Mitigation Policy		X			MWTLTD, MNRE-PUMA
		6.1.3 Review Ministry of Works Act 2002 and Public Drains Regulations	X	X			MWTLTD
		6.1.4 Set discharge /run-off standards for the drainage systems to prevent drainage problems like blockages as a result of debris and oil (from restaurants)	X	X			MNRE-PUMA, MWTLTD
6.2	To mitigate flooding incidences within the CBD	6.2.1 Develop drainage design manual	X	X			LTA-PPD
		6.2.2 Undertake routine maintenance of the drainage network within specified zones - Vaitele to Lauli (Eastern/Western) and Apia to Vailima (Northern/Southern)	X	X	X	X	LTA-PPD / Drains Committee
		6.2.3 Expand the perimeter for routine maintenance of the drainage network to other suburban outskirts of the CBD		X	X	X	LTA-PPD / Drains Committee
		6.2.4 Prepare detailed designs for drainage upgrade within the CBD	X				LTA-PPD
		6.2.5 Construct drainage upgrades	X	X	X		LTA-PPD
		6.2.6 Set up a complete Asset Management System/Database for all existing and newly constructed drainage infrastructure	X	X	X	X	LTA-PPD
6.3	To build capacity of Implementing Agencies	6.3.1 Provide Technical Assistance to assist in establishing a complete asset management register for drainage systems in the CBD		X			LTA-PPD
		6.3.2 Recruit qualified staff		X			MWTLTD, LTA-PPD
6.4	To increase public awareness targeting communities with direct impact on the Drainage Network	6.4.1 Implement community drains programme targeting villages of Vaisigano, Lalovaea, Togafuafua, Mulivai, Vaimoso and Lepea		X	X	X	MWTLTD, LTA-PPD, MNRE-WRD/PUMA/DEC, Drains Committee, MWCS
		6.4.2 Design and implement a TV campaign to encourage a 'no pollution' and 'no rubbish' policy in targeted river and drainage systems	X	X	X	X	MWTLTD, LTA-PPD, MNRE-WRD/PUMA/DEC, Drains Committee, MWCS
		6.4.3 Erect signages to warn people not to dump solids and liquids in targeted river and drainage systems	X	X	X	X	MWTLTD, LTA-PPD, MNRE-WRD/PUMA/DEC, Drains Committee, MWCS

Appendix 7: MCC and JWSSC Terms of Reference

Water and Sanitation Ministerial Coordination Committee

Membership:

Minister for MNRE

Minister for MOF

Minister for MOH

Minister for MWTI

Minister for MWCSO

CEO MNRE

CEO MOF

CEO MOH

CEO MWTI

CEO MWCSO

MD SWA

ROLES:

An ad hoc committee established to strengthen political support and engagement in water and sanitation developments.

JWSSC MEMBERSHIP

1. Chair – Independent
2. CEO, Ministry of Natural Resources and Environment (MNRE)
3. CEO, Ministry of Works, Transport and Infrastructure (MWTI)
4. CEO, Ministry of Women Community and Social Development (MWCSO)
5. CEO, Ministry of Agriculture and Fisheries (MAF)
6. CEO, Ministry of Finance (MOF)
7. MD, Samoa Water Authority (SWA)
8. MD, Electric Power Corporation (EPC)
9. CEO, Land Transport Authority (LTA)
10. Water Sector Coordination Unit, MNRE (Coordinator and Secretariat)
11. 3 representatives from the Civil Society (IWSA, SUNGO and Private Sector)

JWSSC RESPONSIBILITIES

The expanded JWSSC will be expected to actively engage in the following activities:

- Provide oversight to the review of the Sector Plan in support of key national policies including National Water Resource Management Policy 2010, National Water Services Policy 2010 and National Sanitation Policy 2009 etc and its implementation;
- Provide oversight on the annual reviews of the Water for Life Sector Plan;
- Endorse annual reviews and any related water activities and programme for onward submission to Cabinet Development Committee and/or Cabinet;
- Provide oversight on the monitoring and evaluation of the Sector Plan and implementation;
- Facilitate consultation with the regional and international agencies and development partners relating to water activities and programmes;
- Provide oversight on national activities for any regional, international water related projects on bilateral or multilateral agreements;
- Review and endorse all national activities before they are processed and implemented;
- Receive and deliberate on documents and reports relating to the Sector Plan and key policies as may be submitted from time to time;

Appendix 8: Sector Stakeholders/Clients or Customers Analysis

Institution	Existing Role	Issues
Government Agencies		
MNRE	Lead agency responsible for secretariat role to JWSSC via WSCU. Responsible for policy guidance, coordination and regulation of all water and sanitation activities including provision of oversight and support services to the local governments and other water supply service providers	Main concerns relate to the limited capacity of key divisions including DEC, WRD and PUMA to effectively prioritise and implement their existing policies and plans. Also raised concern of where WSCU should be appropriately placed within the Ministry given the importance of its role in managing and coordinating the sector.
MWCSD	Facilitates delivery of all water related messages to the communities and also currently monitors and supervises the funds allocated to IWSA for construction and operational costs.	Main concerns relate to the limited technical/engineering capacity within the Ministry to effectively monitor the IWSA programme. The Ministry is currently formulating a proposal to request the shift of IWSA to another more appropriate government agency such as MNRE, MWTI or SWA. Concerns about mixed messages to communities and lack of coordination amongst key government agencies in delivering their messages to the communities. Indicated the current program on "Aiga ma Nuu Manuia" is a good example of integrating the delivery and monitoring of messages relating to water and sanitation education which are currently being actively pursued as an integral part of the drive to improve all aspects of community welfare.
MOH	Promotion of hygiene and household sanitation and monitor water quality of key supply systems (both SWA and IWSA)	Concerns highlighted include the need for additional human and financial resources for both the water quality unit and sanitation unit to effectively carry out their work.
MOF	Mobilisation and allocation of financial resources including coordination of donor inputs and the privatisation process.	Concerns relate to the performance monitoring of the sector and how key agencies such as SWA and LTA who both receive grants and CSO's through the national budget can be effectively monitored.
MWTI	Monitoring and regulation of works, transport and infrastructure related development including water supply and drainages.	Limited to non-existent role in monitoring key agencies under its portfolio. Need to clarify/define its regulatory role/mandate with

		regards to SWA and LTA. Also issue of institutional/HR capacity to take on more active regulatory role
MAF	Planning, coordination and implementation of all agriculture development in the country including irrigation development, aquaculture and livestock development.	Limited to non-existent role in terms of implementing irrigation policies/actions and also need to streamline messages to community to ensure agricultural developments do not impact on the catchments and rivers. Need to work closely with the sector to minimise destruction of water catchment areas and rivers from farming and livestock development. No direct budgetary support in terms of undertaking specific water and sanitation related activities.
MESC	Promotion of sanitation and hygiene education in schools	Role in the sanitation and water policies has been limited and will need to reassess the existing educational curriculum pertaining to water and sanitation in schools. No direct budgetary support in terms of undertaking specific water and sanitation related activities.
Government Corporations		
EPC	Semi-autonomous entity responsible for the delivery of electricity supply including generation of hydropower	Main concerns have been the lack of coordination with key agencies such as MNRE (WRD) and SWA in terms of optimising the use of the available water resources. A more coordinated effort is needed in terms of data collation, analysis and sharing results. EPC supportive of closer working partnership with MNRE (Met office) and Water resources to monitor and share information on water resources including rainfall data.
SWA	Semi-autonomous entity responsible for the delivery of rural and urban water supply and Apia Wastewater Sewerage systems. Approximately 35 river and spring intakes, 10 water treatment plants and 60 reservoirs and tanks and 43 bore supply systems for rural and urban water supply and 1 urban sewerage system.	Main challenges include the need to strengthen the capacity of SWA to operate and maintain its rural and urban water systems with effective information systems. SWA does not have centralised technical information on its assets or accurate data on water production or customers. SWA have also yet to connect all new and old customers to the rural water systems developed under

		WaSSP. An aging water reticulation system in Apia with 70% non revenue water losses and very high consumption result in poor quality service for many customers.
LTA	Semi-autonomous entity responsible for road maintenance including public drains affecting the road reserve.	Main concerns raised include the need for targeted resources to fully implement proper drainage systems within CBD and all of Samoa.
Civil Society and Communities		
IWSA	<p>Registered as an Incorporated Society (NGO) under the Companies Act 2006. Main role is to provide strategic advice and management of the Independent Scheme developments.</p> <p>One of the key Non Governmental Organisations (NGOs) involved in water sector activities have formed a network called the Independent Water Schemes Association (IWSA) for providing strategic services to 33 schemes that are not currently part of the SWA network. Was established with funding from the EU WaSSP in 2008 with continued core funding being provided via MWCSA in the 2009/10 and 2011/12 annual budget.</p>	Main concerns raised include the lack of maintenance and poor designs of newly constructed water supply systems under the sector programme. There is also a need for continuous governance and financial training of village water committees to ensure sustainability of infrastructure being built by the sector.
Plumbers Association	Newly formed organisation with the main goal of providing guidance and establishing standards for national plumbers to ensure consistency in quality and services.	The Plumbers Association of Samoa has recently formed and has drafted a constitution. The Plumbers Association have a goal of becoming the body to register plumbers in Samoa, in much the same way that the Institute of Professional Engineers Samoa (IPES) register Engineers for work in Samoa, however, it will need dedicated resources in order to achieve this goal.
SUNGO	<p>Supplement the public sector efforts and ensure that concerns of the underprivileged/poor are catered for</p> <p>Also provide financial and planning support to CBOs and NGOs who are affiliated with them.</p>	Role in the sector has been limited in recent years following the provision of training and advocacy when IWSA was established. SUNGO is keen to play a more prominent role in the sector especially in terms of public awareness issues relating to demand management, rainwater harvesting, sanitation and hygiene and catchment management. All of these issues require a dedicated participatory approach over a long period of time which NGOs are well suited for. Also willing to provide backstopping support to IWSA as part of their ongoing capacity building programme for

Red Cross	Supplement the provision of water supplies such as water tanks during disasters.	NGOs. Not directly funded under the sector budget support programme. Key stakeholder in terms of their role in disaster management relating to droughts and floods.
Development Partners		
Development Partners (EU, JICA, ADB)	Provide financial resources for implementation of water and sanitation sector activities	Emphasis is placed on the need for more focussed performance measures in the short to medium term given the significant level of financing already committed up until 2015/16 through budget support with EU and the planned JICA project for SWA.
Private Sector		
Contractors, private firms etc.	Valuable resource for design, construction, operation and maintenance of water and sanitation facilities. Also conduct training and capacity building for both government and NGOs. Provision of other commercial services including mobilisation of financial resources for water sector development activities.	Have not yet been directly consulted but preliminary assessment from documents and general feedback indicated a need for more formal and interactive engagement in the sector planning and implementation processes.

Appendix 9: Sector Integrated Management Cycle

