Water for life

Water Sector Plan

and

Framework for Action

(2008/9-2011/12)

"Water is everybody's responsibility"

Preface

Water is life – and the need for equitable and sustainable management of this critical resource in the interests of society as a whole is pivotal in achieving social and economic development, in revitalizing village economies, and in stimulating opportunities. Access to basic services, quality of service delivery, lack of income generating opportunities, and degrading natural resources have all been identified as major issues in hardship assessments in Samoa. By prioritizing investment in water, the Government is seeking to make improvements in public health, to have an impact across its entire development agenda, and to achieve the Millennium Development Goals (MDGs).

This purpose of the *Water for Life* document is to present an achievable and coherent *Sector Plan and Framework for Action* for the period 2008-2011 which is shaped by and responds to Samoa's development agenda. The format for the document is based on guidelines issued by the Economic Policy and Planning Division (EPPD) of the Ministry of Finance (MOF) and reflects the Government's desire to shift to a sector-wide, integrated approach to water management, service provision and other water-related activities.

The document elaborates specific policies, programme priorities and budgetary implications with enough clarity to guide the medium-term development of the sector, and to provide a vehicle of how best to utilize the resources of Government, NGOs, private sector, community representatives, and donor community so as to achieve maximum benefits and impacts. Implementation of the plan will be monitored and evaluated from current baseline conditions through a set of key indicators and milestones.

It is recognized that documents alone will not guarantee results and it is only through the implementation of integrated and targeted action that the desired goals and objectives can be achieved. In this respect, the document aims to reinforce the message that *"water is everybody's responsibility"*.

The *Water for Life* initiative should not be viewed in isolation but rather as a continuing process - with the process itself seen as a central element in stimulating the successful development of a sector-wide approach. The process builds on a wealth of stakeholder consultations, sector assessments and studies, and water-related documents produced over the past decade. More importantly, it has been developed through consultation with key stakeholder groups to arrive at a general consensus on the critical issues and means to address these issues. Implementing agencies were widely consulted regarding their roles and activities that affect the sector. Other government ministries, state owned enterprises (SOEs), academic institutions and non-governmental organizations (NGOs) with interests in the water sector were also involved in the development of the Water for Life document. Consultations for the local communities were held involving representatives from the council of chiefs, women's committees, untitled men's committees as well as village mayors and women representatives for the government.

The *Water for Life* document is a living document and it shall be revisited and updated periodically to reflect progress and ensure it remains in-line with emerging national needs and priorities.

Contact details for the *Water for Life* coordinators

MNRE
Amataga Penaia
Tel. 23 701
Email amataga.penaia@mnre.gov.ws

SWA
Philip Kerslake
Tel. 20 409 ext.44
Email philip@swa.gov.ws

MOH
Andrew Peteru
Tel. 21 212
Email Andrewp@health.gov.ws

MWCSD
Maulolo Leaula
Tel. 23 698
Email maulolo@lesamoa.net

MWTI
Amosa Pouoa
Tel. 21 611 Ext:61
Email: amosa@mwti.gov.ws

EPC
Tile Leia Tuimalealiifano
Tel. 22 710
Email: leiat@epc.ws

PUMA
Tagaloa Jude Kolhase
Tel. 23 986
Email: jude.kohlhase@mnre.gov.ws

MAF
Laisene Samuelu
Tel. 20 605
Email : lsamuelu@lesamoa.net

MOF
Nadia Meredith
Tel. 34 389
Email : nadia.meredith@mof.gov.ws

Abbreviations

ACEO	Assistant Chief Executive Officer
ADB	Asian Development Bank
AG	Attorney General
APM	Assistant Programme Manager (WSMU)
AUSAID	Australian Agency for International Development
CBO	Community Based Organisation
CDC	Cabinet Development Committee
CEO	Chief Executive Officer
CIDA	Canadian International Development Agency
CSO	Community Service Obligation
CSP	Country Strategy Paper (EU)
DAC	Development Assistance Committee
EDF	European Development Fund
EIB	European Investment Bank
EPC	Electric Power Corporation
EPPD	Economic Policy and Planning Division (MOF)
ESP	Education Sector Programme (ADB/NZAID/AusAID)
EU	European Union
FAO	Food and Agriculture Organisation
FY	Fiscal Year
GEF	Global Environmental Facility
GIS	Geographic Information System
GM	General Manager
GOS	Government of Samoa
GSSW	General and Site Supervision of Works (EU)
HSP	Health Sector Programme (WB)
HYCOS	Pacific Hydrological Cycle Observing System (EU/SOPAC)
IA	Implementing Agency
IFI	International Financing Institutions (WB, ADB)
ICT	Information & Communication Technology
IWRM	Integrated Water Resources Management (GEF/SOPAC)
IWS	Independent Water Schemes Incorporated
JAR	Joint Annual Review (Samoa-EU)
JICA	Japanese International Cooperation Assistance
JWSSC	Joint Water Sector Steering Committee
MAF	Ministry of Agriculture and Fisheries
MDG	Millennium Development Goals
MESC	Ministry of Education, Sports and Culture
MNREM	Ministry of Natural Resources, Environment and Meteorology
MOF	Ministry of Finance
MOH	Ministry of Health
MOU	Memorandum of Understanding
MTEF	Medium Term Expenditure Framework
MTR	Mid Term Review (EU)
MWCSD	Ministry of Women, Community and Social Development

MWTI	Ministry of Works, Transport and Industry
NAO	National Authorising Officer
NGO	Non-Governmental Organisation
NRW	Non Revenue Water
NUS	National University of Samoa
NZAID	New Zealand Agency for International Development
OECD	Organisation for Economic Cooperation and Development
PDA	Project Design Assistance Project (EU)
PE	Programme Estimate (EU)
PEAR	Preliminary Environmental Assessment Report
PFM	Public Finance Management
PIA	Programme Implementation Assistance (EU-MWH)
PIB	Project Identification Brief (PSIF)
PIESAP	Pacific Island Energy Policy and Strategic Action Plan (GEF/SOPAC)
PM	Programme Manager (WSMU)
PMA	Programme Management Adviser (WSMU)
PMS	Programme Management Support (EU-DHV)
PPMS	Programme Performance Monitoring System
PRGS	Poverty Reduction and Growth Strategies
PRIDE	Pacific Regional Initiatives for Delivery of Basic Education (EU/USP)
PSIF	Public Sector Investment Facility (NZAID, AUSAID, WB)
PUMA	Planning and Urban Management Agency (MNREM)
RWS-CP	Rural Water Supply – Consolidation Project (EU)
SDS	Samoa Development Strategy
SOE	State Owned Enterprise
SOEMU	State Owned Enterprises Monitoring Unit (MOF)
SOPAC	South Pacific Applied Geo-science Commission (Fiji)
SPMS	Sector Performance Monitoring System
SPREP	South Pacific Regional Environmental Programme
SPSP	Sector Policy Support Programme
SSDP	Samoan Sanitation and Drainage Project (ADB)
SUNGO	Samoa Umbrella for Non-Governmental Organisations
SWA	Samoan Water Authority
SWAp	Sector Wide Approach
TA	Technical Assistance
TL	Team leader
ToR	Terms of Reference
TSC	Technical Steering Committee
UFW	Unaccounted For Water
WaSSP	Water Sector Support Programme (EU)
WB	World Bank
WHO	World Health Organisation
WRD	Water Resources Division (MNREM)
WSMU	Water Sector Management Unit (WASSP)
WSSC	Water Sector Steering Committee (WASSP)

Table of Contents

List of Figures

CHAPTER 1: INTRODUCTION

1.1 Background

The National Vision is "*For every Samoan to achieve a better quality of life*". Samoa has achieved significant progress over the past decade. Economic performance has achieved positive results and social indicators have shown promising improvements. Despite this, there are signs that inequalities may be increasing for selected groups and significant challenges remain.

Strategies to reduce hardship and increase opportunities cannot ignore the people's vital requirements for water, and the need for equitable and sustainable management of this critical resource in the interests of society as a whole. Access to basic services, quality of service delivery and lack of income generating opportunities have all been identified as major issues in recent assessments of hardship and poverty in Samoa. The role of water is undeniable in alleviating such constraints and in stimulating opportunities to revitalize village economies.

By prioritizing investment in water, the Government is seeking not only to pursue improvements in public health but also to have an impact across its entire development agenda. Improved water resources management and access to water supply and sanitation are intrinsically linked with the achievement of each of the Millennium Development Goals (MDGs), with those who are most vulnerable often benefiting the most.

The MDGs set out in the United Nations Millennium Declaration of September 2000 represent a global commitment to overcome poverty and hardship and to address many of the most enduring failures of human development. The MDGs include a global target of '*halving by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation*'.

The social, economic and environmental benefits of improved water resource development and management extend well beyond direct public health benefits alone and contribute to a much wider development agenda.

1.2 Water as a sector

The water sector has been defined to comprise 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.

Samoa's water sector is at a critical stage of development - as it moves away from a *business as usual* approach toward a S*ector-Wide* Approach (SWAp). Commitment to common action based on a unified sector-wide approach has gained endorsement and forms one of 14 sectors under the Government's sector planning initiative. The foundations for change build on a wealth of stakeholder consultations, sector assessments, technical studies, and water-related documents produced over the past decade.

The sector-wide approach embracing all aspects of water resource management, water use and wastewater is relatively new. Catalyzing change and setting development within an integrated framework and promoting the principles and practice of Integrated Water Resources Management (IWRM) will be a gradual process to mature over the coming years. In parallel with this, the implementation of the SWAp must also translate into tangible results in health improvement, environmental sustainability, and reduced inequalities.

The SWAp in Samoa already builds on a wealth of stakeholder consultations, sector assessments and studies. Moreover, it has been developed through wide consultation under the *Water for Life* process as a means to establish common understanding and to stimulate debate/discussion among the many different actors. Major consultations were undertaken during 2005/06 and supplemented through thematic discussion sessions. Feedback and comment from these consultations have been included as updates and additions in this latest version of the *Water for Life* document, which now serves as a basis for a consensus on the way forward.

1.3 Purpose of this document

The purpose of this *Water for Life* document is to present an achievable and coherent *Sector Plan and Framework for Action* for the period 2008/09-2011/12 which responds to Samoa's development agenda. The format for the document is based on guidelines issued by the Economic Policy and Planning Division (EPPD) of the Ministry of Finance (MOF) and reflects the Government's desire to shift to a sector-wide, integrated approach to water management and service provision issues.

The *Water for Life* document elaborates specific policies, programme priorities, and budgetary implications to guide the medium-term development of the sector, and to provide a vehicle to clarify how best the resources of Government, Non-Governmental Organization (NGOs), private sector, community representatives, donor community and other stakeholders can be utilized to have the greatest possible impact. Implementation of the plan will be monitored and evaluated from the current baseline conditions through a set of key indicators and milestones.

The challenge for Government, and indeed all stakeholders, is to put the sector plan into implementation. It is recognized that documents alone will not guarantee results. It is only through the implementation of integrated and targeted action that the desired goals and objectives will be achieved and in this respect the document aims to reinforce the message that "*water is everybody's responsibility*".

The *Water for Life* document should not be viewed in isolation but rather as a continuing process, including periodic updates to become a rolling plan - with the process itself seen as a central element in stimulating the successful development of a sector-wide approach.

CHAPTER 2: SETTING FOR THE WATER SECTOR

2.1 Water and development

Freshwater is a finite and precious resource. Water sources are under threat from human activities resulting from industrial waste, agricultural chemicals and livestock practices and inevitably lead to the degradation of quality of surface, ground, and near-coast waters. This decrease in water quality has implications not only for resource availability and human health but also for vital eco-systems.

Shifting demographic trends, changing lifestyles and economic development bring increasing pressure on scarce water resources. Climate change is and will continue to exacerbate these pressures and capacities are essential to cope with and adapt to climate change and climate variability. Water security is perhaps most critical at household level, but reliable supplies are also needed for agriculture, industry and energy production. The allocation of water between different users needs to be managed to minimize conflicts and to maximize gains.

To ensure sustainability in the system and to target incentives to achieve efficiencies, water must first be acknowledged as an essential resource to the functioning and preservation of vital eco-systems. There is a great challenge to protect these systems whilst also extending the health-giving and productive properties of freshwater resources equitably and efficiently among communities and sectoral interests.

The principles of sustainability are encapsulated in the concept of IWRM which can be defined as a process which promotes the co-coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. Implementation of IWRM principles requires all dimensions of water-related policy and management to be supporting a coherent set of sector goals through the application of a compatible set of principles and good practice. At a sector-level, consideration needs to be given to a wide range of issues now considered essential for effective water resources management including: institutional and management; social; economic and financial; environmental; information, education and communications; and technological.

The implications of adopting a broad strategic, sectoral approach to water cannot be underestimated and it requires activities at the macro-level (integrated water resources management, water policies, legislation, institutional change) to be integrated with those at the micro-level (user group participation, community-level operation and maintenance, subsidiarity).

Putting integrated water resources management into practice relies on Government, private sector and communities taking appropriate roles. Broader involvement by these stakeholders is essential and requires capacity building and resource mobilization to enable each stakeholder to play their appropriate role. In addition, transparent and participatory decision-making processes are essential in balancing needs across different stakeholder interests, with trade-offs and difficult decisions often inevitable.

When these principles and concepts are successfully applied, the benefits can be high not only for the individual but for society as a whole. Social, economic and environmental benefits are linked, for example, to the achievement of all eight MDGs. The main MDG relating to the water sector is MDG number 7 which aims to:

"Halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation"

Moreover, improved drinking water and sanitation will have a positive impact on the achievement of all MDGs have, which is further elaborated in the Table 1 hereunder.

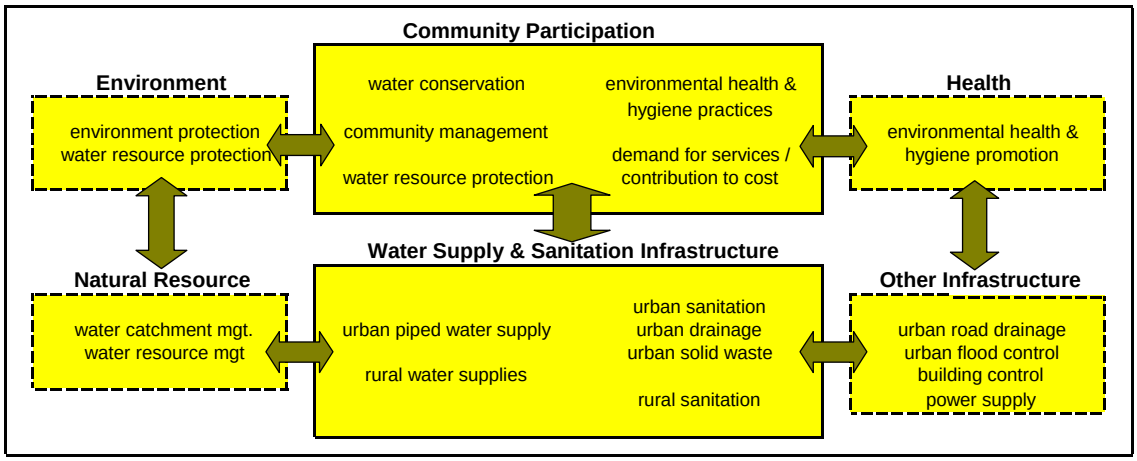
Figure 1Contribution of improved drinking water and sanitation to the MDG goals

MDG GOALS	Contribution of improved drinking water and sanitation
Goal 1: Eradicate Extreme Poverty and Hunger	• The security of household livelihoods rest on the health of its members; adults who are ill themselves or must care for sick children are less productive. • Illnesses caused by unsafe drinking water and inadequate sanitation generate a high health costs relative to income for the poor. • Healthy people are better able to absorb nutrients in food than those suffering from water-related diseases, particularly helminthes, which rob their hosts of calories. • The time lost because of long-distance water collection and poor health contributes to poverty and reduced food security.
Goal 2: Achieve Universal Primary Education	• Improved health and reduced water-carrying burdens improve school attendance, especially among girls. • Having separate sanitation facilities for girls and boys in school increases girls' attendance, especially after they enter adolescence.
Goal 3: Promote Gender Equality and Empower Women	• Reduced time, health and care-giving burdens from improved water services give women more time for productive endeavors, adult education and leisure. • Water sources and sanitation facilities closer to home put women and girls at less risk of assault while collecting water or searching for privacy.
Goal 4: Reduce \Child Mortality	• Improved sanitation and drinking water sources reduce infant and child morbidity and mortality.
Goal 5: Improve Maternal Health	• Accessible sources of water reduce labor burdens and health problems resulting from water portage, reducing maternal mortality risks. • Safe drinking water and basic sanitation are needed in health-care facilities to ensure basic hygiene practices following delivery.
Goal 6: Combat HIV/AIDS, Malaria and Other Diseases	• Safe drinking water and basic sanitation help prevent water-related diseases, including diarrhoeal diseases, schistosomiasis, filariasis, trachoma and helminths.
Goal 7: Ensure Environmental Sustainability	• Adequate treatment and disposal of wastewater contributes to better ecosystem conservation and less pressure on scarce fresh water resources. Careful use of water resources prevents contamination of groundwater and helps minimize the cost of water treatment.
Goal 8: Develop a Global Partnership for Development	• Development agendas and partnerships should recognize the fundamental role that safe drinking water and basic sanitation play in economic and social development.

2.2 Water sector linkages

In developing the *Water for Life: Sector Plan and Framework for Action*, strategies and actions need to consider the importance of cross linkages between infrastructure and non-infrastructure aspects including natural resource and environmental management, health and hygiene promotion, water supply and sanitation infrastructure, and community participation and behavior. Given these inter-linkages and complexities, *water* is best tackled as a sector with all aspects of water resources management and water services brought together under a single action programme.

Figure 2 Cross-linkages in the sector



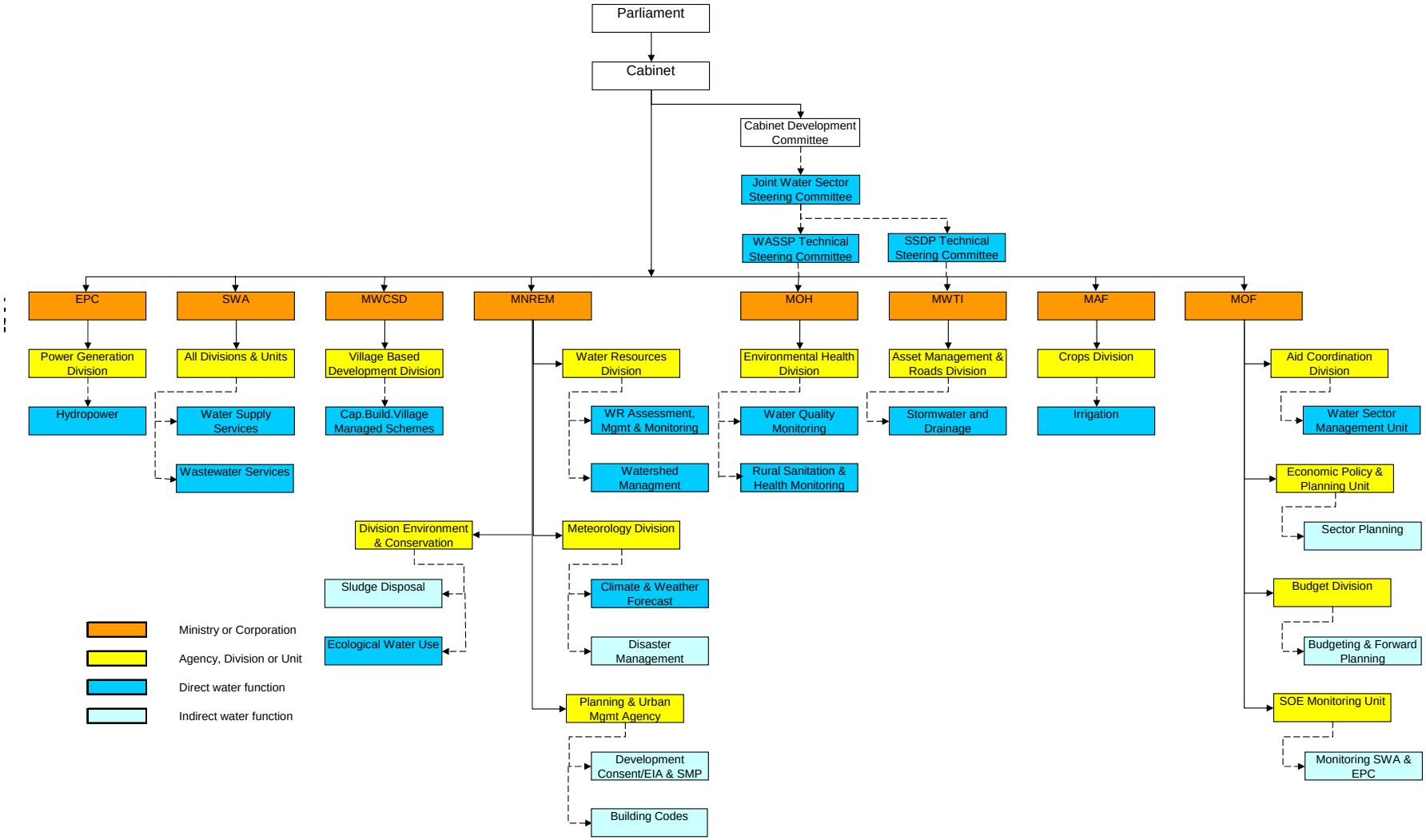
2.3 Organizational setting

The unique organizational setting for the water sector, with no single agency having responsibility for all aspects of water management and development, brings many challenges in relation to sector co-ordination and integration. An overview of the water organization is presented in the figure on the next page.

The **Cabinet Development Committee** (CDC) main tasks are to review policy issues affecting the economic sectors and their macro-economic implications; to appraise, approve and monitor the progress of development cooperation programmes; and to approve all development projects. The Economic Policy and Planning Division (EPPD) within MOF serves as the secretariat to the CDC.

The **Joint Water Sector Steering Committee** (JWSSC) is responsible to guide sector policy and planning processes; mobilize support across sub-sectors and interest groups; guarantee quality output; monitor water policy and programme implementation at a sector-level; address key risks to sector progress and development; review and approval of Water for Life document, Medium Term Expenditure Framework (MTEF); appraise general progress and planning of individual water projects and address serious and/or structural constraints in project implementation; review and approve individual water projects' (pre-)appraisal reports, financing agreements, annual work programmes, mid-term and final evaluation; and endorse Technical Assistance (TA) inception and final reports. As yet, the JWSSC is a multi-project related organization and not formally mandated and established as a permanent apex body.

Figure 3Water Sector Organization (Ministries and Corporations)



The **Technical Steering Committees**, currently in existence for Water Sector Support Programme (WASSP) and Samoa Sanitation and Drainage Project (SSDP), are responsible to review and approve annual planning documents for the relevant project and its components; review technical progress versus planning for the relevant project and its components; review financial progress (commitment vs. disbursement) versus planning for the relevant project and its components; review and approve expert inputs (Terms of References) and outputs (technical reports); review and approve TA inception and final report; identify problems and recommend solutions; and forward serious and/or structural problems to the JWSSC for review

The **Ministry of Natural Resources, Environment and Meteorology** (MNRE) through the Water Resources Division (WRD) is responsible for water resource management and includes policy and regulation, watershed management, hydrological and hydro-geological investigation, and water quantity monitoring. MNRE through the Planning and Urban Management Agency (PUMA) is to implement a framework for planning the use, development, management and protection of land. The Meteorology Division's main tasks include to meteorological, climatological and geophysical/seismic monitoring. The responsibilities of the Division of Environment and Conservation (DEC) include securing environmental/ecological water use and the safe disposal of sludge from septic tanks and the planned wastewater treatment plant in Apia.

The **Ministry of Health** (MOH) through its Environmental Health Division is responsible for water quality monitoring, inspection and investigation of water safety issues, and also has responsibilities for surveillance of water company supplies. MOH has a regulatory role for water quality management and sanitation, the details of which are expected to be outlined in the Public Health bill (2008).

The **Ministry of Women, Community and Social Development** (MWCSD) through its Internal Affairs Division, is facilitating in the provision and improvement of water supply and sanitation services in Village Managed Schemes (VMS), and assisting MNRE in water resources management at community level.

The **Ministry of Works, Transport and Infrastructure** (MWTI) through the Asset Management and Roads Division is responsible for drainage and storm water management, especially in relation to the development of road infrastructure and power lines.

The **Ministry of Agriculture and Fisheries** (MAF) through its Crops division is responsible for the promotion, and sustainable development and management of irrigation services, and is to assist MNRE/WRD in the prevention and monitoring of uncontrolled clearance of forests for agriculture in watershed areas.

The **Samoa Water Authority** (SWA) is the national service provider of water supply and more recently for sanitation, sewerage and wastewater treatment. SWA provide services to about 80% of the population. A further 15% of water supplies are provided by independent Village Water Committees and the remaining 5% rely on rainwater harvesting and local springs. The SWA also monitor their own water supplies and have a water quality laboratory to support these activities.

The **Electric Power Corporation** (EPC) through the Hydropower Division is responsible for the generation of hydropower.

The **Ministry of Finance** (MOF) has no direct responsibilities relating to water. However, indirect responsibilities include sector planning (Economic Planning and Policy Division),

budgeting (Budget Division), monitoring EPC and SWA (State Owned Enterprise Monitoring Unit), and development cooperation (Aid Coordination and Debt Management Division).

Other important water related organizations outside the public sector, and not presented in the figure include:

The **Independent Water Schemes** Inc. (IWS), recently established in 2007, has as its mission to manage and maintain all independent or community managed water schemes through its partnership with Government and Non-Government stakeholders.

The **Samoa Umbrella for Non Governmental Organizations** (SUNGO), thanks to its wide NGO and Community Based Organizations (CBO) network of members, is a preferred contractor under WASSP (EU) for the provision of technical services related to awareness raising and capacity building of local communities and women groups, in particular with respect to water services capacity building of independent or community managed schemes (Component 2b). SUNGO is also a member of the Joint Water Sector Steering Committee.

The **private sector** has a significant and increasing number of companies active in the water sector. These range from consultants and contractors to companies producing bottled water. Furthermore, septic tank collection is outsourced to the septage pump-out operators. Most of these companies are member of the Samoan Chamber of Commerce and Industry, which has a seat in the Joint Water Sector Steering Committee.

CHAPTER 3: A VISION FOR THE WATER SECTOR

3.1 National goals and objectives

The National Vision is:

> ***"For every Samoan to achieve a better quality of life"***

In achieving this vision, the national development agenda reinforces the need for good governance, a stable macro framework, efficient and effective service delivery, and sustainable natural resource management. The 2005-2007 Strategy for the Development of Samoa (SDS) emphasizes the theme of enhancing people's choice underpinned by sustainable economic growth that is equitable and improves the health, education and well-being of everyone.

Government has given a high priority to water-related activities and addressing water sector needs under a single, sector-wide approach paves the way for a more focused, strategic and sustainable programme of water-related actions to support achievement of the overall country policies and strategies.

3.2 National water policy

A number of challenges and concerns that need to be addressed by Samoan water policy makers are summarized in the table hereunder.

Figure 4Identified problems and concerns

Challenges and concerns	
• Climate change and variability • Fragmented control, management and protection of water resources • Competing and conflicting demands for water resources by users (both consumptive and non-consumptive users) • Insufficient knowledge and understanding of water resources nationwide; • Social and environmental impacts of development proposals particularly abstractions are usually ignored • Poor water quality • Excessive demand on water supply • Lack of community understanding and appreciation of responsible water management • Limited community involvement in water resource management • Deteriorating water quality and quantity at supply sources	• Highly variable and often inadequate levels of service to water users • High levels of leakage and unaccounted for water at system and household levels • Low levels of cost recovery and non-financially viable operations • Excessive water demand and usage by users • Lack of available and relevant technical skills and capacity • Insufficient knowledge and understanding for planning and management • Inadequate attention paid to wastewater disposal and sanitation measures • Inadequate appreciation of responsible water management and use by users • Limited community involvement in water service planning, management and delivery • Uncoordinated development across sub-sectors

In response to these challenges and concerns, the Government has continued to develop and strengthen its policy in the water sector based on recognized good practice, and consistent with policies of the international development community. A National Water Resources Policy (NWRP) was endorsed by Cabinet in July 2001 and a review and update to the policy published subsequently in 2004. Further policy work has focused on establishing a complementary policy for water services resulting in a draft National Water Services Policy (NWSP) in 2005. And more recently the CDC approved a National Water Resources Strategy (NWRS) in 2007 and the preparation of the Water Resources Bill in 2008.

National water policy and strategies support the implementation of the national vision and is guided by the overall goal:

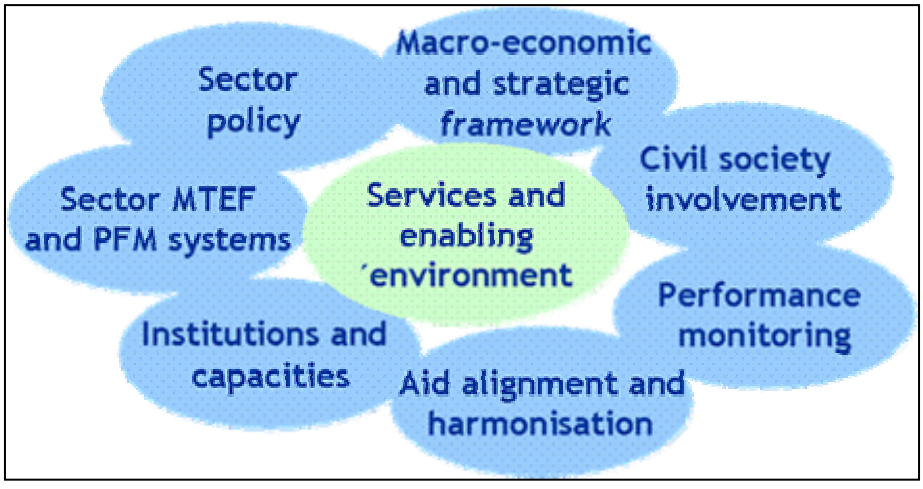
> ***"Ensuring community access to water of suitable quality and appropriate quantities to meet all reasonable health, environmental, and economic development needs"***

The national water policy and strategy documents are mutually reinforcing and are intended to address priority concerns in the short- to medium-term. The policy also provides an agreed framework for action but implementation has until recently been hampered by a lack of financial and human resources, rather than a lack of political will for progress.

3.3 Adopting a sector-wide approach

The sector wide approach (SWAp) is a method of working between Government and donors and an approach in which all significant funding for the sector supports a single sector policy, strategy and expenditure plan under Government leadership, adopting common approaches across the sector, including for performance monitoring, and progressing towards relying on Government procedures to disburse and account for all funds. These main elements of sector programmes are presented in the figure below.

Figure 5 Typical elements of sector programmes



The move from a project-based to a sector-based approach requires improved coherence between policy, budgeting and actual results. The approach broadens the notion of impact beyond the scope of one project or programme and focuses on the combined impact of coordinated initiatives from Government, donors and other important private sector and NGO stakeholders. These co-coordinated efforts are made on the basis of objectives set by the sector plan and in the framework of a coherent public sector expenditure programme. Perhaps the most important feature of the approach is that it brings the sector budget back to the centre of policy-making and unifies expenditure programming and management, regardless of the source of funding.

The potential benefits of the SWAp include greater ownership, improved efficiency, better management of resources and greater development impact. Nevertheless, there are important challenges in developing and implementing Sector Programmes that must be addressed in any sector plan and these are included as part of the overall plan.

CHAPTER 4: SECTOR PERFORMANCE & ASSESSMENT

This chapter addresses the performance of the water sector and achievements measured against anticipated policy outcomes and targets. It presents a snap-shot of "*where we are now*" and assists in identifying what needs to be achieved to get to "*where we want to be"*.

The performance assessment presented herein is rather *ad hoc* as no compilation of good baseline data for the entire sector has previously been compiled. Improved sector performance monitoring and reporting, based on clear targets and indicators, must therefore be a priority in any future strategy.

4.1 Public health improvement, poverty reduction and gender

4.1.1 Public health improvement

The National Task Force on the MDGs completed its first report on the situation analysis of Samoa in 2005. Progress in the achievement of the MDGs showed overall that most if not all of the goals are on target to be achieved by the year 2015. As noted in the introduction, water-related activities contribute to the achievement of all eight MDG targets. It can therefore be assumed that by prioritizing investment in water and sanitation the Government has contributed to improvements not only in public health but also across its entire development agenda.

Unsafe water supply, lack of sanitation and poor hygiene are universally acknowledged to have major negative impacts on public health and high economic costs to the nation, with the associated costs to the individual proportionately higher for those in the low income bracket. The World Health Organization (WHO) has estimated that the proportions of diarrhoeal disease that may be related to different factors are:

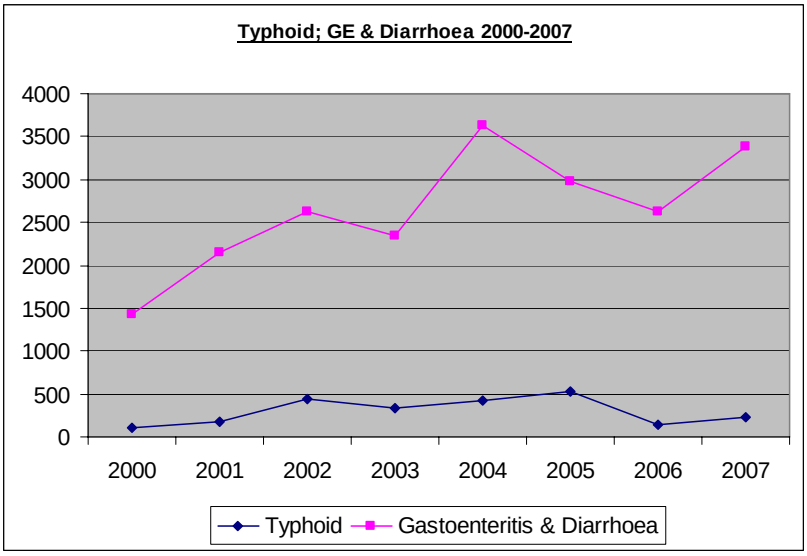
- 88% of diarrhoeal disease is attributed to unsafe water supply, inadequate sanitation and hygiene.
- Improved water supply reduces diarrhea morbidity by between 6% and 25%, if severe outcomes are included.
- Improved sanitation reduces diarrhea morbidity by 32%.
- Hygiene interventions including hygiene education and promotion of hand washing can lead to a reduction of diarrhoeal cases by up to 45%.
- Improvements in drinking-water quality through household water treatment, such as chlorination at point of use, can lead to a reduction of diarrhea episodes by between 35% and 39%.

There are different categories of water-related diseases - waterborne (organism transmitted to people by water - e.g. cholera), water privation (due to inadequate water for washing etc - e.g. trachoma) and water associated (more common near water e.g. dengue or malaria where the vector breeds in water). These categories can overlap - e.g. typhoid can be waterborne or due to water privation (poor hygiene leading to increased person-to-person contact via the faecal-oral route); it can also be food-borne or transmitted person-to-person even where the water supply is adequate. Multi-pronged public health interventions to tackle these problems are therefore essential as it will be difficult to attribute any observed improvement to a particular intervention.

At present in Samoa, one person in 600 each year is affected by water-related disease to the extent that they require a hospital visit. As discussed above, direct links to the cause cannot

necessarily be obtained from such statistics, and therefore they need to be interpreted with some caution.

Figure 6Water-related health statistics



Source: Ministry of Health (2008)

It is estimated however that many more people suffer from the effects of waterborne diseases than appear in the statistics. For those living in the rural areas, traveling to Apia to visit the hospital/doctor (and then being recorded as a statistic) is the exception rather than the rule. The cost to low income families of travel is high and results in many hours of productive work loss. As such, it may also be uncertain as to how many child mortalities (directly or indirectly) may result from water-related diseases.

4.1.2 Poverty reduction

In the latest World Bank (WB) country profile, Samoa is described as a low middle income country with a capita income of 2020 USD per year. A usual method to quantify poverty is the consider persons with less then 1USD per day as below the poverty line. However, national census and survey data in Samoa do not give a clear answer about how many people live in poverty.
In the 2004 UNDP human development index, Samoa ranks 75 among 177 ranked nation states (2004 UNDP human development index). The index combines the data on longevity (life expectancy at birth), literacy and income per head. This development status is equal to Thailand (76), Saudi Arabia (77), and Brazil (72). Within the Pacific region, Fiji ranks 81 and Solomon Islands 124.

National Census 2001 and 2006
The only information from the national census of 2001 and 2006 coming close to identifying and quantifying poverty relates to the employed population by annual salary and region.
Unfortunately, as the census presents only data on salary earners rather than to income earners, and as it does not include aggregated income data on household level, only tentative conclusions can be drawn on poverty levels in Samoa.

Figure 7Geographical distribution of annual salaries per employed person

	Average salary (SAT)		%	% < avg salary 2500		%
	2001	2006	increase	2001	2006	decrease
Total Samoa	9,351	12,963	39%	29%	16%	13%
Apia Urban Area	11,266	15,972	42%	23%	9%	14%
NW Upolu	8,665	12,267	42%	32%	16%	17%
Rest of Upolu	7,741	10,017	29%	30%	25%	6%
Savaii	6,935	10,922	57%	37%	22%	15%

Source: Census bureau, 2001 and 2006 census

Overall, the number of formally employed persons with salaries has increased from 24,206 persons in 2001 to 38,297 in 2006. The average salary level per employed person has increased in the period by 39% from 9,351 SAT to 12,963 SAT. in 2006, the Apia Urban Area has by far the highest average salary (almost 16,000 SAT), the rest of Upolu and Savaii have the lowest averages (between 10,000 and 11,000 SAT). However, the situation in Savaii has improved significantly with an increase of 57% between 2001 and 2006. In terms of poverty, the table shows that the number of employed person with salary levels of less than 2,500 SAT per year has decreased with 13 percent points (from 29% to 16%). While the Apia Urban Area continues to have the lowest poverty levels, NW Upolu and Savaii show the fastest decrease in poverty with 17 and 15 percent points. The rest of Upolu now has the highest poverty level with 25% and has benefited least with a decrease of only 6% against the overall decrease of 13 percent points between 2001 and 2006.

National Household Survey 2002

The 2002 household survey provides more detailed information about poverty (see the table below) among Samoa's 103.587 income earners (salaried and non-salaried). The poorest groups of income earners in Samoa are from the categories fishermen and farmers and others (informal sector). They live at subsistence level with quite low annual income levels. Like the census, the household survey does not reveal the actual situation per household or per capita.

Figure 8Geographical distribution of income earners

	Total Income earners > 15		Farmers and fishing men		Others	
	No. of persons	Avg Annual Income (SAT)	No. of persons	Avg Annual Income (SAT)	No. of persons	Avg Annual Income (SAT)
Total Samoa	103,587	2,168	21,032	2,281	17,193	51
Apia Urban Area	23,197	4,330	875	358	3,891	130
NW Upolu	31,515	2,050	6,073	1,697	4,678	18
Rest of Upolu	23,739	1,389	6,581	4,057	3,758	56
Savaii	25,135	1,054	7,539	1,159	4,865	0

Source: Census bureau; Household survey, 2002

The widely accepted poverty level of 1 USD per day is equivalent to approximately 900 SAT per year. The average annual income of all income earners in the Rest of Upolu (1,389 SAT) and in Savaii (1,054 SAT) is just above this poverty line of 900 SAT. However, the lowest levels of income are found within the large groups of Farmers and Fishing men (21,032 persons) and in Others (17,193 persons). The average income of 51 SAT for the category of Others means that all live well below that poverty line. Similarly, probably all Farmers and Fishing men in the Apia Urban Area (875), the big majority in Savaii (7,539), and a significant number in NW Upolu (6,073) live below the poverty line.

SSDP Household budget expenditure survey

According to a household budget expenditure survey commissioned by the ADB-funded SSDP project in 2002, the urban population of Apia, 20-30% of the urban population in Apia had an income level of less then 1 USD per day per capita. The 3 percentile 867 SAT divided by 7 persons over 30 days would result in 4.1 SAT per day, equivalent to approximately 1.3 USD (see the table below.

Figure 9Household affordability in Apia

Table 8 Household Affordability

Income Decile	Average Monthly Income[3]	Average Water Use (lcd)[4]	Average Water Use (m^3/day)	Monthly Water Charges	Monthly Env. Charges	Combined Water & Env. Charges	% of Combined Charges to Income
1st decile	303	100	0.72	3.30	0.77	4.07	1.34%
2nd decile	615	200	1.44	14.10	3.28	17.38	2.82%
3rd decile	867	250	1.80	19.50	4.54	24.04	2.77%
4th decile	1,135	300	2.16	24.90	5.79	30.69	2.70%
5th decile	1,443	350	2.52	31.93	7.05	38.98	2.70%
6th decile	1,720	400	2.88	39.17	8.31	47.47	2.76%
7th decile	2,063	450	3.24	46.40	9.56	55.97	2.71%
8th decile	2,674	500	3.60	53.64	10.82	64.46	2.41%
9th decile	3,831	550	3.96	60.88	12.07	72.95	1.90%
10th decile	6,626	600	4.32	68.11	13.33	81.44	1.23%
Overall Average	**2,128**	**208**	**1.50**	**15.00**	**3.49**	**18.49**	**0.87%**

Source: Household budget expenditures survey 2002. Report SSDP tariffs.

4.1.3 Gender

Women in Samoa play a central role in the provision, management, and safeguarding of water at all levels. At community level, traditionally women play a huge role in ensuring family and community cohesion. Women are key on issues like health and hygiene. Though women and children are the most affected groups in terms of water usage, women so far have little involvement in water management issues. Women should play a more active role in the sustainable management of water resources. As role models women's roles and capacities in water management issues should be strengthened. One of the possible means to achieve this is through the Village Women Committees who should become more actively involved in planning, policy and decision-making processes. The Women in Business Project funded by NZ-AID and Oxfam is well positioned to assist in the further enhancement of the position of women in the management of the water sector at local level.

At national level, a number of prominent women play an important role in the management of the water sector. The Ministry of Health and the Ministry of Women, Community and Social Development have female Ministers and CEOs. Similarly, the CEO of the Ministry of Finance and the President of the Independent Water Schemes Inc. are women. Also, the Samoa Umbrella of Non-Governmental Organizations (SUNGO) is led by women through the positions of President and CEO. It is these women who perform role models for the further improvement of women in Samoa society but also for the sustainable management of the water sector.

4.2 Institutional context and sector orientation

4.2.1 Institutional and management capacity

Legal and regulatory framework
A number of legal and regulatory assessments of water and environmental legislation have been undertaken but many recommendations to rectify concerns remain outstanding. In 2001 a comprehensive review of the Water Authority Act and the Water Act was undertaken as part of an Australian Aid-funded Institutional Strengthening Project in the SWA. An updated Water Authority Bill was subsequently enacted in 2003. A Water Resources Management Strategy was issued in 2007. Whilst policy development has received relatively high priority the enactment of suitable up-to-date legislation is lagging behind. Drafting and preparation of new water-related legislation needs to overcome the current contradictions and deficiencies. Replacing the antiquated Water Act (1965), a Water Resources Bill was drafted and enacted in 2008. Still, the water supply and sanitation sub-sectors do not have one particular Ministry mandated to formulate policies and related regulatory framework. Furthermore, and in order to improve the economic and financial performance of SWA, a more effective regulation is called for in terms of tariff setting and structure. These and the drafting of a revised Water Services Bill will be the main challenges for the first few years of the Sector Plan implementation, along with the issuance of National Drinking Water Quality Standards (NDWQS).

National Water Council
Currently, there is no Water Sector Apex Body that coordinates policy formulation and regulatory roles for all of the water functions. Due to the absence of an appropriate policy and legal framework, which would support the establishment of this type of administrative body, the control over the management of water resources is fragmented. However due to the unprecedented level of activity in the water sector, the MOF has established a Water Sector Management Unit (WSMU) to coordinate internal and external funding support for the water sector. The WMSU reports to the Joint Water Sector Steering Committee (JWSSC), an informal and interim arrangement mechanism composed of the CEO's of relevant government departments, for the purposes of sector coordination (See also Section 2.4). The JWSSC comprises as core members the CEOs from MOF, MNRE, MAF, MWCSD, MWTI, MOH, SWA, EPC, Chamber of Commerce & Industry and SUNGO. The establishment of a permanent Water Sector Apex Body will be investigated during the initial years of the planning period.

Government ministries and SOEs
Progress with implementation of the national water resources policy has been limited and in the past has been hampered by a lack of a dedicated focal point for water resources management within the Ministry of Natural Resources and Environment (MNRE). The recent reshuffle of departments and the establishment of the Water Resources Division within MNRE have created the conditions for improved water resources performance and coordination with other key stakeholders. In terms of capacity building MNRE has been benefiting from recent technical assistance projects. Ongoing IWRM related projects (WASSP, Hycos, IWRM) continue to provide necessary capabilities. A number of pipeline technical assistance projects (e.g. IWRM Planning and Programming) and the continued support from the EU to the sector can secure further improvement of capabilities. Provided that these projects and initiatives are properly coordinated, and that sufficient staff resources are provided for, the absorption capacity of the WRD division may not pose a significant risk for the proper use of anticipated funds for water resources management.

Water quality management activities within MOH are of a recent date, the WASSP currently supporting the development of its staff capabilities, while additional capacity building services are provided by SOPAC and WHO. However, MOH water quality staff is recently recruited and is still limited in staff numbers. In addition, MOH does not have its own water quality laboratory and is dependent on the laboratory services provided by SWA. In order to carry out its functions properly, the capabilities of the MOH water quality unit have to be significantly expanded, and a JWSSC decision to establish a suitable laboratory for water quality within MOH still has to be endorsed by Cabinet. Until that time, the limited absorption capacity will be a potential risk for the proper use of anticipated funds for water quality management. However, a major challenge for the first few years of the planning period will also comprise the drafting and approval of National Drinking Water Quality Standards (NDWQS).

SWA is responsible for the provision of piped water supply services, and new rural infrastructure has been provided over the years (Institutional Strengthening Project, Rural Water Supply, Rural Water Supply Consolidation Project), and is expected to be provided in the planning period (WASSP, and WASSP-2). The organization is already facing technical and financial problems in its operation and maintenance of existing water supply infrastructure, and the new infrastructure is expected to exacerbate these problems. Furthermore, with the start of the SSDP, the SWA has also recently embarked on sanitation, sewerage, wastewater treatment services and sludge disposal facilities, the latter in close cooperation with the WASSP. The organization is expected to encounter additional difficulties in its overall performance. In the face of these increased volume of tasks and infrastructure, the absorption capacity of SWA to perform its duties comes into question, as it creates a risk to the effective use of the anticipated funds for water supply and sanitation. Therefore, the main challenge for the first few years of the planning period will be to assess the existing institutional framework for water supply and sanitation services for Samoa's urban and the rural areas to include the complementary roles of SWA and the recently established IWSA, and the feasibility of outsourcing some of SWA O&M tasks to the private sector.

Private sector and non-state actors

In-line with government reforms, there is an increasingly active private sector with a growing track record in the implementation of both local and international projects. Traditionally, private sector capacity in the water sector has been limited but it is now starting to respond to opportunities and is gaining in both experience and breadth. Local private sector capacity has been utilized in water system design, supervision and construction on a number of domestic projects (e.g. Lefaga and Tiavea), international projects (e.g. Rural Water Supply Project, RWSP, SSDP and WASSP), and specialist consultancy studies. It is anticipated this will grow as more opportunities are made available and should enable the SWA to concentrate on a more strategic role in water services provision. In addition, an assessment will be carried out to determine the feasibility of outsourcing a number of O&M functions to private sector contractors. MNRE has also made advances in the outsourcing functions and moving toward public private partnerships (PPP) in delivering some of its services.

The NGO and NSA sectors are active in a number of areas associated with the water sector including health and hygiene promotion, small-scale water provision, and the environment. NGOs and NSAs have been actively involved in the definition phases for recent projects and programmes and it is notable that the Public Relations Unit of the SWA is increasing its activities accordingly. Community/beneficiary involvement is received increasing attention in the areas of planning and implementation of water services and government has progressively included NGOs and communities in consultative processes on policy decisions of its various Ministries and Corporations. The NGO sector view these developments and trends as extremely positive and foresees a growing role for its members, albeit with a strengthening of capacity where required.

A clear example of the increased involvement from NGOs and NSAs has been the recent establishment and development of the Independent Water Schemes Inc. in order to increase access to improved water and sanitation services for all schemes not covered under SWA.

4.2.2 Sector orientation

Water sector co-ordination

A large number of 'committees' are convened for water-related tasks, including policy development, project guidance, and performance monitoring. Most have a common set of core members and provides for an informal mechanism for sector co-ordination.

The establishment of a Joint Water Sector Steering Committee (JWSCC) as a high-level steering committee for all key activities is helping to strengthen co-ordination efforts, to ensure that synergies are maximized, and to minimize overlaps and duplication. The JWSSC, meeting on a quarterly basis, provides a balance across stakeholder interests including the private sector and NGOs. The JWSSC is supported by the Water Sector Management Unit (WSMU) which provides technical secretariat functions to the committee. Based within the Ministry of Finance (MOF), the WSMU draws together core functions across various divisions (e.g. EPPD, Aid Coordination and Debt Management, Budget, SOEMU) in support of the sector-wide approach. An important challenge for the first few years of the planning period will be the investigation and possible establishment of a permanent Water Sector Apex Body.

The main water related projects are being supervised by Technical Steering Committees (TSC), like WASSP (EU) and SSDP (ADB) in which all the main stakeholders are represented. These TSCs meet on a monthly basis to monitor progress and planning and resolve operational and tactical project implementation problems.

Donor coordination is essential under the sector-wide approach and both formal and informal meetings to discuss progress with projects/programmes, to identify means to improve and strengthen co-ordination, and to explore options for future donor financing have been encouraged in recent times. Key partners in the discussions have included the EU, ADB, AusAid, NZAid, JICA, UN and others. Close coordination with key regional organizations (e.g. SPREP and SOPAC) is also been maintained. A proposal for improved harmonization in the water sector is expected to be adopted by Government in 2008.

Sector planning, medium term expenditure planning and performance monitoring

In 2004, the *Water for Life* process was established as a means to develop a coherent *Sector Plan and Framework for Action*. With the current sector plan, for the first time, a single document elaborates specific policies, programme priorities, and budgetary implications with enough clarity to guide the medium-term development of the sector, and to provide a vehicle to clarify how best the resources of Government, NGOs, private sector, community representatives, and donor community can be utilized to achieve the greatest possible benefits and impact. The *Water for Life* document is a living document and it should be revisited and updated periodically to reflect progress and to ensure it remains in-line with emerging national needs and priorities.

In the past, performance monitoring has not received the priority it deserves. The quality and usefulness of indicators and targets is constrained by the lack of data and effective mechanisms for statistical collection and performance measurement. As such it is difficult to assess sector performance and progress. Such aspects require strengthening by considering not only what can be done in the short-term but also how the quality of indicators can be improved to reflect more completely impacts on water sector efficiency, impact and sustainability. Parallel to the

preparation of the new SDS (2008-2011), efforts have been made to formulate indicators and targets at national level for all its focal sectors. In addition, a recent proposal to design and develop a performance monitoring system for the water sector, prepared under WASSP, was approved but still needs formal adoption by the Government and subsequent implementation.

Expenditure plans for the water sector usually reflect individual sub-sectors only, are based on annual budget estimates, consider domestic and external financing under different budget streams, and are not necessarily derived from a common action plan. The on-going sector planning process is intended to address many of these issues and through this document to itself provide a framework on which a more complete and consolidated Medium-Term Expenditure Framework (MTEF) can be developed. At national level, it is intended to introduce forward planning, or a MTEF, starting the fiscal year 2008/09. In addition, a recent proposal to design and develop a MTEF for the water sector, prepared under WASSP, was approved but also still needs formal adoption by the Government and subsequent implementation.

4.3 Water Resources

4.3.1 Water resource management

Average annual rainfall varies from about 7000 mm to 2000 mm per annum, with the driest areas in northwest Upolu and northwest Savaii. Most of the annual rainfall occurs between October and March. Wet season annual rainfall (as a percentage of total annual rainfall) varies depending on locality and can be as high as 70-75% in northwest Upolu and Savaii and as low as 50-60% in south Upolu and Savaii. Despite its high rainfall, many parts of Samoa are devoid from perennial streams and rivers due to the high permeability of the underlying volcanics. Groundwater is most readily available from freshwater lenses (in the younger less weathered basalts) but aquifer yields are constrained by the risk of inducing saline intrusion. Definitive quantification of the available water resources is hampered by a lack of long-term historical data. Similarly, information on water resource quality is sparse yet threats from potent pesticides and disposal of wastes are evident.

Unregulated access to water resources (surface and groundwater) contributes to over-abstraction in rivers and streams and can lead to saline intrusion in coastal aquifers. Under the Planning and Urban Management Act (2004), legislation is now in place to charge for all abstractions, but as yet this has not been enforced. Issues related to equity and efficiency of allocation therefore remain unaddressed in any formal manner.

Conflict between government and local community interests is common. Sustainable management of the water resources necessitates an agreed understanding on resource ownership and appropriate roles and responsibilities for the different parties. There is an urgent need to resolve of the resource “ownership” issue and to minimize and manage conflict regarding access to water resources and its use for national as a national.

The conservation of water resources, for example for piped water supplies, has started to be addressed as an issue through a number of mutually reinforcing measures. These including tariff policies, metering supplies, and awareness campaigns have all contributed to improved water conservation in areas such as Apia although much more needs to be done to promote responsible water use, particularly in the rural areas where high demand has led to in some cases to borehole water becoming saline due to salt water intrusion and contamination. There is still, however, only limited effort being made to protect and conserve water resources and many of the problems now evident are a direct result of poor water resources management and a lack of baseline information

for informed decision making. This is exacerbated by the fact that water as a resource is free so there is little incentive for resource users and service providers to conserve or protect it.

Environmental screening and impact assessment of water-related development will receive closer inspection under the Planning and Urban Management Act (2004). Proposals for developments will require preparation of a Preliminary Environmental Assessment Report (PEAR) if the site concerned is not covered under an approved Sustainable Management Plan (SMP). The applicant may also be required to undertake a full Environmental Impact Assessment. This will help to ensure any adverse impacts are minimized, mitigation measures identified, and monitoring systems established before development consent is granted.

4.3.2 Water resource assessment and monitoring

The main source of information on water resources is still the studies undertaken as part of the National Water Resources Master Plan in 1996. There has been little extra data collected since these studies by the Meteorology Division of the MNRE and what is available is generally project/site specific and not readily accessible. There is an urgent need to rehabilitate some of the hydrometric/hydro-geological network and to establish an effective and accessible database for use by all interested parties. As part of this work, establishing borehole safe yields and developing a greater understanding of the extent, behavior and potential of freshwater lenses underground will be important. Long-term monitoring to provide early warning of changing trends will be essential in any sustainable water resource management strategy.

Samoa is vulnerable to climate change and sea level rise, particularly given that 70% of Samoa's population and infrastructure are located on low-lying coastal areas. Impacts of climate change and variability include a potential increase in climate hazards and associated risks to critical sectors and community livelihoods. Threats to the water sector relate to water quality, accessibility, availability, drought and flooding. Sea level rise also increases the possibilities of seawater intrusion into underground water aquifers. Coastal Infrastructure Management (CIM) Plans already exist but the coastal infrastructure assets remain highly vulnerable without critical management of the CIM plans, as well as extension of the plans to accommodate inland flooding and watershed management in light of the impacts on infrastructure and works. Previous droughts in 2002 and 2003 led to rationing of electric power due to decreased hydropower production. National Adaptation Plans of Action are under preparation but more needs to be done to reduce and manage associated risks to the sector.

4.3.3 Watershed management

Catchment management has gained a higher profile over recent years although issues related to the status of watershed areas and the ownership of water is yet to be resolved. Management plans were developed in the 1990s for the Vaisigano and the Fuluasou catchment areas and more recently for the Loimata o Apaula. MNRE also has a regional project (International Waters Project) funded by the Global Environment Facility. Two pilot projects are currently being completed at Apolima and Lepa to rehabilitate watershed areas in these villages through community based approaches. Despite these initiatives, there remain continuing problems due to uncontrolled development in watersheds resulting in a deterioration of both quantity and quality of water sources.

The International Waters Project (IWP) is a regionally based initiative to pilot community-based activities to improve natural resources management and the environment. In Samoa, two pilot projects (Apolima and Lepa) have been established to trial community-led catchment

management as a means to improve the quality of water supplies. It is anticipated that findings from the pilots will help develop guidelines for similar community-based activities and provide recommendations for higher level policy and strategy formulation.

4.4 Water use

4.4.1 Water supply

Access to safe water supply

Access to safe water supply is a key performance indicator though it is not routinely assessed nor reported at present. Whereas SWA can provide water quality data up to 2007/08, it is expected that MOH will be able to provide these data from 2008/09 onwards.

The national census in 2001 and 2006 do provide information on the sources of water supply, though it does not reflect access to "safe" water supply. The figure on the next page gives a detailed overview of the main sources of water supply per household for Samoa as a whole as well as for its main geographical parts.

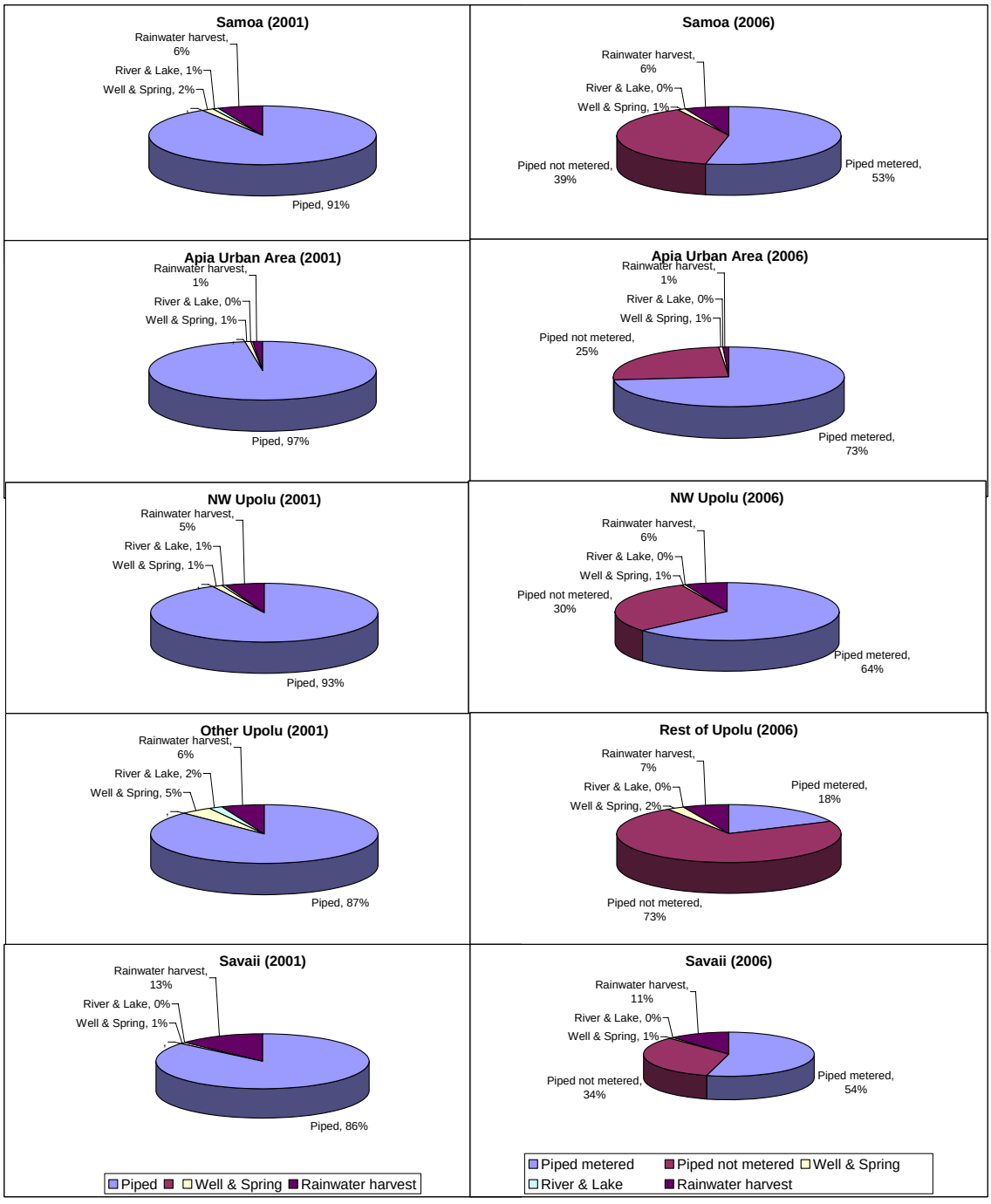
Overall piped water supply in Samoa has increased from 91 to 92% in the last five years, in 2006 39% was not metered and 53% metered, yet many piped supplies are intermittent and may be prone to contamination. The Apia Urban Area has maintained its dominance in piped water supply with 98% in 2006 (up from 97% in 2001), followed by NW Upolu peri-urban area with 94% (up from 93%).

Most recent improvements in the piped water supply have taken place in the rural areas in the Rest of Upolu with 91% (up from 87%), and Savaii with 89% (up from 86%). Metered water supply is highest in Apia (73%), followed by NW Upolu (64%) followed by Savaii (54%) and by far lowest in the Rest of Upolu (18%).

Rainwater harvesting has remained important in Samoa with a constant figure of 6%. Savaii uses most rainwater with 11% (down from 13%), followed by Rest of Upolu with 7% (up from 6%), NW Upolu with 6% (up from 5%), while Apia remains constant with 1%.

The figures for the use of water supply direct from rivers and lakes and from wells and springs are negligible and have been further reduced in the last 5 years from 3% to 1 % overall. In fact, households directly taking water from rivers and lakes for their water supply have ceased in 2006.

Figure 10 Main sources of water supply per household and per region



Coverage and levels of service

Overall service coverage by the SWA (July 2004) was 68% of the population comprising 16752 active customers (13,616 customers on Upolu and 3136 customers on Savaii). Only one third of this population currently receive treated water and some 15% of samples from these treated supplies fail quality tests either through ineffective treatment or intermediate contamination. The potential for delivering treated metered water was significantly increased following the recent

implementation of projects in NW Upolu and SE Savaii and a consolidation phase to these projects will ensure the full benefits are realized. The remaining 32% of the population either receive water from independent village schemes or their own small sources.

About 50% of SWA customers in both Upolu and Savaii are metered. In the Apia urban area, many customers have been transferred to metered treated supplies for a number of years and excessively high consumption figures have fallen significantly as a result. In rural areas, except in NW Upolu and SE Savaii, borehole and surface water sources are untreated and many fall below the (draft) national drinking water standards, based on WHO guidelines. In non-metered areas water consumption and wastage remains high and is exacerbated by high levels of leakage.

The Apia urban area is supplied from gravity sources that have reliable yields higher than the current demand. However this demand is greater than the design capacity of the treatment works and this has become a controlling factor on the area served. In the rural areas of Upolu and Savaii boreholes that supply the villages only operate for between 11 and 17 hours per day. Electricity is the major operational cost for SWA and these hours have been arrived at by balancing economy in electricity costs and demand. However, unaccounted for water (UFW) in the Apia urban is more than 40% of production and is estimated to be similar or even higher in rural areas.

Around 15% of the population relies on services from independent or village/community managed water supply schemes; there being 19 such schemes in Upolu and 4 in Savaii. The quality of water supplied by small independent schemes is variable and none are treated. Most of the schemes were developed by the former Public Works Department some years ago and most are coming to the end of their useful life. The village committees that operate these schemes do not collect sufficient income to rehabilitate the schemes and most do not have the technical knowledge to do so. Despite this, there are still strong desires to remain independent. This desire is driven by a mistrust of the government to provide reliable supplies, a desire to remain free of government water charges, and reluctance for metered supplies. However, this situation is also not helped by a lack of knowledge and advice within such communities on the health aspects of untreated water supplies.

System efficiency

In 1993, the SWA inherited aging and often poorly maintained water supply assets which delivered intermittent and untreated water supplies. A number of donor programmes have tried to address this issue through investments in capital infrastructure and capacity building. The latest upgrading of Apia water supply systems was undertaken in the 1990's and more recently there has been completion of major new water supply infrastructure in NW Upolu and SE Savaii. Improvement and rehabilitation of rural water supply schemes is set to continue under the EC supported WASSP. A summary of the current assets of the SWA is presented in the table on the next page and depreciation is estimated at around $5.1 million per year, approximately one third of total operating expenses.

Figure 11 Development of SWA assets 2003-2007

Assets	Jun-03	May-04	Jul-07
River and spring intakes:	38	34	43
Water supply treatment plants	3	5	5
Reservoirs and tanks	55	113	114
Bore supply systems	44	62	63
Pipe length (kilometres)	627	1,207	<5000
Pipe size (diameter) range:	25-450mm	25-450mm	25-500mm
Control valves	388	450	490
Water meters:	6,000	9,016	13779
Hydrants	334	852	870

Unaccounted-for-water (UFW) is a measure of water losses in a system and comprises real physical leakage as well as apparent losses (un-authorized consumption). Leakage studies have estimated that losses may be over 75% in selected areas and the SWA has targets to reduce these to more economical levels. However, the most significant hurdle in terms of benchmarking existing UFW levels, appraising performance and setting targets to improve efficiency is the lack of monitoring and data. Current levels of water losses cannot be accurately determined and broken into constituent components. Improving this has to be the first priority.

Non-Revenue Water (NRW) is also a measure of system efficiency and is defined exactly the same at UFW except that it also includes consumption that is authorized (i.e. that reaches a legitimate end-user) but the user is not billed for this usage. For the SWA, the $0.5m^3$ per day per connection provided free of charge to metered users forms part of the SWA's non-revenue water, and is a considerable proportion of the total non-revenue water.

A number of the existing treatment plants serving the Apia urban area are supplying demand in excess of their design capacity, in some cases by over 150%. The need for increased capacity could be met where reliable yields from the surface water sources permit but it is essential that full investigation of the reasons for the over-demand are established because reducing leakage and controlling demand on the systems may be far more economical and environmentally sensitive than simply increasing capacity to meet demand.

Financial performance

The Samoa Water Authority Act (2003) is an act to continue the operations of the SWA under revised legislative provisions aimed at promoting its financial independence and its role as provider of economically viable services through an accountable management structure. The primary source of income for the SWA is water sales and the simple fact for the SWA is that current water sales generate less than half the required income to cover normal operating costs. Income through water sales is SAT$ 7.2 million (2006) against an expenditure estimated at over SAT$ 15.7 million (2006). The difference is partially made up by government grants and subsidies (see section on CSOs below), but there is no attempt to cover the depreciation costs of SAT$ 5.1 million per year. Whilst some limited operational savings can be made through efficiency improvements it is evident that income from water sales, a function of tariff-level and the number of customers, need to be reassessed if a more financially viable and independent SWA is to be realized.

Current levels of cost recovery within SWA are inadequate to meet the gap between income and expenditure, even without depreciation costs. A relatively low tariff structure is in place and

represents only 2% of the annual income (for the 70% of population earning less than $10,000 per year), whereas 5% is generally accepted internationally.

The supply of high quality potable water in the rural areas may never be a fully commercial operation for the SWA and this strategic public service is supplemented by Community Service Obligations (CSOs) payments. SWA received SAT$ 5.3 million in 2006 up from SAT$ 2.3 million in 2005.

A number of means are employed by independent village water schemes to recover the costs of providing water such as per tap connection fees and one-off payments. Few have a dedicated water fund and in most instances revenue is used for other non-water related expenses. Independent schemes do not recover the true costs of service provision and recoveries fail to meet even basic operation and maintenance (O&M) costs in most cases, let alone costs for depreciation. Lack of proper financial management and foresight is a factor in the declining conditions of infrastructure in independent schemes.

The enactment of the Public Bodies Act 2001 laid the ground for State Owned Enterprise (SOE) to strengthen corporate governance and financial reporting, including the Samoa Water Authority. For example, supply of good quality potable water in the rural areas may never be a fully commercial operation and CSO payments from Government are used to subsidize the costs of these services. However, there remains some difference in opinion as to what aspects of O&M constitute eligible costs and dialogue on this matter continues.

4.4.2 Water and power

The EPC is the biggest user of water in the country. Power generation through hydropower contributes approximately 40% of total power generation in Samoa, through the Afalilo station and other smaller units. There is potential to increase hydropower generation further and this could help offset escalating costs of diesel production. Proposals to develop hydropower in the Sili Basin have been studied and whilst there is significant potential there is also community objection to some proposals. From a resource management perspective, critics question EPCs free access to the country's water resources and have concerns that little or no monitoring is undertaken on their exploitation of water use.

Shared sources for hydropower and water supply can lead to conflicts over allocation during times of scarcity. Formal mechanisms to allocate water do not exist and *good will* is the main means to manage conflicting demands. Conjunctive use of water to serve both hydropower and water supply needs deserves investigation for all future water uses.

4.4.3 Water and other uses

Irrigation

Water use for irrigation is limited at present. Notwithstanding a recent FAO-funded study for an irrigation strategy in Samoa, it is not likely that irrigation will effectively compete with other water uses nor that it will increase the stress on available water resources.

Irrigation alone is not the only link between agriculture and water. Most plantations are located in remote inland areas beyond the extent of any piped water supply networks. Access to water is therefore limited but without some provision farmers may become unwilling to work in such areas.

Rainwater storage tanks
Rainwater harvesting to secure a reasonable supply of water – either for consumption or supplementary irrigation – is therefore an important consideration in strategies to enhance farming output and productivity. In some areas, water tanks have been installed on permanent plantation homes through donor programmes but approval for similar on temporary residencies is highly unlikely.

A considerable number of rainwater storage tanks have been constructed throughout Samoa with support from the EU Microprojects Programme, JICA, Red Cross and others, as well as many constructed privately. Since 1995, for example, the EU Microprojects Programme has installed over 1200 tanks with an average capacity of 1700 gallons per tank. Most are located in areas where piped water supply is not available, such as Falealupo in Savaii, with the tanks providing a basic level of access to water. Others have been constructed in areas where existing service levels are extremely poor with the tanks serving as a buffer against intermittent supplies and seasonal shortages. Maintenance is an essential component to ensure proper functioning of systems and to minimize the risks of water quality contamination yet this is often be neglected after construction. A more formalized policy and approach to water tank provision and storage should be integrated within an overall strategy for securing access to water.

4.5 Wastewater, sanitation and drainage

4.5.1 Sanitation

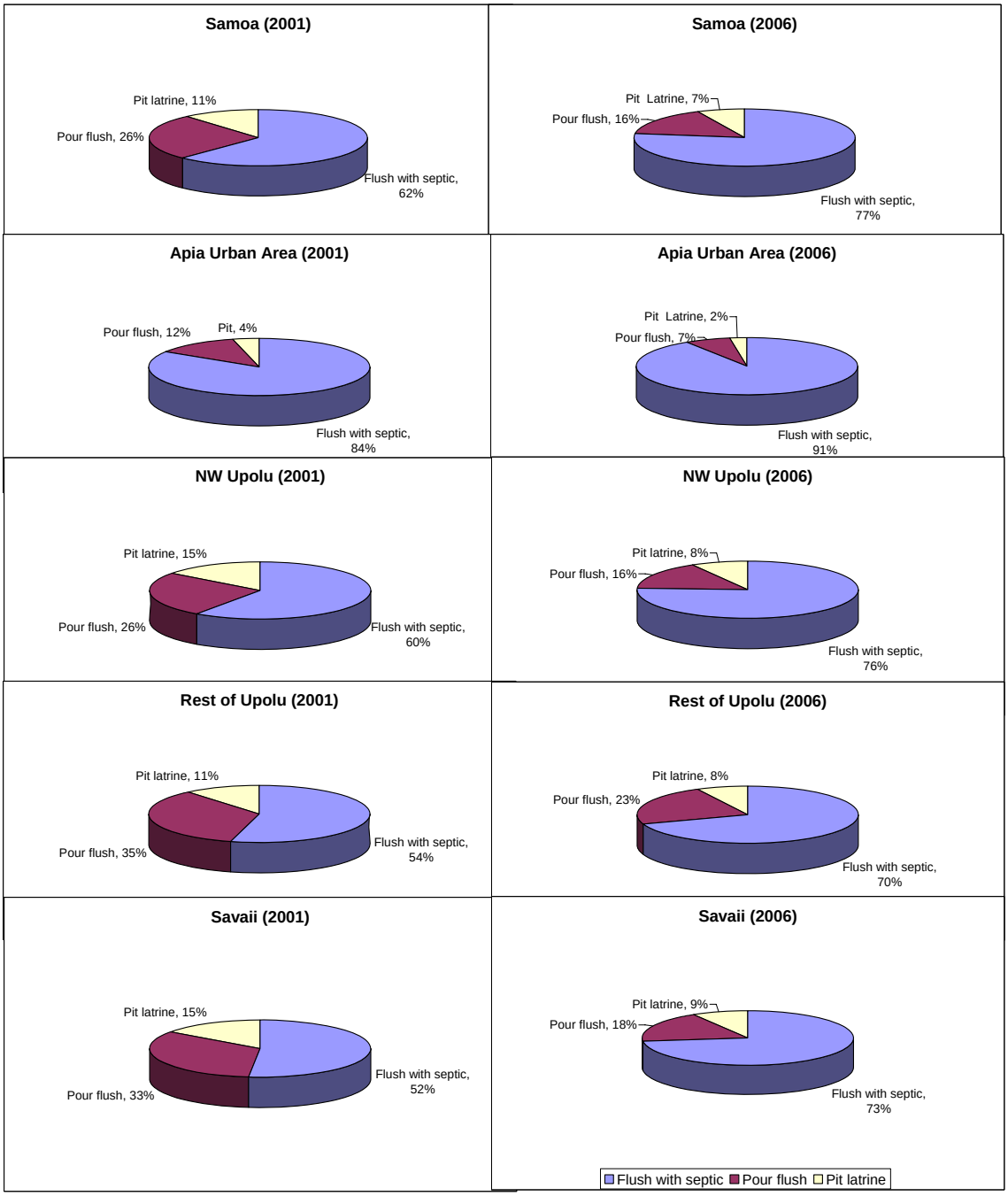
Access to basic sanitation
Access to an adequate sanitation superstructure is a key performance indicator but available census figures do not present a detailed picture of sanitation status as the figures cannot distinguish between what facilities do and do not reflect threats to public health or the environment.

The figure on the next page gives a detailed overview of the main types of toilet facilities per household for Samoa as a whole as well as for its main geographical parts. The data come from the 2001 and 2006 national census.

The use of flush toilets with septic tank in Samoa has increased significantly from 62% in 2001 until 77% in 2006. This figure is highest in the Apia Urban Area with 91% (up from 84% in 2001), followed by NW Upolu (from 60 to 76%) and the Rest of Upolu (from 54 to 70%) who both recorded an increase of 16-17%. The use of flush toilets with septic tank was by far lowest in Savaii (52% in 2001), but has seen the highest increase of 21% in the last 5 years (73% in 2006).

The interpretation of what constitutes a ‘septic’ tank or facility can also vary, and is often considered as any tank which receives toilet waste. A sample survey in July 2004 for the rural areas indicated only 17% of such tanks could be considered as true septic facilities and that the remaining 83% could pose threats to public health as well as nearby groundwater or surface water sources.

Figure 12 Main type of toilet facility per household and per region



The improvement in household sanitation facilities is also demonstrated by the diminished number of households using a pour flush or pit latrine, which have been reduced from 26% to 16% and from 11% to 7% respectively. However, while the use of these facilities has reduced considerably from 16 to 9% in the Apia Urban Area, outside Apia this figure is still quite high. While just under half of the households used either a pit latrine of pour flush in 2001, this figure is still quite high ranging between a quarter (24% in NW Upolu) and one third (31% in Rest of Upolu) in 2006. However, Savaii in particular has shown a remarkable reduction from 15% to 9% in pit latrines and from 33% to 18% in the use of pour flush toilets.

Surveys have also found that although there may in theory be access to sanitation facilities in schools and hospitals, in practice the number of toilets and hand-washing facilities are often inadequate and could pose health hazards. The WaSSP is addressing this issue through its activities towards improving sanitation facilities in some 100 schools and hospitals.

4.5.2 Wastewater disposal and treatment

Municipal wastewater treatment is limited at present with no central collection and treatment facilities although six private industrial wastewater treatment plants are under operation. Under the Samoa Sanitation and Drainage Project (SSDP/ADB), preparations are underway for the design and construction of a pressure sewerage system in the Apia Central Business District and to be linked to a wastewater treatment plant in Sogi. Similarly, the WaSSP is preparing the design and construction a number of septage disposal facilities in existing landfill sites in Tafaigata (Upolu) and Vaiaata (Savaii) and in new sites in Asau (Savaii) and Togitogiga (Upolu).

4.5.3 Drainage, flooding and natural disasters

Drainage is primarily associated with the road network. Extremely high rainfall intensities and expanding areas of hard or impermeable surfaces place increasing demands on drainage systems. Inadequate or blocked drainage systems are often quoted as one of the contributory factors to flooding problems in the Apia urban area, although it is unlikely that drainage alone could alleviate such flooding problems. Plans are underway to improve the drainage in parts of the Apia urban area under the SSDP project.

Economic and financial damages from flooding can be high. For example, financial losses from the Apia flood of Easter 2001 exceeded SAT$ 11 million, with a SAT$ 3.3 million damage bill to infrastructure and a SAT$ 7.8 million insurance pay-out, especially for commercial damages. This figure represents an underestimate of damages, because many houses were not insured and few businesses were insured for business interruption. A coarse estimate suggests that about 5000 residents were directly affected by over-floor inundation, and in the order of 28 000 people may have been affected by water shortages. Other impacts include the spilling or overflowing of septic facilities which bring health risks to due exposure to raw sewage and there is general misery associated with rectifying damp and soiled flood damage to homes and businesses. Improved drainage alone will not solve the problem. Attention should be given to long-term mitigation through flood-proofing measures, flood preparedness guidance, and more sustainable development of floodplains through cooperative approaches to land use management.

Samoa is vulnerable to national disasters ranging from tropical cyclones, draughts, floods, storm surges and tsunamis. This calls for greater vigilance in disaster prevention, preparedness, mitigation and response. In order to counter the negative impacts of these extreme climate events and natural disasters, the National Disaster Prepare redness and Management Strategy has been prepared and is now being implemented under the supervision of the Disaster Management Office (MNRE/DMO). Individual government ministries and corporations each have their own contingency plans and disaster preparedness plans, which also include relevant water organizations like SWA, EPC, MOH, MWTI and MNRE.

CHAPTER 5: OPPORTUNITIES, ISSUES AND CONSTRAINTS

5.1 Opportunities

A growing consensus

There is an emerging consensus on overall goals for the water sector, on means to achieve them, and resources required. The *Water for Life* process to-date has confirmed that key stakeholders are convinced the move toward a SWA and drawing together combined interests and expertise will accelerate achievement of national goals and priorities and better serve community interests. The consultations have also enabled key problems and recommended solutions to be identified. Policy dialogue has developed a framework for action but implementation is hampered by lack of resources rather than political will to act.

Improving water sector co-ordination

The establishment of the Joint WSSC as an over-arching body for the sector has brought significant benefits. It serves to guide sector policy and planning processes, to promote mobilization and to co-ordination across sub-sectors, to engage with the many and varied interest groups, to monitor performance at the sector-level, and to provide quality assurance. The JWSSC can also play an active role in facilitating discussion and agreement on issues of concern and in managing conflicts. An important activity for the first few years of the planning period will be to assess the feasibility of establishing a permanent Water Sector Apex body rather than a temporary and project related sector organization.

Focal point for water resources

Responsibilities for water resource management have been rationalized during recent government reforms. A Water Resource Division (WRD) has been newly established within MNRE, drawing together staff and resources from watersheds, hydrology the IWP project. WRD capacity building and strengthening will see it emerge as a nucleus for policy and strategy development, implementation, regulation and monitoring. By also bringing the Meteorological Office under the MNRE, the recent organizational changes also increase prospects for improved co-ordination and complementarities between the two units, including aspects of climate change and vulnerability.

Valuing the environment

Regional experience in the economic evaluation of the Rarotonga watershed (Cook Islands) has shown that the potentially avoidable costs of watershed pollution was as high as 1,572 Euro per household per year, equivalent to over 4 million Euro at national level or 3.12% of GNP. The main cost impacts incurred through loss of tourism income (47%), and increased costs for bottled water purchases (20%) and health care (13%). Whilst a similar analysis has not been undertaken for Samoa, is does provide some indication of the magnitude of economic cost and reinforces the case for funding preventative measures.

Promoting community-based watershed management

The International Waters Project (IWP) funded by UNDP/GEF has piloted initiatives for the community management of watersheds in two catchments, Apolima and Lepa. The project provides an opportunity to learn lessons on community-based approaches and to expand initiatives into other sensitive or badly degraded catchments is available. Building co-operation between government and communities is important in promoting successful and sustainable initiatives.

Building on past successes in water supply

Significant improvements to water supply infrastructure have been instigated in NW Upolu and SE Savaii in recent years. For most customers this is the first time they have had reliable 24 hour access to high quality water supplies. Increased payment recoveries demonstrate a willingness to pay for these improved services and similar improvements in service level and therefore in cost recoveries could be capitalized upon throughout the rest country.

Ability-to-pay and willingness-to-pay

Household income analysis suggests that an average annual water bill (~SAT$ 144/yr) is within the means of the vast majority of households. Current expenditure on water for the majority of the population represents some 2% of household income, whereas 5% of household income is often quoted as an acceptable norm. Disconnection policies for non-payment of water bills have served to increased water bill payment recoveries in some instances and firm disconnection policies are set to continue. However, willingness to pay will continue to be influenced by many factors including perceived levels of service and it is important that these are brought to acceptable norms for all customers.

Pricing policies and tariffs

It is clear that SWA's income has to increase if a viable and independent service sector is to be attained. Water is both a social and economic good and the provision of water services, particularly in the rural areas, may not always be a fully commercial activity and is likely that some dependency on government subsidies (e.g. CSO agreements) will remain. However, current tariff levels exacerbate problems and do little to plug the widening gap between income and expenditure, let alone capital replacement costs. The current free entitlement is set at a high volume and price bands may underestimate the ability to pay for services. A re-assessment of the current tariff system is anticipated for FY 2007/08 should lead to the introduction of a more rational tariff system.

Growing acceptance of metering

Metering has been accepted in many areas and has put the consumer in control of their own costs and significantly reduced water consumption. In NW Upolu, per capita consumption has dropped to below 350 l/c/d from an estimated 800 l/c/d prior to system improvements and household metering. Further reductions are anticipated as customer awareness and understanding grows and a target figure of 300 l/c/d by end-2006. An opportunity exists to build on these trends and to extend metering programmes on a national basis as a means to promote user pays principles and to help preserve and conserve water resources.

Improving system efficiency

Unaccounted For Water (UFW) remains unacceptably high and linked with high consumption rates in non-metered areas results in high production costs and can be a contributory factor to intermittent supplies. Significant gains in efficiency and therefore in cost recovery can be made by reducing levels of UFW to internationally or regionally accepted norms.

Alternative water sources

Many SWA systems, particularly in Savaii, are dependent on borehole water supplies. The high cost of electricity for pumping is a major operating cost to the SWA and replacing bore supplies with alternative surface water sources and gravity-fed systems, where feasible, could have a significant impact on SWA costs overheads and improving financial efficiency.

Local NGO action

A number of actions are currently being undertaken by local NGOs (Meti, O Le Siosiomaga, Red Cross, etc.) in the water and public health arena. With close links to communities it is appropriate that the role of NGOs, and non-state actors in general, is explored when assessing water sector roles and responsibilities. The establishment of the Independent Water Schemes Association in 2007 is another example of more NGO and NSO involvement and of increased community sense of ownership in the water sector.

Stimulating private sector involvement

Government reform processes have been successful in promoting macro-economic growth and stability. Stimulating private sector involvement and providing opportunities for the local sector to compete remains a cornerstone of these on-going reforms. Lessons learned from the past have demonstrated that large infrastructure projects tendered internationally have tended to negate against local ownership as well as to preclude involvement by local/regional companies, due to overly restrictive procurement criteria. A balanced and appropriate role of the government/SWA working in partnership with a skilled and resourced private sector is a more desirable outcome and one which can lead to lasting and sustainable benefits to water users.

Accessing external funds

Following a number of high profile international meetings, water is emerging high on the international political agenda. Increased access to safe water supply and basic sanitation are key targets in the MDGs and is reinforced by calls for IWRM. Attracting donor and IFI funds to support the sector for sound projects and programmes can therefore be a key trigger in transforming the sector. Under the 9th EDF, the EU has agreed to substantial support to the water sector and this looks set to continue under the 10th EDF. Similarly, ADB loans have also been secured for sanitation and drainage activities in the Apia urban area.

5.2 Constraints

Inadequate knowledge base

A sound knowledge base and understanding of the sector is essential for informed planning and decision making. Lack of baseline information and inaccurate reporting exacerbate the problems. Addressing gaps in knowledge at the country level cuts across many different facets (e.g. public expenditure, health, finance, service performance assessments, environmental resources) and across different department and agencies. It requires improvements to management information systems and agreements between agencies to share information.

Human resources

Skill shortages in some areas and high staff turnover in Government ministries and the SWA remain as issues. In many organizations, new management procedures and more transparent processes are gradually being introduced along with a greater emphasis on training and staff development. However, staff turnover remains high and innovative measures are required. The private sector will always offer financial packages marginally higher than in government and the brain-drain to the private sector is likely to increase as it broadens and expands. Continuing education and skills upgrade for staff are obvious short-term goals whereas but elevating the status of water engineers in society may be a longer term objective.

Public perceptions and attitudes

Water is still regarded by many as a *free* resource despite its high cost to transport, treat and deliver from its source to the customer. Whilst the physical measures such as metering can contribute considerably to reducing water wastage it was recognized that major changes in

customer attitudes were also required. Such change can only be achieved over extended timeframes and through complementary measures such as information and education campaigns and social marketing. Such measures need reinforcing at all stages from awareness to understanding to conviction and on to response.

Water resource ownership

Water resource ownership remains an issue of contention. Whilst legislation and the constitution clearly place water resources in the custody of the State this is not always evident in practice. Many villages restrict access to water resources, control distribution and demand compensation for its utilization. A workable solution to this issue is urgently required. Not only needs this to be reconfirmed in the revised Water Resources Bill, but parallel public consultation and awareness raising campaigns also need to be organized to increase community acceptance.

Land access and related issues

Conflict over land access has caused escalating costs and time delays on a number of occasions during water supply system implementation. Indeed, even after construction access to assets for maintenance and repair can be impeded. Land issues are also at the heart of the debate on catchment management whereby there are clearly trade-offs and conflict viewpoints on the balance between working with communities and/or acquiring land for direct control and management by the Government. The envisaged revisions of the Water Services Bill and Water Resources bill, both scheduled to be taken up in FY 2007/08, need to reflect this, along with public consultation and awareness raising programmes.

Aging and poorly maintained assets

In most rural areas, the SWA has inherited aging and poorly maintained water supply assets which deliver intermittent and untreated water supplies. The public has shown an unwillingness to pay for low levels of service, and the intermittent nature of the supplies only adds to irresponsible water use and potential for contamination. Recent experiences in NW Upolu and SE Savaii (RWSS and RWSCP) have demonstrated that improved service levels do result in greater willingness to pay and a more responsive and responsible level of water consumption by customers. Cost effective means to improve and rehabilitate rural infrastructure is therefore necessary and reinforces the *opportunities for all* theme of the SDS.

Treatment of drinking water

Despite health concerns, the current levels of treatment and number of samples not meeting standards may indicate a too low priority level accorded to the quality of drinking water. It is accepted that intermediate contamination through failing infrastructure may be the cause but water quality management must shift to a process approach from source to the tap (i.e. Water Safety Planning, a newly introduced approach led by MOH) and not just at the treatment plant itself. The situation is not helped by some customers disliking and complaining of the taste and odor of treated supplies.

Government subsidies and CSO payments

Scarce financial resources inevitably mean that competition for government funding between the main social, economic, and infrastructure sectors is strong. Different interpretations and/or agreement on levels of CSO payment are also evident. Government subsidy to the sector is based on an annual budgeting cycle and this can make it difficult to plan for the longer-term as it fixes attention on short-term priorities.

SWA schemes and independent schemes

In some cases, ownership of schemes and assets is contested between the SWA and villages. There is a complex history to some scheme developments with management responsibilities oscillating between the two. As infrastructure falls into disrepair and becomes ineffective the issue of who is responsible for rehabilitation and renewal can cause disputes and conflict. Currently, SWA is responsible to provide piped water supply and sanitation services to the entire country, but an institutional review foreseen to be implemented for 2007/08, also considering the newly established Independent Water Schemes Association, should result in an improved institutional framework and be formalized in a revised Water Services Policy.

5.3 Where do we go from here?

It has been widely agreed by all stakeholders that "*business as usual*" is not a viable option and will lead only to negative impacts on water resources, to degradation of the natural environment, and to a long-term decline in service levels.

Significant commitment and input is required to enable the sector to take the necessary steps toward a more sustainable sector environment. Difficult and perhaps unpopular decisions, particularly in the short-term, will be required if longer term benefits are to accrue. The challenge for government, and indeed all stakeholders, is to consolidate the gains already made, to set development within a sound water resource management framework, and to have a realistic and phased programme of improving services.

The concept of IWRM lies at the heart of the required approach to deal with water challenges. The IWRM process takes a broader view, examines a more complete range of solutions, and considers how different actions affect, and can reinforce, each other. Therefore, IWRM places novel demands on the policymaker, service providers and water-users, but offers more comprehensive, efficient and powerful approach than piecemeal solutions adopted hitherto.

The following Chapters set out the overall goals and key objectives for medium-term sector development and a means to achieve these.

CHAPTER 6: SECTOR GOALS AND KEY OBJECTIVES

6.1 Development Objectives

The overall development goal of national water sector policy is to ensure community access to water of a suitable quality and appropriate quantities to meet all reasonable health, environmental and economic development needs. The water-related priorities identified in the SDS (2005-2007) are the following:

- To strengthen sector governance and orientation
- To secure sustainable water resource management
- To increase access to safe and reliable water supplies
- To maximize the benefits of other water uses (non- water supply)
- To improve sanitation, drainage, and wastewater treatment and disposal

The emerging framework for national development indicators provides a high-level means to monitor progress and the following targets are anticipated:

Figure 13 Overall Sector Goal: To alleviate poverty and improve public health

INDICATOR DESCRIPTION	2005	2006	2007	TARGETS			
				2008	2009	2010	2011
Golden Indicators							
% of urban population suffering from poverty and hardship reduced by half by 2015	19	18	18	17	16	15	14
% of rural population suffering from poverty and hardship reduced by half by 2015	27	26	25	24	23	22	21
Annual decrease of number of water related diseases reported							
a. Typhoid	524	142	221				
b. Garstoenteritis & Diarrhoea	2454	2483	3167				

Figure 14 Key Objective 1: To strengthen sector governance and orientation

INDICATOR DESCRIPTION	2005	2006	2007	TARGETS			
				2008	2009	2010	2011
Golden Indicators							
Institutional framework adopted and under effective implementation				Adopted	Effective	Effective	Effective
Performance monitoring data and reports and sectoral, sub-sectoral and institutional level being regularly produced and used						X	X
Government budget to fund performance monitoring of sector plan implementation, incl. adjustment of budget coding system						X	X

Figure 15 Key Objective 2: To secure sustainable water resources management

INDICATOR DESCRIPTION	2005	2006	2007	TARGETS			
				2008	2009	2010	2011
Golden Indicators							
Total annual withdrawals as share of annual water resources (both ground & surface 1991)				System capacity in place	Realistic data exists		
Economic losses from floods (& droughts) through data collection &monitoring (annual average from 1990 to 2000)				System capacity in place	Realistic data exists		

Figure 16 Key Objective 3: To increase access to safe and reliable water supplies

INDICATOR DESCRIPTION	2005	2006	2007	TARGETS			
				2008	2009	2010	2011
Golden Indicators							
Access to safe and reliable supply of potable water (% of population)	50%	66%	79%	86%	88%	88%	
Non-revenue water performance	36%	34%	32%	30%			
a. Water losses from leakage	24%	23%	22%	20%			
b. Other non-revenue water based on CSO entitlement	11%	11%	11%	10%			

Safe potable water supply (supplied through chlorination treatment) and meeting drinking water standards at customer outlet

Figure 17 Key Objective 4: To maximize the benefits of other water uses (non- water supply)

INDICATOR DESCRIPTION	2005	2006	2007	TARGETS			
				2008	2009	2010	2011
Golden Indicators							
% hydropower increase from previous year (KWH/year)				2%	2%	2%	2%
Reassess potential & demand for irrigation and consider development of an irrigation strategy				Reassess	Strategy		
Ensure appropriate % for minimum environmetal flow maintained						Assessed	Maintained

Figure 18 Key Objective 5: To improve sanitation, drainage and wastewater disposal

INDICATOR DESCRIPTION	2005	2006	2007	TARGETS			
				2008	2009	2010	2011
Golden Indicators							
Access to adequate superstructure sanitation (% population)	62%	64%	67%	70%	72%	74%	76%
% collection and treatment of the flood prone area of Apia CBD (1 MLD)	50%	55%	60%	65%	70%	75%	80%

Sanitation facilities which are not a threat to public health and do not impact negatively on the environment

6.2 Intermediate sector indicators and targets

The development of the sector (2005-2011) is shown progressively against a selected set of key performance indicators in the tables in Appendix 4. These key indicators and targets are to become part gradually of the Sector Performance Monitoring System and will help to provide a succinct sector-level means to assess progress on an annual basis. These data are supported by and supplemented from more detailed operational, financial, and institutional indicators drawn

from the SWA Corporate Plan and the Business Plans from MNRE, MOH, MWCSD, MWTI and other relevant sources.

The national development indicators and targets (Section 6.1) and the intermediate sector indicators and targets in this section should be reviewed on a regular basis. It is expected that this will take place during the periodic updates of the Water for Life document and during national and joint review missions with donors and international financial institutions.

CHAPTER 7: SECTOR POLICIES AND STRATEGIES

7.1 Development principles

A number of guiding principles have been identified by stakeholders to ensure that sector development brings equitable and sustainable benefits as demonstrated hereunder.

Figure 19 Guiding principles for water sector policies and strategies

Guiding Principles

- To ensure benefits and opportunities are shared by all sections of the community and across both urban and rural areas
- To set development within an integrated water resources management framework which addresses institutional, social, economic and environmental aspects
- To adopt a flexible and phased approach to development which responds to demand and is compatible with the capacity to manage and operate systems
- To integrate the provision of improved water supplies with appropriate sanitation and wastewater disposal measures to maximize public health and environmental benefits
- To promote independent and financially viable service provision through appropriate cost-recovery tariffs and user-pays policies
- To ensure co-ordination of domestic and external financing and resources within the framework of a sector-wide approach
- To build partnerships across public, private and civil society for effective implementation

7.2 Framework for Action

Five mutually reinforcing strategies have been identified under the plan that support the achievement of the sector goals and objectives and which are commensurate with the water related priorities as stated in the SDS 2005-2007. These are the following:

- To strengthen sector governance and orientation
- To secure sustainable water resource management
- To increase access to safe and reliable water supplies
- To maximize the benefits of other water uses (non-water supply)
- To improve sanitation, drainage, and wastewater treatment and disposal

7.3 Strategies and actions

A total number of 34 strategies have been formulated, seven to strengthen sector governance and orientation (objective 1), nine strategies to secure sustainable water resource management (objective 2), eleven strategies to increase access to safe and reliable water supply (objective 3), seven strategies to maximize the benefits of other water uses (objective 4) and thirteen strategies to improve sanitation, drainage and wastewater disposal (objective 5).These are presented in detail in the tables hereunder for each of the five objectives. A detailed risk assessment against each of these 34 strategies is presented in Appendix 3.

Figure 20 Strategies to strengthen sector governance and orientation (Objective 1)

Strategies
1. Promote a sector-wide approach based IWRM principles and practices
2. Create an effective apex body and associated coordination framework to oversee water sector coordination & development
3. Adopt and implement the Water for Life with a mid-term review of the strategy to follow
4. Adopt and integrate the MTEF into the government budget system
5. Develop and Implement effective (sub-)sector performance monitoring and reporting
6. Improve efficiency and effectiveness of the development regulatory system
7. Develop and Implement updated water-related legislation and regulation

Figure 21 Strategies to secure sustainable water resource management (Objective 2)

Strategies
1. Create greater community awareness of water resources issues
2. Improve knowledge & understanding of water resources
3. Conserve and rehabilitate water resources in partnership with all stakeholders
4. Protect water resources from the adverse impact of human activities
5. Create greater community awareness of water quality issues
6. Realize the establishment of a Public Health Surveillance Monitoring Laboratory
7. Ensure National Drinking Water Standards are in place to regulate and monitor Water Safety
8. Develop and implement management mechanisms to control the allocation of water
9. Promote global partnerships to support the management of water resources

Figure 22 Strategies to increase access to safe and reliable water supplies (Objective 3)

Strategies
1. Ensure adequate awareness of roles & responsibilities of service providers & consumers in sustainable water services
2. Increase stakeholder participation in planning, design and implementation of water service delivery
3. Increase level of cost recovery and financial viability
4. Improve and co-ordinate collection of data for water service planning & management
5. Provide appropriate quantities & qualities of potable water in accordance with a 'levels of service charter' of standard
6. Integrate environmentally sensitive wastewater disposal & sanitation with provision of water supply
7. Improve efficiency & performance of water service systems
8. Strengthen capacity of key stakeholder groups to fulfill their respective roles (SWA)
9. Promote conjunctive use of water (SWA)
10. Supply alternative options for water supply (IWSA)
11. Improve understanding of Health Risks related to Water Supply (IWSA)

Figure 23 Strategies to maximize the benefits of other water uses (Objective 4)

Strategies
Hydropower
1. Improve and increase hydropower performance
2. Strengthen capacity of key stakeholder groups to fulfill their respective roles
3. Coordinate investment and O&M of water uses (HYDRO – WS)
Irrigation
4. Reassess potential & demand for irrigation and consider development of an irrigation strategy
Environmental/Ecological water use
5. Improve knowledge and understanding of water resource management issues
6. Promote integrated water use
7. Strengthen capacity of key stakeholder groups to fulfill their respective roles

Figure 24 Strategies to improve sanitation, drainage and wastewater disposal (Objective 5)

Strategy
On site sanitation
1. Strengthen health & education awareness programmes
2. Increase the collection & treatment of wastewater in Apia Urban area
3. Increase access to safe, environmentally friendly sanitation in rural areas
4. Establish safe & environmentally sensitive septage pump out & disposal services
5. Strengthen capacity for sanitation services
6. Develop & Implement sanitation systems for all new development areas
Off site sanitation
7. Develop & implement wastewater awareness & education programmes
8. Develop Sanitation Masterplan
9. Institutional Strengthening & Capacity Building
10. Policy Development & Review
Drainage
11. Reduce the risk of flooding in Apia Catchment Area (preventive)
12. Minimize damage and disruption due to flooding and drainage problems
13. Develop and implement drainage systems for all new development

7.4 Specific recent and ongoing projects and programmes

Recent and ongoing commitments in the water sector of Samoa (National Projects)

National Projects	Support	% Samoa	% Fresh water	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Microprojects Programme (MMP)	EU	100%	25%														
Grassroots Grant Aid	JICA	100%	15%														
National Water Resources Master Plan	EU	100%	100%														
Apia Water Supply Consolidation Project	KfW	100%	100%														
SWA-Institutional Strengthening Project (ISP)	AusAid	100%	100%														
Rural Water Supply Project (RWSP)	EU	100%	100%														
Low-cost small-scale Irrigation	FAO	100%	100%														
Rural Water Supply Consoli-dation Project (RWS-CP)	EU	100%	100%														
Samoa Sanitation and Drainage Project (SSDP)	ADB	100%	100%														
NAPA	AusAid, NZAid	100%	5%														
Public Sector Improvement Facility (PSIP)	AusAid	100%	5%														
Water Sector Support Programme (WaSSP)	EU	100%	100%														
Regional Projects	**Support**	**% Samoa**	**% Fresh water**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
International Waters Project	GEF, SPREP	100%	100%														
Pacific Resource Centre on Water and Climate	ADB, SOPAC, CPWC	7%	50%														
Reducing Island Vulnerability	EU, SOPAC	100%	75%														
Water & Sanitation Awareness	SOPAC	7%	100%														
Pacific Hydrological Training Programme	NZAID, WMO, SOPAC,	7%	100%														
Pacific Partnership on Sus-tainable Water Management	ADB, SOPAC	7%	100%														
IWRM (PDF-B)	GEF, SOPAC	7%	100%														
Improving Delivery of Infrastructure Services	ADB, WB, AUSAID,	7%	100%														
Pacific IWRM & Water Use Efficieny	EU-WF, SOPAC	7%	100%														
Pacific-HYCOS	SOPAC, WMO, EU-WF	7%	100%														
Pacific IWRM Planning Programme	EU WF, SOPAC	7%	100%														
Sustainable IWR & Wastewater Management	UNDP, UNEP, GEF, SOPAC	7%	100%														

7.5 Responsibility Matrix

The sector plan needs to consider the full range of stakeholder responsibilities and not just those of the government corporations and departments. The different groups of stakeholders that can be identified are presented in the table hereunder.

Figure 25 Groups of water sector stakeholders

Government ministries and departments
Ministry of Works, Transport and Industry
Ministry of Natural Resources and Environment
Ministry of Health
Ministry of Agriculture and Fisheries
Ministry of Women, Community & Social Development
Ministry of Education, Sports & Culture
Ministry of Finance
Corporations
Samoa Water Authority
Electric Power Corporation
Samoa Tourism Authority
Non Governmental Organizations (NGOs)
Samoa Umbrella of Non-Governmental Organizations
OSSLI
METI
CARE
Community representatives
Independent Water Schemes Incorporated
Council of Churches
Village Water Committees
Village Women's Committees
Academic organizations
National University of Samoa
Polytechnic of Samoa
Primary and Secondary Schools
Private sector
Chamber of Commerce
Samoa Association of Manufactures and Exporters
Women in Business
Regional organizations
SOPAC
SPREP
PWA
Donors and International Financing Institutions
European Union
Asian Development Bank
World Bank
Australian Aid
New Zealand Aid
JICA

The responsibility matrix presented Appendix 2 aims to provide an indication of lead actors (L), key support actors (S) as well as other parties invited for consultation (C) with regards to sector management against each of the sub-sectors and key activity areas.

The key activity areas identified are (1) policy development, (2) legislation, regulations and enforcement, (3) planning, (4) financing, (5) implementation, (6) monitoring and evaluation, (7) education and research & development, and (8) awareness raising.

It is necessary that a number of responsibilities and roles of the different organizations are (re-) assessed and (re-) confirmed. The table below presents the main areas of assessment and confirmation for each of the sub-sectors.

Figure 26 Areas of reassessment and (re-)confirmation of roles and responsibilities

0. Water Sector	• MNRE to be the lead organization for the water sector
1. Sector Orientation	• JWSSC to initiate and lead sector policies, legislation and monitoring & evaluation • MNRE/WRD to initiate and lead sector planning and awareness raising
2. Water Resources Management	• MNRE/WRD to initiate and lead policies, legislation, planning, implementation, monitoring & evaluation and awareness raising for water quantity management and watershed management • MOH to initiate and lead policies, legislation, planning, implementation, monitoring & evaluation and awareness raising for water quality management
3. Water Use	• MWTI/MWCSD to initiate and lead policies and legislation for urban and rural water supply • SWA to initiate and lead planning, implementation and awareness raising of urban and rural water supply • MOF to initiate and lead hydropower policies, and MTWI to initiate and lead hydropower legislation • EPC to initiate and lead hydropower planning, implementation and awareness raising • MAF to initiate and lead irrigation policies, legislation, planning, implementation, monitoring & evaluation and awareness raising
4. Wastewater	• MWTI/MOH to initiate and lead policies and legislation for urban and rural sanitation, drainage and wastewater treatment and disposal • MOH to initiate and lead planning, implementation, monitoring & evaluation and awareness raising for sanitation • MWTI to initiate and lead planning, implementation, monitoring & evaluation and awareness raising for drainage • SWA to initiate and lead planning, implementation and awareness raising for wastewater treatment and disposal
All categories	• MOF/BUDGET to initiate and lead financing for the sector as a whole and for all its sub-sectors • MOF/SOEMU to initiate and lead monitoring and evaluation of water supply, sanitation, hydropower and wastewater disposal and treatment sub-sectors • MESC to initiate and lead education and research & development for the sector as a whole and for all sub-sectors

7.6 Implementation modalities

The role of Government
Implementation modalities need to ensure that organizational roles and responsibilities are mainstreamed within existing institutional structures. Implementation should strengthen local ownership and support the Government's macro-economic reform processes. Devolving powers to line ministries and corporations, empowering community involvement, and providing private sector opportunities are key elements of successful implementation.

A balanced and appropriate role for Government departments or corporations working in partnership with a skilled and resourced private sector should bring efficiency gains. The SWA's strategy over recent years has been to take a greater role in project and contract management with design, construction, and in some instances supervision outsourced to the private sector. This approach not only increases ownership by the SWA but also ensures implementation is fully integrated with other core activities such as asset condition assessments, leak detection, and billing systems.

Community and NGO involvement
Consultation with communities during project design is essential to ensure ownership and to stimulate increased willingness to pay for services. But communities could also play an increasing role in implementation and monitoring aspects. Capacity will need to be built to enable these roles to be carried out effectively but could be channeled through the NGO and community-based organization where the relevant skills and capacity already exist. NGO and community involvement should focus attention on training and awareness, for example related to health, hygiene and other water in the community aspects. Strengthening community involvement should also provide a mechanism for improved sector monitoring at the village and community level.

Private sector participation
Government reform processes have been successful in promoting macro-economic growth and stability. Stimulating private sector involvement and providing opportunities for the local sector to compete remains a cornerstone of these on-going reforms. Lessons learned from the past have demonstrated that large infrastructure projects tendered internationally have tended to negate against local ownership as well as to preclude against involvement by local/regional companies due to overly restrictive procurement criteria.

On the contrary, implementation modalities should be geared toward developing a locally skilled and well-resourced private sector capable of providing lasting and sustainable support to benefit the water community. Some infrastructure sectors (e.g. MWTI) have seen major reforms in the outsourcing and private sector involvement. The feasibility and appropriateness of similar reforms in the water sector are yet to be assessed.

Donor involvement
Development co-operation (bilateral and multilateral) plays an important role in Samoa's economy, accounting annually for about 10% of GDP or nearly 50% of total current budget expenditure, and provides a significant input to the water sector itself. Some SAT$ 156 million has flowed to water sector activities over the past 5 years, equivalent to 47% of total expenditures in the water sector. An additional SAT$ 126-139 million of international funding will be required for the planning period 2008-2011. See for more information Chapter 8 on resource requirements.

Government-led mechanisms for co-ordination between donors and Government alike have worked well in the past and are being strengthened and formalized. Recent reforms have brought

together the previously separate responsibilities for bilateral and multi-lateral co-ordination under the Aid Coordination and Debt Management Division of the Ministry of Finance (MOF). The Division has established a programme of regular co-ordination meetings in key sectors (e.g. health, education) that bring together key donors with national stakeholders to agree sector strategies and financing. This process has led to formal agreements or Memorandums of Understanding in sectors such as Health and it is the Government's intent to extend similar formal agreements to other sectors in the future.

Such moves should be encouraged in the water sector and moves toward donor harmonization and alignment accelerated, where necessary, possibly and preferably under budget support mechanisms. The current sector plan, along with the recently developed Medium Term Expenditure Framework (see also Chapter 8) and the Sector Performance Monitoring System (see also Chapter 9), will be important building blocks for further alignment and harmonization in the water sector. The need and modalities for joint annual monitoring reviews are described in detail in Chapter 9.

CHAPTER 8: RESOURCE REQUIREMENTS

8.1 Introduction

Resource requirements for the implementation of the sector plan have been determined based on a number of assessments including:

- The necessary activities to be carried out by each of the implementing agencies in order to achieve the expected outputs and objectives (see Appendix 6)
- The risks related to the achievement of each of the expected objectives (See Appendix 3)
- The absorption capacities of the implementing agencies
- The capacity building needs of the implementing agencies (See Appendix 5)
- The financing needs distinguishing between investments costs and recurrent costs
- The revenue generating capacity of the water sector
- The external assistance needs

The results of the absorption capacities, the financing needs and the external assistance needs are described in the following sections.

8.2 Absorption capacity

There are relatively few concerns about the financing needs and absorption capacities in the sector orientation and water resources sub-sectors. Concerns however do exist in water use (esp. water supply) and wastewater (esp. sanitation) as regards the estimated investment needs.

With respect to water supply, and assuming that WASSP-2 will be implemented as planned, the level of investment needs will remain more or less at the current level the first 3 years of the planning period. This is attributed to new water supply schemes to be built (especially in rural areas and/or for the village managed schemes) and rehabilitation of existing SWA schemes.

With regards to sanitation, the planning period will most probably see the implementation of the WASSP-2 (including on-site rural sanitation) and SSDP-2 (including on-site urban sanitation) projects by SWA, and the relating financing requirements are already incorporated in the respective expenditure frameworks. Models for on-site sanitation still need to be developed for both the urban areas (septic tanks) and the rural areas (latrines and septic tanks), also to include co-funding arrangements through contributions from the beneficiaries.

There are concerns regarding the absorption capacity of SWA, recently having become responsible for wastewater services in addition to water supply services, and considering the large amount of new infrastructure facilities the organization now has to operate and maintain. Similarly there are uncertainties about the absorption capacity of the newly established Independent Water Schemes Inc.

Although not all concerns about the absorption capacity of the various implementing agencies can be addressed through capacity building, one can not conclude that capacity building can resolve all absorption capacity problems. For example, structural problems in the institutional or financial framework can not be resolved by the additional staff, training or awareness raising. A detailed list of proposed activities to strengthen capacities of the water sector organizations and also of the communities is presented in Appendix 5.

8.3 Financing needs

Major new investments in the water sector for the planning period 2008-11 are in particular expected in wastewater through sanitation and drainage in Apia and rural sanitation, and in water use through rural water supply and in hydropower (still to be determined). In much smaller absolute terms, new investments are also necessary in water resources for the establishment of a water measuring network, improvement of watershed management as well as in sector orientation for the review and formulation of water related policies and legislation. No new investments are yet foreseen in the water use sub-sector of irrigation. However, it is clear that infrastructure alone will not transform the sector and initial implementation costs will include costs for continued institutional strengthening, improving the enabling environment as well as the upgrading infrastructure systems, and these costs will be significant in the early stages.

The financing needs for the sector have been identified through a method developed under the WASSP in 2006, in particular through an analysis of past expenditures, a logarithmic trend analysis, an assessment of the absorption capacities of the relevant Ministries and Corporations, and an estimation of future investment needs.

However, with the Government of Samoa is preparing to introduce forward estimates starting the FY 2008/09, and the Ministry of Finance has introduced another method of calculating medium term financing needs based on outputs and activities. In addition, for investment or master planning a time horizon of 10-20 years is normally used. It is suggested that an investment or master plan be prepared in FY 2008/09 for all water sub-sectors and that a clear prioritization of investment needs be applied.

This means that the figures presented hereunder are still tentative and will have to be revised based on this new method within the next few months. And for a more precise overview of the investment needs of the sector plan, the first update of this document should incorporate the results of the proposed investment/master plan.

The total financing needs for each of the 4 years of the planning period are presented in the figure below. Overall recurrent financing needs (137 million SAT) are significantly higher than the investment costs (96 million SAT) in the period. While recurrent costs see a gradual increase from 33.5 million SAT in FY 2008-09 to 34.5 million SAT in FY 2011-12, the major investment needs of approximately 25 million SAT per year occur in the period FY 2008-09 to 2010-11.

Figure 27 Water sector financial forecast and shortfall of funds

Fiscal Year	Total financing needs			Total shortfall		
	Recurrent	Investment	Total	Recurrent	Investment	Total
2008-09	33,554,557	26,051,497	59,606,054	0	0	0
2009-10	34,100,824	25,064,795	59,165,619	0	0	0
2010-11	34,425,511	24,773,485	59,198,996	0	0	0
2011-12	34,545,000	19,068,810	53,613,810	-2,480,427	-2,649,937	-5,130,364
Total	136,995,892	96,548,587	233,544,479	-2,683,905	-3,573,848	-6,257,753

It is assumed that later investments will gradually shift from new infrastructure construction to rehabilitation. In subsequent updates of the MTEF, these later investment figures could still increase but this would depend on a number of factors, e.g. on a possible decision to expand the sewerage network to less densely populated areas of Apia, on the introduction of higher technology water treatment plants for Apia, on the possible establishment of a new water quality laboratory and on the design of a technical and financial model for on-site sanitation.

The final projections for the different sub-sectors over the full planning period (2008-2011) are presented in the figure on the next page. Out of the total financing needs of SAT$ 233 million the water use sub-sector has by far the highest needs (69%), in terms of recurrent costs this figure is even higher (86% or SAT$ 118 million), while it has also the highest investment needs (45% or SAT$ 43 million). The wastewater sub-sector has the second highest need for financing with 21% of total required funds, needing 37% of all investments, and 10% of all recurrent cost requirements. Water resources and sector orientation have relatively small financing requirements with 9 and 15 million SAT respectively.
The table also shows that by far the major part of the financing needs have already been more or less secured (97%), assuming that the 3 major pipeline projects (SSDP-2, WASSP-2 and IWRM Planning and Programming) will be funded and implemented.

The sector orientation sub-sector has the highest figure for shortfall of funds. While sector orientation and water resources have their shortfall mainly in the investment costs of 1.8 and 1.1 million SAT respectively, the sub-sector with the largest shortfall in recurrent costs is water use. Due to concerns about the SWA absorption capacity, new investment needs in the rural water supply and sanitation sub-sectors have been reduced for 2011-2012 as a risk mitigation measure. These reductions have been marked with yellow in the table.

Figure 28 Water Sub-sector financial forecast and shortfall of funds

Fiscal	Secured funding		Logarithmic trend			Shortfall		
Year	Recurrent	Investment	Recurrent	Investment	Total	Recurrent	Investment	Total
Sub-sector: Sector Orientation								
2008-09	348,652	1,618,424				0	0	0
2009-10	307,505	1,246,287				0	0	0
2010-11	307,873	1,247,779				0	0	0
2011-12	166,323	665,291	350,000	1,520,000	1,870,000	-183,677	-854,709	-1,038,386
Total	1,130,353	4,777,781	350,000	1,520,000	1,870,000	-183,677	-854,709	-1,038,386
Sub-sector: Water Resources								
2008-09	963,877	2,741,163				0	0	0
2009-10	981,944	2,745,536				0	0	0
2010-11	951,367	2,385,792				0	0	0
2011-12	811,351	1,720,497	1,035,000	2,810,000	3,845,000	-223,649	-1,089,503	-1,313,152
- quantity	*67,089*	*553,908*	*120,000*	*940,000*	*1,060,000*	*-52,911*	*-386,092*	*-439,003*
- quality	*511,025*	*612,682*	*590,000*	*960,000*	*1,550,000*	*-78,975*	*-347,318*	*-426,293*
- watershed	*233,237*	*553,908*	*325,000*	*910,000*	*1,235,000*	*-91,763*	*-356,092*	*-447,855*
Total	3,708,539	9,592,988	1,035,000	2,810,000	3,845,000	-223,649	-1,089,503	-1,313,152
Sub-sector: Water Use								
2008-09	28,846,401	12,251,835				0	0	0
2009-10	29,465,201	12,289,641				0	0	0
2010-11	29,855,817	12,350,454				0	0	0
2011-12	28,047,221	6,346,743	30,000,000	13,340,000	43,340,000	-1,952,779	-29,303	-1,982,082
- urban ws	*3,298,037*	*210,697*	*3,200,000*	*240,000*	*3,440,000*	*98,037*	*-29,303*	*68,734*
- rural ws	*14,270,161*	*6,136,046*	*16,500,000*	*13,100,000*	*29,600,000*	*-2,229,839*	*0*	*-2,229,839*
- hydropower	*10,479,022*	*0*	*10,300,000*	*0*	*10,300,000*	*179,022*	*0*	*179,022*
Total	116,214,640	43,238,673	30,000,000	13,340,000	43,340,000	-1,952,779	-29,303	-1,982,082
Sub-sector: Wastewater								
2008-09	3,395,627	9,440,075				0	0	0
2009-10	3,346,174	8,783,331				0	0	0
2010-11	3,310,454	8,789,460				0	0	0
2011-12	3,039,678	7,686,342	3,160,000	9,115,000	12,275,000	-120,322	-676,422	-796,744
- urban san	*244,000*	*2,196,000*	*310,000*	*2,550,000*	*2,860,000*	*-66,000*	*0*	*-66,000*
- rural san	*389,542*	*1,341,764*	*450,000*	*1,740,000*	*2,190,000*	*-60,458*	*0*	*-60,458*
- drainage	*2,070,695*	*2,806,814*	*1,975,000*	*3,075,000*	*5,050,000*	*95,695*	*-268,186*	*-172,491*
- wwt	*335,441*	*1,341,764*	*425,000*	*1,750,000*	*2,175,000*	*-89,559*	*-408,236*	*-497,795*
Total	13,091,933	34,699,208	3,160,000	9,115,000	12,275,000	-120,322	-676,422	-796,744

In terms of MTEF implementation and monitoring, the collaboration of national and international key stakeholders is essential to secure the viability and sustainability of the system. An annual cycle of 7 different steps is recommended to include:

(1) Design/confirmation of financial templates;
(2) Establishment/confirmation of guidelines for reporting and collection framework;
(3) National and international consultations on these templates and guidelines;
(4) Distribution of templates;
(5) Collection of these templates;
(6) Processing of templates into a database; and
(7) National and international review of the MTEF results.

More detailed information on monitoring and evaluation, also including the implementation of the MTEF is presented in the next chapter.

8.4 Revenue generation

The water sector does generate revenues mainly from the sale of water (SWA) and the sale of electricity through hydropower (EPC). Relatively negligent fees are charged by private sector pump operators for the collection and transport of sludge from septic tanks, and MNRE/DEC receives minimal payments from these private operators for its disposal at the landfill site in Tafaigata.

As can be seen from the figure below, total revenues in the water sector have more than doubled from 20 million SAT in 1998 to 45 million SAT in 2007. This would be more than enough to cover all the recurrent cost needs in the sector, however EPC and SWA are the only revenue generators, while EPC has operated at a profit during the last 10 years and SWA has not.

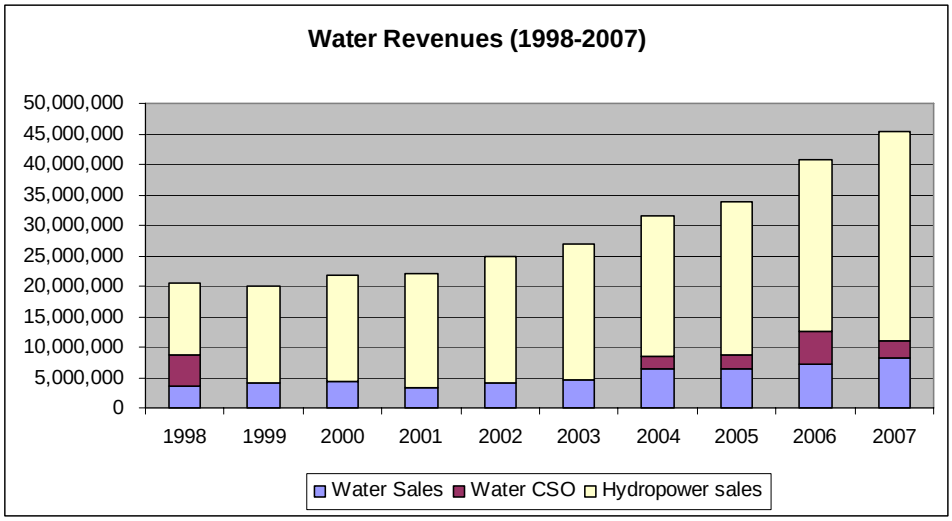
The main revenue generating capacity in the water sector is on electricity produced from hydropower. EPC has steadily produced around 45% of its electricity through hydropower in the period from 1998 and 2007, with revenues almost tripling from 26 million SAT in 1998 to 76 million SAT in 2007, totaling 483 million SAT in the last 10 years.

SWA is the second largest revenue earner, though income received from water sales started to increase only since 2004 from around 4 million SAT per year to 8 million SAT in 2007. Total sales during the period were 52 million SAT. In addition, and in order to compensate SWA for the shortfalls in their operations, the Government has been paying SWA 32 million SAT in the last 10 years to cover for annual shortfalls through Community Service Obligations (CSO) (17.5 million SAT), grants (8.3 million SAT) and others (6.6 million SAT).

Revenue generation for water supply is clearly lagging behind of that for electricity. One of the problems with proper pricing and charging for water supply is that despite the basic need of safe water, it is often regarded as a free commodity: as a service that has to be supplied freely by the government. However, water is an economic good with social and cultural implications; it is pumped up, treated and distributed. That costs money and will have to be reflected in the price of water.

No fees do yet exist to obtain licenses for the abstraction and discharge of water and wastewater (MNRE/WRD). Similarly, no charges are yet imposed by SWA for the collection and treatment of sewerage in Apia's Central Business District, as the construction of the necessary infrastructure is still being prepared. Similarly, no fees or taxes are levied for the maintenance of the drainage canals and streams.

Figure 29 **Major water sector revenues (1998-2007)**



8.5 External assistance needs

Current levels of domestic financial and human resources are clearly not sufficient to attain the identified objectives within the timeframe. Significant external assistance has been attracted from the donor community in the past and it is anticipated this will continue to be necessary in the medium-term in order to firmly establish the sector-wide approach, to support capital investment, and to provide technical specialists. It is evident that competition for scarce financial resources under the Government's budget is unable to provide the necessary levels of short-term investment capital.

Partnerships with external funding agencies will therefore continue to be essential and a co-coordinated and pro-active approach to attract donor and other external financing based on an overall sector approach is required. Grant funding is preferable in supporting water-related social goals as schemes cannot always be fully commercial in the short-term. Bank loans for commercially viable operations are appropriate where cost recovery allows, but it must be recognized that Samoa's LDC status may change which would most likely impact on future loan repayment terms.

The Government and the EU are currently considering the introduction of budget support for the water sector as a financing modality under the 10th EDF with an estimated value of 24 million Euro. The implications of this should be carefully assessed and all stakeholders should be made aware and get prepared for this likely shift from project funding to budget support.

In addition to the continued bilateral EU assistance, current national and regional initiatives in the sector are expected to be complemented and augmented by at least two new projects which are currently under discussion, being SSDP-2 (SAT$ 16.27 million) and IWRM Planning and Programming (2.8 million Euro for 14 countries).

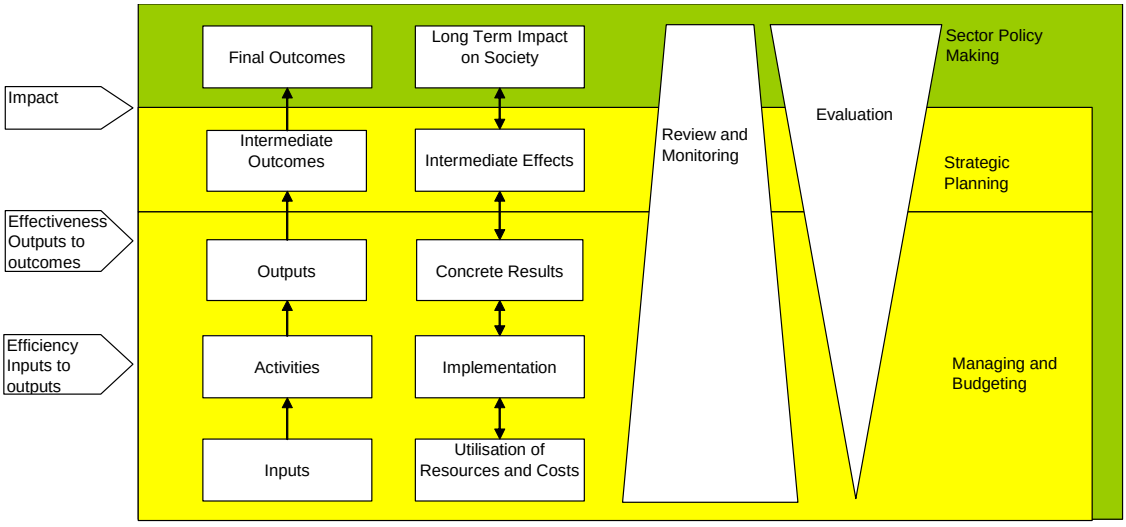
CHAPTER 9: MONITORING AND EVALUATION

11.1 Introduction

This chapter presents a proposed framework for sector monitoring and evaluation, short-term and medium-monitoring, and joint annual monitoring reviews, and is largely based on a WASSP TA report on Programme Performance Monitoring Systems (July 2006).

Monitoring and evaluation of sectoral and sub-sectoral indicators is essential to review the progress of the implementation of the sector plan. An overall framework for sector performance assessment is graphically represented in the figure below. Monitoring and evaluation the implementation performance of a sector policy is done mainly through assessing and measuring final outcomes and long-term impacts on society. Monitoring and evaluation of strategic planning, having a shorter time horizon than sector policy making, focuses more on intermediate outcomes and effects, as a measure of effectiveness and, whenever possible also on impacts. Performance monitoring tools for shorter periods (e.g. related to annual budget cycles) focus mostly on outputs, activities and inputs, which can be used as measures of efficiency, and if possible also of effectiveness.

Figure 30 Framework for sectoral monitoring and evaluation



Process and structure indicators, not shown in the figure, but included in the overall framework, are somewhat different. Structure indicators allow monitoring of the reform process in terms of structural changes in its legal, policy and institutional environment necessary for the SWAp to operate, and to which also the international funding organizations agree to (alignment). Structure indicators also relate to the introduction of one joint set of systems and procedures for management, monitoring and reporting purposes (harmonization). These structure indicators and targets are only used in the early stages of SWAp until these structural and facilitating issues are properly addressed and firmly established. Process indicators on the other hand will allow monitoring of capacity building efforts and of the interaction between the different stakeholders during the introduction as well as during the further development of the SWAp.

Monitoring the performance of the water sector is a complex and multi-layer activity. It must take into consideration all its constituting levels, i.e. from sector level down to the level of performance and satisfaction of individual beneficiaries and water users.
The following monitoring levels can be identified, and all these levels should be included in a sector wide performance monitoring system:

- Sector level growth and equity criteria;
- Achievements in policy, finance, budgetary, institutional and systems development;
- Performance of individual cost centers (budget holding, allocation of resources);
- Performance of individual projects;
- Beneficiary/client satisfaction with benefits/services.

A systematic approach towards performance monitoring has been applied, as both make a clear distinction between the various water themes and sub-themes, as well as between the different types (or hierarchy) of performance indicators (See figure below). A detailed overview of indicators and targets has been formulated to monitor the implementation of the Water for Life Sector Plan, distinguishing between these types of indicators (See also Appendix 4).

Figure 31 Water sector (sub)themes and types of indicators

Water theme	Water Sector Orientation	Water Use				Wastewater				Water Resources		
Water sub-theme / Type of Indicator		Water Supply: urban	Water Supply: rural	Hydropower	Irrigation	Sanitation	Sewerage	Drainage	Wastewater Treatment/Dispos	Water Quality Management	Water Quantity management	Watershed management
Impact												
Outcome												
Output												
Activity												
Input												
Structure												
Process												

9.2 Medium Term Monitoring

The assessment and measurement framework for sector performance in the medium term has been established to make use of both quantitative and qualitative indicators and targets. These indicators and targets have been determined building on the earlier work as reflected in the Roadmap and earlier WFL documents, and by incorporating the (revised) logical frameworks and related indicators and targets as determined under Samoa's largest water projects, i.e. the SSDP and WASSP. Separate performance monitoring formats have been produced for sector orientation, water resources, water use and wastewater. Each of these sheets outline the following:

(1) a description of the indicators;
(2) where these indicators have been derived and/or adapted from;

(3) the type or hierarchy of the indicators;
(4) the source of verification (SOV) or where the data and information on the actual performance status can be found; and
(5) the past and actual annual achievements as well as the expected/future annual targets of the sector planning period.

9.3 Short Term Monitoring

Important characteristics of monthly, quarterly and annual monitoring indicators are that they (1) show a meaningful change over the reporting period, (2) are attributable to the particular interventions that are being funded, and (3) bear a significant relationship to longer-term objectives.

The proposed short-term indicators and targets are prepared to monitor the performance of the TA contracts and of the Implementing Agencies (IAs) responsible for implementation of project components. Therefore, the indicators and targets have mainly been derived from the TORs from TA-contracts under the WaSSP (EU-funded) and the SSDP (ADB-funded), from the IWRM project (GEF-funded), and from the work programmes of project components, which are being planned and implemented by the various IAs.

It is important that all TA monitoring sheets use a similar format as the medium-term monitoring formats. These should include the indicators and targets to allow monitoring on a monthly rather than annual basis. The proposed TA formats comprise 3 main sections as they distinguish between reports (to be) produced, other milestones and expert inputs.

Similarly, separate formats for WASSP and SSDP project components are proposed. The WASSP comprises 7 components, the SSDP has 3 components. Each of these project components is being implemented by different working groups with representatives from the IAs and other key stakeholders. The proposed formats for project component monitoring are broken down in 3 main sections, these being an activity schedule, an output schedule and an expert input schedule.

9.4 Joint annual monitoring reviews

Joint annual monitoring is considered an important tool when implementing SWAp's. These reviews are undertaken by government and international funding organizations and complemented by representatives from civil society, and serves the following specific purposes:

- To jointly and periodically undertake annual reviews to evaluate the sector programme
- To serve as a main forum for resolving policy and operational issues, and adjusting the sector programme as needed
- To review the results of the previous year programme and use these results as input in the next annual programme
- To review and modify, if necessary, the indicators and/or targets formulated in the sector plan
- To agree on next year's programme including the activities to be financed, expenditure plan, procurement plan (method and sources of funding), the resources each participant will contribute, and the performance indicators to be tracked

The challenge for Samoa and its financing institutions and donors is to meet the obligations for short-term performance reporting, primarily for management information, while doing justice to the long-term nature of the outcomes being pursued, providing a proper tool for performance management.

For the joint review of the sector plan, and the formats and modalities for monitoring and evaluation the years' results, short annual reports have to be produced before the start of the joint review. These reports should include (1) a presentation and analysis of the data received, (2) how these data relate to the data in the sector plan and the MTEF, (3) a review of the monitoring and evaluation system itself, and (3) if and how the process of data-collection, verification, processing and analysis can be further improved.

The following special issues have been tentatively identified for the first joint review:

1. Existing systems to collect and use water resources data in decision taking for the water sector are not yet in place, though they are currently being developed. The review should include an assessment of the developments made to establish an information base for freshwater and coastal resources to cover reliable data on groundwater resources, surface water resources, and rainfall.
2. The financial paragraph of the current sector plan covers the period of four years only (2008/09-2011/12). As a sector investment or master plan would normally require a time horizon of 10-20 years, it is suggested to have a first sector investment plan prepared and put forward to the joint review mission.

CHAPTER 10: CONCLUDING REMARKS

This *Water for Life: Sector Plan and Framework for Action* sets out key goals and targets for the sector and elaborates a framework for action to achieve these. The plan is a vehicle to clarify where the priorities lay, to elaborate key strategies and actions, the estimated costs for implementation of the plan, and how progress will be measured along the way.

Water resource development and management presents many challenges not least of all because no single entity has an overall mandate for water. Coordination and cooperation through a partnership approach is essential and is best achieved through common action based on a sector-wide approach.

In shifting to this new way of doing things, we must all acknowledge fully that indeed …

" … water is <u>everybody's</u> responsibility … "

REFERENCES

LAWS AND REGULATIONS

The Constitution of Samoa, 1960
Water Act, 1965
Draft Water Resources Management Act, 1984
Draft Water Resources Bill, 2001
Water Authority Act, 2003
National Water Resources Strategy, 2007
Lands Surveys and Environment Act, 1989
Agriculture, Forests and Fisheries Ordinance, 1959
Ministry of Works Act, 2002
Ministry of Health Act, 2006
Planning and Urban Management Act, 2004
Watershed Protection and Management Regulations, 1991
Health Ordinance, 1959
Forests Act, 1967
Internal Affairs Act, 1995
Village Fono Act, 1990

PLANS AND STRATEGIES

Strategy for Development of Samoa 2002-2004
Strategy for Development of Samoa 2005-2007
Partnership for Development 2004-2005, MOF
Ministry of Health Corporate Plan 2002-2004
Samoa Health Sector Strategic Plan 1998-2003
Samoa Health Sector Strategic Plan 2004-2008
PWD Corporate Plan 2000-2003
MWTI Corporate Plan 2004-2006
SWA Corporate Plan 2005-2008
MNRE Management Plan 2006-2008
MWCSD Corporate Plan 2004-2007
MOF Corporate Plan 2004-2007
EPC Corporate Plan 2006-2009
MAFF Corporate Plan 2005-2008
SUNGO Strategic Plan 2006-2011

REGIONAL DOCUMENTS

Pacific Region Action Plan on Sustainable Water Resource Management, 2002
Overview of IWRM in Pacific Island countries: A National and Regional Assessment, SOPAC, 2004
Pacific Plan for Strengthening Regional Cooperation and Integration, Pacific Islands Forum Secretariat, 2007

PROJECT DOCUMENTS

Priorities of the People: Hardship in Samoa, ADB
Western Samoa Environmental Legislation Review, SPREP, 1993
National Environment and Development Management Strategies, SPREP, 1993
Water Policy: Review and Reformulation, 2003
National Water Resource Master Plan Study, 1996
Public Sector Investment Programme2005/2006 - 2007/2008, GOS
WASSP Institutional Strengthening Report, DHV, 2006
WASSP Programme Performance Management System Report, DHV, 2006
WASSP Medium Term Expenditure Framework Report, DHV, 2007
WASSP Review of the Institutional Arrangements for the Management of Freshwater Resources in Samoa, OSM Consultants, 2007
Review of ISPs in Samoa Final Report, AusAID, 2003
Review of the Water Authority Act 1993/4, SWA ISP, 2001
Review of Natural Resource and Environment Related Legislation, IWP
Rural Water Supply and Sanitation Study, 2004
SWA ISP Project Completion Report, ACIL Tasman & ActewAGL, 2004
SWA Institutional Strengthening Project, ISP, 2004
Samoa Sanitation and Drainage Report , PIAC Inception Report, 2006
Samoa Rural Water Supply Consolidation Project, KewConsult, 2006
Rural Water Supply Programme (RWSP)
National IWRM Diagnostic Report, SOPAC, 2007
Programme for Water Governance Report of pilot initial missions, SOPAC, 2005
Programme for Water Governance Report of Workshop to Develop a Water Strategy – Fiji, SOPAC, 2005
Programme for Water Governance Fiji Water Resources Management at National Level final report, SOPAC, 2006

ANNEXES

ANNEX I: Recent, ongoing and pipeline water projects and programmes

Project Name	Implementing Agency	Water sub-sector				From	To	Donor	Amount	Type
		Orientation	Water Resources	Water Use	Wastewater					
National Projects										
Recent Projects										
Rural water supply Project	EU			X		2000	2003	EU	60 mio SAT	Grant
Grassroots Grant Aid Projects	JICA			X		1991	2006	JICA		Grant
Low cost small scale irrigation	FAO			X		2003	2005	FAO	USD201,359	Grant
Rural water supply consolidation	EU			X		2004	2005	EU	SAT5.6m	Grant
Project Design Assistance	EU			X		2005	2006	EU	358000 Euro	Grant
Ongoing Projects										
Microprojects	EU			X		2003	2007	EU	SAT4m	Grant
Samoa Drainage and Sanitation	ADB				X	2004	2008	ADB	SAT23.9m	Loan
Public Sector Improvement Fac	NZAID/ AUSAID	X		X		2005	2008	NZAID/ AUSAID	500,000SAT	Grant
Water Sector Support Prog	EU	X	X	X	X	2005	2010	EU	20 mio Euro	Grant
Pipeline Projects										
Samoa Drainage and Sanitation 2 (scheduled)	ADB				X	2009	2012	ADB	SAT16.27m	Loan
Water Sector Support Prog 2 (scheduled)	EU	X	X	X	X	2008	2013	EU	24 mil Euro	Grant
Regional Projects										
Recent Projects										
International waters Project	SPREP		X			2000	2006	GEF		Grant
Pacific Resource Centre on Water and Climate	SOPAC/ CPWC		X			2005	2006	ADB	50k USD	Grant
Reducing Island Vulnerability Project	SOPAC		X		X	2005	2006	EU		Grant
Ongoing Projects										
Water & Sanitation Awareness	SOPAC			X	X	2006	2008	SOPAC	80,000 USD	Grant
Pacific Hydrological Training Programme	SOPAC/WMO/ UNESCO/NIWA		X			2005	2007	NZAID	600K NZD	Grant
Coordination Unit Pacific Partnership on Sustainable Water Management	SOPAC		X			2005	2008	ADB	55k USD	Grant
IWRM (PDF-B Stage)	SOPAC	X	X			2006	2007	GEF	600,000USD	Grant
Improving Delivery of Infrastructure Services	ADB			X	X	2006	2008	ADB/AUSAID/NZAID/ WB/PIFS	800k USD	Loan
Pacific IWRM WUE	SOPAC		X			2006	2009	EU WF	3.8m Euro	Grant
Pacific HYCOS	SOPAC/ WHO		X			2006	2009	EU WF	3.2m Euro	Grant
Pacific Programme on Sustainable Integrated Water Resources Management	Pac.Partn/UNDP SOPAC/UNEP		X			2007	2012	GEF	10m USD	Grant
Pipeline Projects										
Pacific IWRM Planning Programme (scheduled)	SOPAC	X	X			2008	2010	EU WF	2.8m Euro	Grant

National Projects

Donor	Implementing Agency	Project Name	Water sub-sector	Objectives	Duration	Funding
EU	EU	Microprojects	water use	Objectives: To improve access to social and economic infrastructure facilities in rural areas and increased capacity to develop and maintain such facilities	2003-2007	SAT4.00million
JICA	JICA	Grassroots Grant Aid Projects	water use	Objectives: To aid self-supporting socio-economic development activities that benefit sectors at the grassroots' level	1991-2006	-
ADB	ADB	Samoa Drainage and Sanitation Project	wastewater	Objectives: Improve the environment and public health of Apia's resident's; improving urban infrastructure for drainage and sanitation; improving capacity in urban management	2004-2008	SAT23.9 million
FAO	FAO	Low cost small scale irrigation	water use	Objectives: Establish low-cost small scale irrigation systems in critical areas of the country, and develop the capacity of MAFFM to effectively carry out related activities in the future.	2003-2005	221.000 USD
EU	EU	Rural Water Supply Consolidation Project	water use	Objectives: Consolidate the impact and sustainability of benefits from newly improved water supply infrastructure in NW Upolu and SE Savaii	2004-2006	SAT5.6million
NZAID/ AUSAID	NZAID/ AUSAID	Public Sector Improvement Facility (Samoa)	sector orientation	Objectives: Strengthen cooperation and collaboration between public service agencies (and between them, the private sector and civil society), in addressing critical constraints within the public sector to effective service delivery through a range of institutional strengthening initiatives.	2005-2008	-
EU	EU	Water Sector Support Programme	sector orientation, water resources, water use, wastewater	Objectives: Improve the quality of public health through the development, management and conservation of water resources and the disposal of waste water, in the framework of sustainable development of Samoa's economic and social environment	2005-2010	20,09 mio Euro

Regional Projects						
GEF	SPREP	International Waters Project	water resources	Objectives: Regional initiative to improve natural resources management and the environment	2000-2006	670.000 SAT
ADB	SOPAC/CPWC	Pacific Resource Centre on Water and Climate	water resources	Objectives: Improve the capacity in water resources management to cope with the impacts of increasing variability of the world's climate. Activities: Establish a platform through which policymakers and water resource managers have better access to and make better use of information generated by climatologists and meteorologists	2005-2006	50 K USD
EU	SOPAC	Reducing Island Vulnerability Project	water resources, wastewater	Objectives: Flood forecasting and training	2005-2006	180.000 SAT
SOPAC?	SOPAC	Water & Sanitation Awareness	water and wastewater	Objectives: Supply of awareness and education materials on water & sanitation	2006 ongoing	80.000 USD (2006 to be confirmed)
NZAID	SOPAC/ UNESCO/ WMO/NIWA	Pacific Hydrological Training Programme	water resources	Objectives: Capacity Building for Hydrological Technicians. Activities: 3-year course on groundwater and surface water hydrology	2005-2007	600 K NZD
ADB	SOPAC	Coordination Unit Pacific Partnership on Sustainable Water Management	water resources	Objectives: Assist facilitation of the Partnership. Activities: Newsletter, Website, Database, Pacific Water Action Matrix	2005-2008	55 K USD
GEF	SOPAC	IWRM (PDF-B Stage)	water resources	Objectives: Assist the PIC's in developing IWRM demonstration projects	2006-2007	600.000 USD
ADB/AUSAID/ NZAID/WB/PI FS	ADB	Improving Delivery of Infrastructure Services	water use, wastewater	Objectives: Establish information clearinghouse of country priorities, subsector strategies, programs and projects; a diagnostic analysis of service delivery; a feasibility study for a regional advisory unit; and a strategy and action plan	2006-2008	800 K USD
EU WF	SOPAC	Pacific IWRM WUE	water resources	Objectives: develop sustainable national IWRM policies and water efficiency strategies, endorsed by both government and civil society stakeholders, and	2006-2009	3.8 mio Euro (proposed)
EU WF	SOPAC/WMO	Pacific HYCOS	water resources	Objectives: Improve management and protection of Pacific small island states freshwater resources. Activities: provision of appropriate water resources management systems to demonstrate sustainable catchment and aquifer management. Focus on carrying our activities like flood forecasting, water resources assessment in major rivers, water resource database, drought forecasting, groundwater & water quality monitoring and assessment	2006-2009	3.2 mio Euro
EU WF	SOPAC	Pacific IWRM Planning Programme	sector orientation, water resources	Objectives: Have national IWRM policies and water efficiency strategies in place, endorsed by both government and civil society stakeholders, and integrated into the national SDSs	2007-2010	2.8 M Euro
GEF	Pacific Partnership/ SOPAC/UNEP/ UNDP	Pacific Programme on Sustainable Integrated Water Resources Management	water resources	Objectives: Improve the assessment and monitoring of water resources, reduce water pollution, improve access to technologies, strengthen institutional arrangements, and leverage additional financial resources in support of IWRM. Activities: Implement applicable and effective Integrated Water Resource Management (IWRM) and Water Use Efficiency (WUE) plans based on best practices and demonstrations of barrier removal.	2008-2012	10 M USD

ANNEX II: Water sector responsibility matrix (to be reassessed and reconfirmed)

No.	Water sub-sector		JWSSC	MNREM	MOH	MAF	MWTI	MWCSD	MOF	MESC	AG	SWA	EPC	IWS	PS	NGO
0	Water sector															
	Sector lead organisation		S	S	S	S	S	S	S	S	S	**L**	S	S	S	S
1	Water Sector Orientation															
		Policies	**L**	S	S	S	S	S	S		S	C	C	C	C	C
		Legislation	**L**	S	S	S	S	S	S		S	C	C	C	C	C
		Planning	S	**L (1)**	S	S	S	S	S			S	S	C	C	C
		Financing	S	S	S	S	S	S	**L (3)**			C	C	C		
		Monitoring & evaluation	**L**	S	S	S	S	S	S			S	S	S	S	S
		Education/R&D	S	S	S	S	S	S	S	**L**		S	S	S	S	S
		Awareness raising	S	**L (1)**	S	S	S	S	S	S		S	S	S	C	S
2	Water Resources Management															
2.1	Water quantity management															
		Policies	S	**L (1)**		S	S				S	C	C	C	C	C
		Legislation/Regulation/Enforcement	S	**L (1)**		S	S				S	C	C	C	C	C
		Planning	S	**L (1)**		S	S					S	S	C	C	C
		Financing		S		S	S		**L (3)**			C	C	C		
		Implementation		**L (1)**		S	S					S	S	S		
		Monitoring & evaluation	S	**L (1)**		S	S					S	S	S	S	
		Education/R&D		S		S	S			**L**		S	S	S	S	S
		Awareness raising		**L (1)**		S	S			S		S	S	S		S
2.2	Water quality management															
		Policies	S	S	**L**	S					S	C		C	C	C
		Legislation/Regulation/Enforcement	S	S	**L**	S					S	C		C	C	C
		Planning	S	S	**L**	S						C		C	C	C
		Financing		S	S	S			**L (3)**			C		C		
		Implementation		S	**L**	S						C		C		
		Monitoring & evaluation	S	S	**L**	S						S		S	S	
		Education/R&D		S	S	S				**L**		S		S	S	S
		Awareness raising		S	**L**	S				S		S		S		S
2.3	Watershed management															
		Policies	S	**L (1)**		S		S			S	C	C	C	C	C
		Legislation/Regulation/Enforcement	S	**L (1)**		S		S			S	C	C	C	C	C
		Planning	S	**L (1)**		S		S				S	S	S	C	C
		Financing		S		S		S	**L (3)**			C	C	C		
		Implementation		**L (1)**		S		S				S	S	S		
		Monitoring & evaluation	S	**L (1)**		S		S				S	S	S	S	
		Education/R&D		S		S		S		**L**		S	S	S	S	S
		Awareness raising		**L (1)**		S		S		S		S	S	S		S
3	Water use															
3.1	Water supply															
3.1.1	Urban water supply															
		Policies	S	C	S		**L**				S	S			C	C
		Legislation/Regulation/Enforcement	S	S (5)	S		**L**				S	S			C	C
		Planning	S	C	S				S (4)			**L**	C		C	C
		Financing		C	S				**L (3)**			S				
		Implementation		C	S							**L**	C			
		Monitoring & evaluation	S	C	S				**L (4)**			S				
		Education/R&D		C	S					**L**		S			S	S
		Awareness raising		C	S					S		**L**				S
3.1.2	Rural water supply															
		Policies	S	C	S		**L**	S			S	S		S	C	C
		Legislation/Regulation/Enforcement	S	S (5)	S		**L**	S			S	S		S	C	C
		Planning	S	C	S	C		S	S (4)			**L**	C	S	C	C
		Financing		C	S			S	**L (3)**			S		S		
		Implementation		C	S	C		S				**L**	C	S		
		Monitoring & evaluation	S	C	S			S	**L (4)**			S		S		
		Education/R&D		C	S			S		**L**		S		S	S	S
		Awareness raising		C	S			S		S		**L**		S		S

No.	Water sub-sector		JWSSC	MNREM	MOH	MAF	MWTI	MWCSD	MOF	MESC	AG	SWA	EPC	IWS	PS	NGO
3.2	Hydro power															
		Policies	S	C				S	**L**		S		S		C	C
		Legislation/Regulation/Enforcement	S	S (5)			**L**	S			S		S		C	C
		Planning	S	C		C		S	S (4)			C	**L**	C	C	C
		Financing		C				S	**L (3)**				S			
		Implementation		C		C		S				C	**L**	C		
		Monitoring & evaluation	S	C			S	S	**L (4)**				S			
		Education/R&D		C				S		**L**			S		S	S
		Awareness raising		C				S		S			**L**			S
3.3	Irrigation															
		Policies	S	C		**L**		S			S				C	C
		Legislation/Regulation/Enforcement	S	S (5)		**L**		S			S				C	C
		Planning	S	C		**L**		S				C	C	C	C	C
		Financing		C		S		S	**L (3)**						S	
		Implementation		C		**L**		S				C	C	C	S	
		Monitoring & evaluation	S	C		**L**		S							S	
		Education/R&D		C		S		S		**L**					S	S
		Awareness raising		C		**L**		S		S					S	S
4	Wastewater															
4.1	Sanitation/sewerage															
4.1.1	Urban sanitation															
		Policies	S	C	S		**L**				S	S			C	C
		Legislation/Regulation/Enforcement	S	S (5)	S		**L**				S	S			C	C
		Planning	S	C	S				S (4)			**L**			C	C
		Financing		C	S				**L (3)**			S				
		Implementation		C	S							**L**				
		Monitoring & evaluation	S	C	**L**		S		S			S				
		Education/R&D		C	S					**L**		S			S	S
		Awareness raising		C	**L**		S			S		S				S
4.1.2	Rural sanitation															
		Policies	S	C	S		**L**	S			S	S		S	C	C
		Legislation/Regulation/Enforcement	S	S (5)	S		**L**	S			S	S		S	C	C
		Planning	S	C	S			S	S (4)			**L**		S	C	C
		Financing		C	S			S	**L (3)**			S		S		
		Implementation		C	S			S				**L**		S		
		Monitoring & evaluation	S	C	**L**		S	S	S			S		S		
		Education/R&D		C	S			S		**L**		S		S	S	S
		Awareness raising		C	**L**		S	S				S		S		S
4.2	Drainage															
		Policies	S	C	C		**L**				S				C	C
		Legislation/Regulation/Enforcement	S	S (5)	C		**L**				S				C	C
		Planning	S	C	C		**L**								C	C
		Financing		C	C		S		**L (3)**							
		Implementation		C	C		**L**									
		Monitoring & evaluation	S	C	C		**L**									
		Education/R&D		C	C		S			**L**					S	S
		Awareness raising		C	C		**L**			S						S
4.3	Wastewater disposal/treatment															
		Policies	S	C	S		**L**				S	S		C	C	C
		Legislation/Regulation/Enforcement	S	S (5)	S		**L**				S	S		C	C	C
		Planning	S	C	S				S (4)			**L**		C	C	C
		Financing		C	S				**L (3)**			S				
		Implementation		C	S							**L**				
		Monitoring & evaluation	S	C	**L**		S		S			S				
		Education/R&D		C	S					**L**		S			S	S
		Awareness raising		C	S		S			S		**L**				S

(1) MNREM/WRD
(2) MOF EPPD
(3) MOF Budget
(4) MOF SOEMU
(5) MNREM/PUMA

L Lead actor
S Support actor
C Consultation

ANNEX III: Risk assessment by sub-sector and objective

Sub-Sub Sector	OBJECTIVES	RISK ASSESSMENT
Orient	1. Promote a sector-wide approach based IWRM principles and practices	Lack of understanding of mandates of other organizations of the water sector.
		Lack of willingness of different sectors to cooperate in the sector wide approach.
		Non participation of the private sector and civil societies –all water users should be well represented and involved in the decision making.
	2. Create an effective apex body and associated coordination framework to oversee water sector coordination & development	Lack of willingness of Ministries/Ministers/CEO/ because it may perceive that their power is reduced.
		If Apex Body and the General Secretary are a new organization there is a risk of securing funds.
		The relationship between the secretary and Apex Body if the secretary is placed within a ministry, the secreatriate will have two bosses the Apex Body and the CEO.
	3. Adopt and implement the Water for Life with a mid-term review of the strategy to follow	Sector IA coordinators not agreeing on sector objectives/goals
		Managing the transition from projects to budget support (institutional reforms)
		Failure to integrate sector strategies into corporate plans
		Failure to integrate into the national MTEF process
	4. Adopt and integrate the MTEF into the government budget system	Insufficient financing for identified shortfalls
		Cashflow problems with EC disbursements
		Policy and priority changes and its impact on estimates
	5. Develop and Implement effective (sub-)sector performance monitoring and reporting	Limited government revenue to fund for performance monitoring and reporting
		Some sub-sectors might have no performance monitoring systems currently in place
		Some sub-sectors have performance monitoring systems in place but are not being implemented, in that information is not being generated etc.
		How can the performance monitoring and reporting systems/mechanisms be sustainable, especially when project funding cease
	7. Develop and Implement updated water-related legislation and regulation	1. Lack of enforcement of water related legislation and regulation at all levels (national and local) 2. Lack of resources and capacity of Courts and Police to effectively enforce water related legislation and regulations 3. Limited public awareness on all water related legislation being developed and implemented in Samoa 4. Attorney General's office processes being too lengthy, sometimes taking a long time for a legislation to be approved
		Limited Technical understanding on WSP
WR	1. Create greater community awareness of water resources issues	1. People's willingness to take on responsibilities and roles 2. Accuracy of information delivered to the right audience, using the most appropriate manner at the right time (time and approach) 3. Limited training with regards to delivering information (approach)
	2. Improve knowledge & understanding of water resources	1. Inadequate resources available (equipments/human etc.) 2. Ignorance of the people to take responsibilities ie. non participation 3. Loss of institutional knowledge both at the local and national levels
	3. Conserve and rehabilitate water resources in partnership with all stakeholders	1. Limited resources (financial & human) and capacity (technical & institutional) 2. Limited collaboration with regards to compliance of stakeholders in implementing the national activities and conditions of IWRM 3. Land ownership issues ie. access 4. Water Resources ownership issues 5. Continuing unsustainable land-use practices (feral animals, deforestation) 6. Natural disasters

Sub-Sub Sector	OBJECTIVES	RISK ASSESSMENT
	4. Protect water resources from the adverse impact of human activities	1. Continuing unsustainable land-use practices (feral animals, deforestation) 2. Land ownership issues ie. safety issues to enforcers 3. Limited collaboration with regards to compliance of stakeholders in implementing the national activities and conditions of IWRM 4. Land ownership issues ie. access 5. Water Resources ownership issues 6. Natural disasters 7. Limited resources (financial & human) and capacity (technical & institutional) 8. Public health risks associated with water quality (water borne diseases)
	5. Create greater community awareness of water quality issues	The delivery of the Awareness Programmay may not be effective
	6. Realize the establishment of a Public Health Surveillance Monitoring Laboratory	Cost of WQ analysis
		IVMS may struggle to meet NDWS
	7. Ensure National Drinking Water Standards are in place to regulate and monitor Water Safety	Standards set may be too high
		Limited Technical understanding on WSP
	8. Develop and implement management mechanisms to control the allocation of water	1. Limited human resources / technical skills 2. Inappropriate/non-practical regulatory mechanisms being formulated 3. Acceptance of policies / legislation by communities and national stakeholders 4. Occurrence of natural hazards
	9. Promote global partnerships to support the management of water resources	1. Community Level – acceptance of bylaws 2. National Level – acceptance and enforcement of legislation / policies 3. Regional Level – limited financial and technical resources coordination 4. Global Level – activities / agenda are donor driven (not recognizing country priorities) eg. MEAs.
Water Supply	1. Ensure adequate awareness of roles & responsibilities of service providers & consumers in sustainable water services	Stakeholders cannot agree
		Political interference
		Consumer resistance
		Water Act recognize only SWA
		No H2S supplies, lack of training
		Cost of transport and communication
		Natural disasters
		Conflict management problems relating to multi village schemes
		Limited technical expertise at village level
		Lack of resources at village level for data collection
		No H2S supplies, lack of training
		Nothing happens to improve sanitation inspection at village levels
		Very costly
		No political support and commitment
		No earmarked donor support
		change to IWSA is newly formed and has limited capacity

Sub-Sub Sector	OBJECTIVES	RISK ASSESSMENT
	2. Increase stakeholder participation in planning, design and implementation of water service delivery	Ownership of water resources
	3. Increase levels of cost recovery & improve financial viability of water service providers	People only willing to pay when services improve
		Failure to agree
		Political consumer resistance
		Capacity of rural communities to pay
	4. Improve and co-ordinate collection of data for water service planning & management	Limited technical personnel
		Loss of key staff
	5. Provide appropriate quantities & qualities of potable water in accordance with a 'levels of	Inadequate funding
		Capacity to implement service charter
	6. Integrate environmentally sensitive wastewater disposal & sanitation with provision of water supply	ADB funding requirement i.e environment rqmts
	7. Improve efficiency & performance of water service systems	Limited technical capacity of SWA
		Manpower for zoning and monitoring
	9. Strengthen capacity of key stakeholder groups to fulfill their respective roles	Institutional review just completed, other review may be to soon
	10. Promote conjunctive use of water	Joint investment may be difficult to implement
	11. Improve understanding of Health Risks related to Water Supply	1) Infrastucture is old and needs refurbishment
		2) Improve understanding
Hydro Power	1. Improve and increase hydropower performance	Lack of fin. resources to replace and improve infrastructure to improve efficiency
		Inadequate specialised knowledge and skills to improve standards
		Ability to settle land disputes and compensation problems
		Draught & flooding (Poor management and planning of scarce available resources)
		Generator breakdowns
		Water availability
		Natural disasters (Cyclone, earthquakes, landslides, soil erosion)
	2. Strengthen capacity of key stakeholder groups to fulfill their respective roles	Willingness of participants to participate, cooperate and share data
		Lack of capabilities to enforce legislation
		Lack of political and community will to allow enforcement
	3. Coordinate investment and O&M of water uses (HYDRO – WS)	Too much conflicting demand on water uses in some (urban) areas
		Regulator is not regulating
Irrigation	1. Reassess potential & demand for irrigation and consider development of an irrigation strategy	No
		No
Environ	1. To improve knowledge and understanding of water resource management issues	Limited knowledge and resources to undertake assessment
		Insufficient & inaccurate data
	2. Promote integrated water use	Non-compliance
		Competing uses resulting in conflicts
		Limited resources
		Lack/Limited resources (technical and financial)
	3. Strengthen capacity of key stakeholder groups to fulfill their respective roles	Lack of political support

Sub-Sub Sector	OBJECTIVES	RISK ASSESSMENT
On site	1. Strengthen health & education awareness programmes	lack of co-ordination - different groups may send different messages ?
		The delivery of the Awareness Programmay may not be effective
	2. Increase the collection & treatment of wastewater in Apia Urban area	Understaffing at MOH
		financial risk - who pays
		Lack of incentive for Private upgrading of sanitation facilities
		1) lack of enforcement of policies, regulations and standards 2) Wastewater Standards not in place 3) Understaffed
	3. Increase access to safe, environmentally friendly sanitation in rural areas	No framework for developing Sanitation Policy in the Health context
		Behavioral change towards sanitation is driven by incentive
		1) Wastewater standards not in place 2) Understaffed
	4. Establish safe & environmentally sensitive septage pump out & disposal services	land availability at Aleipata area
	5. Set up the sanitation unit at MOH to effectly achieve objectives of the project	Hard to change behavior (lack of enforcement of policies e.g. National Building codes)
	6. Develop & Implement sanitation systems for all new development areas	Same as #2
Off site	1. Develop & implement wastewater awareness & education programmes	Lack of funding
		Monitoring effectiveness
		Stakeholders unwilling to comply
		Tariff inefficient
	2. Develop Santation Masterplan	Lack of funds
		Undefined responsibilities
	3. Institutional Strengthening & Capacity Building	SWA staff overwhelmed with unresolved technical issues
		High turnover of staff due to work related accidents
		Skills lost due to high turnover
		Training ineffective
	4. Policy Development & Review	Interagency Cooperation
		Stakeholders unwilling to comply
Drainage	1. Reduce the risk of flooding in Apia Catchment Area (preventive)	Lack of financial resources for implementation of infrastructures and compensation
		Unwillingness of stakeholders to become involved
		Lack of political will to enforce the Taking of Lands Act and PUM Act
		Resistance of land owners to relocate
	2. Minimze damage and disruption due to flooding and drainage problems	Increase frequency and severity of climate change occurrences eg. Flooding
		Increase frequency and severity of climate change occurrences eg. Flooding
	3. Develop and implement drainage systems for all new development	Limited capacity of PUMA in monitoring and linkages with enforcement agencies

ANNEX IV Indicators and targets by sub-sector and objective

OVERALL SECTOR OBJECTIVES, INDICATORS AND TARGETS

OBJECTIVES	INDICATOR DESCRIPTION	INDICATOR TYPE	EXISTING/NEW	TARGETS				SOURCES OF VERIFICATION	RESPONSIBLE INSTITUTIONS
				2008	2009	2010	2011		
Golden Indicators									
Overall Sector Goal: To alleviate poverty and improve public health	% of urban population suffering from poverty and hardship reduced by half by 2015	Impact	Existing to be consolidated	17	16	15	14	Stats, MDG	MOF WSMU
	% of rural population suffering from poverty and hardship reduced by half by 2015	Impact	Existing to be consolidated	24	23	22	21	Stats, MDG	MOF WSMU
	Annual decrease of number of water related diseases reported	Impact	Existing to be consolidated						
	a. Typhoid							MOH report	MOH
	b. Garstoenteritis & Diarrhoea							MOH report	MOH

SECTOR ORIENTATION OBJECTIVES, INDICATORS AND TARGETS

OBJECTIVES	INDICATOR DESCRIPTION	INDICATOR TYPE	EXISTING/NEW	TARGETS				SOURCES OF VERIFICATION	RESPONSIBLE INSTITUTIONS
				2008	2009	2010	2011		
Golden Indicators									
1. Promote a sector-wide approach based IWRM principles and practices	Institutional framework adopted and under effective implementation	Structure	Existing to be consolidated	Adopted	Effective	Effective	Effective	Joint annual review plans	JWSSC
5. Develop and Implement effective (sub-)sector performance monitoring and reporting	Performance monitoring data and reports and sectoral, sub-sectoral and institutional level being regularly produced and used	Output	Existing to be consolidated			X	X	Annual Reports	MOF WSMU
	Government budget to fund performance monitoring of sector plan implementation, incl. adjustment of budget coding system	Structure	Existing to be consolidated			X	X	Annual Budget Reports	MOF WSMU
Priority 1 Indicators									
1. Promote a sector-wide approach based IWRM principles and practices	Government and donor agencies committing to embark on sector wide approach for the water sector	Process	Existing to be consolidated	X	X	X	X	Joint annual review plans	JWSSC
2. Create an effective apex body and associated coordination framework to oversee water sector coordination & development	JWSSC mandate to cover the entire water sector	Structure	Partially existing	X	X	X	X	Law	AG Parliament
	JWSSC pursuing an effective water agenda	Process	Existing to be consolidated	X	X	X	X	Joint annual reviews	JWSSC
	WSMU providing technical inputs and effectively planning and organizing regular JWSSC meetings	Process	Existing	X	X	X	X	Joint annual reviews	MNRE WRD
	JWSSC and WSMU effectively implementing their mandates	Process	Existing	X	X	X	X	Joint annual reviews	MNRE WRD
3. Adopt and implement the Water for Life with a mid-term review of the strategy to follow	Water for Life Sector Plan, prepared with wide consultation of stakeholders and approved by JWSSC and CDC	Process	Existing to be consolidated	X				Minutes of WSSC / CDC	MOF WSMU
	Sector plans jointly agreed between government and donor agencies – future donor funding in-line with sector plans	Process	Existing to be consolidated	X	X	X	X	Future projects	MOF WSMU
4. Adopt and integrate the MTEF into the government budget system	Government national budget maintains a certain % to the water sector	Output	Existing to be consolidated	X	X	X	X	National budget	JWSSC
7. Develop and Implement updated water-related legislation and regulation	Water Resources Management Bill 2008 passed by Parliament	Structure	New	X				Law in place	MNRE WRD
	National Water Resources Policy endorsed by Cabinet	Structure	New	X				Policy in place	MNRE WRD
	National Water Allocation Policy endorsed by Cabinet	Structure	New	X	X			Policy in place	MNRE WRD
	National Watershed Conservation Policy endorsed by Cabinet	Structure	New	X	X			Policy in place	MNRE WRD

	Rights of Access to Water Resources Policy endorsed by Cabinet	Structure	New	X	X			Policy in place	MNRE WRD
	Water Use Licencing Regulations approved by Cabinet	Structure	New		X	X		Regulations in place	MNRE WRD
	Water Resources Allocation Regulations endorsed by Cabinet	Structure	New		X	X		Regulations in place	MNRE WRD
	Sanitation Policy in place and implemented	Structure	New			X	X	Policy in place	MOH
	Water Safety Plans Exist for IWS	Structure	New	X	X	X	X	MWCSD/MOH/IWSA	MOH
	IWSA mandated to manage all IWS	Structure	New			Approve	Effective	MNRE WRD/MWCSD/ISWA	MWCSD
	Water Safety Plans Exist for SWA shemes	Structure	New	X	X	X	X	WSP in place	MOH

WATER RESOURCES OBJECTIVES, INDICATORS AND TARGETS

OBJECTIVES	INDICATOR DESCRIPTION	INDICATOR TYPE	EXISTING/NEW	TARGETS				SOURCES OF VERIFICATION	RESPONSIBLE INSTITUTIONS
				2008	2009	2010	2011		
Golden Indicators									
Key Objective 2: Secure sustainable water resources management	Total annual withdrawals as share of annual water resources (both ground & surface 1991)	Outcome	New	System capacity in place	Realistic data exists			MNRE reports	SWA, EPC, MNREM
	Economic losses from floods (& droughts) through data collection &monitoring (annual average from 1990 to 2000)	Outcome	New	System capacity in place	Realistic data exists			MNRE reports	MOF, SWA, MWTI, EPC
Priority 1 Indicators									
1. Create greater community awareness of water resources issues	Number of consultations and awareness programmes / evaluation forms	Output	Existing to be consolidated	X	X	X	X	Awareness & Consultation Reports	MNRE WRD
	Publication of educational and promotional materials	Output	Partly new	X	X	X	X	Educational & promotional materials	MNRE WRD
	Water resources issues integrated into curriculum	Output	Existing to be consolidated	X	X			Curriculum & Monitoring & Evaluation Report	MNRE WRD
	Increased media coverage of water resources issues	Output	Existing to be consolidated	X	X	X	X	Articles, Documentaries, radio talkshows, tv spots	MNRE WRD
2. Improve knowledge & understanding of water resources	Effective and efficient implementation of work programmes/plans	Outcome	Existing to be consolidated	X	X	X	X	Training Reports & Training Modules & Progress Reports	MNRE WRD
	Effective monitoring network implemented within the prioritised watershed and supply areas	Outcome	New	X	X	X	X	Field monitoring reports & Quarterly Progress reports	MNRE WRD
	Number of capacity building programmes / evaluation forms (before & after)	Output	Partly new	X	X	X	X	Reports	MNRE WRD
	Baseline water quality data (resources)	Output	New	X	X			Assessment reports for prioritised watershed areas	MNRE WRD
	Sustainable yield, low flow determined	Output	New		X	X		Assessment reports	MNRE WRD
	Environmental Flow Requirements established	Output	New		X	X		Assessment reports	MNRE WRD
	Minimum environmental flows determined for prioritised watershed areas	Output	New		X	X		Assessment reports	MNRE WRD
	Appropriate mitigation schemes identified	Output	New	X	X			Assessment reports	MNRE WRD
	Increased installation and use of rainfall tanks/ increased dependancy on freshwater springs	Outcome	Existing to be consolidated			X	X	Report	MNRE WRD
	Hydrological and hydrogeological equipments procured /	Output	Existing	X	X			Registration & Inventory Report	MNRE WRD
	Increased number of monitoring sites /network	Output	New	X	X	X	X	Report	MNRE WRD
	Monitoring boreholes operational	Output	New		X	X		Report	MNRE WRD

	Production bores safe yield determined	Output	New		X	X		Report	MNRE WRD
	Appropriate mitigation schemes identified	Output	New	2	2	2	2	Report	MNRE WRD
	Monitoring Network in place	Output	New	x	x	x	x	Report	MNRE WRD
3. Conserve & rehabilitate water resources in partnership with all stakeholders	Framework for the protection, conservation, development and management of all water resources in place	Structure	New	X	X	X	X	Monitoring & Evaluation reports	MNRE WRD
	Rehabilited watershed areas	Outcome	Existing to be consolidated	X	X	X	X	Records/Plant release forms/ Quarterly Progress Reports	MNRE WRD
	Demand management strategy in place	Output	New	X	X			Reports	MNRE WRD
	Consumption rates determined for prioritised watershed areas	Output	New	X	X			Reports	MNRE WRD
	Healthy Nurseries	Output	Existing to be consolidated	X	X	X	X	Reports	MNRE WRD
	Abstraction Plans endorsed by Cabinet	Structure	Existing			X	X	Abstraction Plans in place	MNRE WRD
	Appropriate flood related mitigation schemes identified	Output	New			X	X	Reports	MNRE WRD
	Flood Management Plan endorsed by Cabinet	Structure	Existing				X	Flood Management Plan	MNRE WRD
	Appropriate drought related mitigation schemes identified	Output	New			X	X	Reports	MNRE WRD
	Drought management plans endorsed by Cabinet	Structure	Existing				X	Drought Management Plans	MNRE WRD
4. Protect water resources from the adverse impact of human activities	Sustainable development of watershed areas	Output	New	X	X	X	X	Water -related PEARs & EIAs & SMPs	MNRE PUMA
	Watershed management plans endorsed by Cabinet	Structure	Existing	2	2	2	2	Management plans	MNRE WRD
	By-laws endorsed by Cabinet	Structure	Existing	1	2	2	2	By-laws	MNRE WRD
5. Create greater community awareness of water quality issues	Wider community involvement in awareness programmes	Output	New	ongoing	ongoing	ongoing	ongoing	MOH	MOH
6. Realize the establishment of a Public Health Surveillance Monitoring Laboratory	1) Number of WQ reports available to relevant stakeholders	Output	New	as per WQ monitoring plan	as per WQ monitoring plan	as per WQ monitoring plan	as per WQ monitoring plan	MOH	MOH
	2) Number of Water tests passing NDWQS for E.coli	Output	New	10%	20%	50%	55%	MOH	MOH
7. Ensure National Drinking Water Standards are in place to regulate and monitor Water Safety	NDWQS Finalized	Structure	New	NDWQS Finalized endorse				MOH	MOH
	National WSP Framework Fnalized	Structure	New	WSP Framework Finalized	Certified Water Assesor			MOH	MOH
8. Promote community, national, regional and global partnerships to support the management of water resources	Increased water-related community-based projects	Outcome	New	X	X	X	X	Reports	MNRE WRD
	Effective coordination of water resources management	Outcome	New	X	X	X	X	Minutes of Meetings of Water Resources Board	MNRE WRD
	Increased regional donor funded projects	Output	Existing to be consolidated	X	X	X	X	Reports	MNRE WRD
	Increased international donor funded projects	Output	Existing to be consolidated	X	X	X	X	Reports	MNRE WRD

WATER USE OBJECTIVES, INDICATORS AND TARGETS

OBJECTIVES	INDICATOR DESCRIPTION	INDICATOR TYPE	EXISTING/NEW	TARGETS				SOURCES OF VERIFICATION	RESPONSIBLE INSTITUTIONS
				2008	2009	2010	2011		
Golden Indicators									
Key objective 3: Increase access to safe and reliable water	Access to safe and reliable supply of potable water (% of population)	Outcome	Partly new	86%	88%	88%		Census, Surveys	SWA/IWSA

supplies	Non-revenue water performance	Outcome	Partly new	30%				SWA	SWA
	a. Water losses from leakage	Outcome	Partly new	20%				SWA	SWA
	b. Other non-revenue water based on CSO entitlement	Outcome	Partly new	10%				SWA	SWA
Priority 1 Indicators									
Water supply									
1. Ensure adequate awareness of roles & responsibilities of service providers & consumers in sustainable water services	Water Services Policy approved by Joint Water Sector Steering Committee	Structure	New		X			Minutes JWSS mtg	MNRE WRD
	Government recognizes in new water act the IWSA.	Structure	New					MWCSD/IWSA reports	MWCSD
	Donors channel funds through the Government to the IWSA	Structure	New					MWCSD/IWSA reports	MWCSD
	Members of IWSA pay for the umbrella organization through fees	Output	New					MWCSD/IWSA reports	MWCSD
2. Increase stakeholder participation in planning, design and implementation of water service delivery	COA Workshop consultation implemented per new scheme	Output	Partly new		X	X	X	License approved	SWA
	EU is funding the IWSA water services. (capital costs or shared costs).	Structure	New					MWCSD/IWSA reports	MWCSD
3. Increase level of cost recovery and financial viability	Full cost recovery for urban water supply	Output	Partly new	85%	87%	89%	91%	SWA Finance Report	SWA
	Full recovery from CSO from govt	Output	Partly new	28%	26%	24%	22%	SWA Financial Statements	SWA
	SWA collection efficiency: Revenue collected as % of revenue expected	Output	Partly new	85%	85%	85%	88%	SWA Financial Statements	SWA
	Financial records at villages in place.	Output	New					MWCSD/IWSA reports	MWCSD
	Independent schemes tariffs are set at adequate levels	Output	New					MWCSD/IWSA reports	MWCSD
4. Improve and co-ordinate collection of data for water service planning & management	Datasystem established for regular update of water service monitoring indicators (UFW, production, ie.)	Output	Partly new	Fuluasou area	Alaoa area	MTP	Fuluasou EU	SWA reports	SWA
	Establish water audits per system (new indicator)	Output	New	FTP old	ATP	MTP	FTP new	SWA reports	SWA
	Central data bank established at IWSA	Output	New					MWCSD/IWSA reports	MWCSD
5. Provide appropriate quantities & qualities of potable water in accordance with a 'levels of service charter'	Levels of service charter approved by SWA Board	Structure	Existing		X			SWA reports	SWA
	% of SWA managed Urban area meet levels of service charter	Output	New	70%	70%	75%	75%	SWA	SWA
	% of rural area meet levels of service charter	Output	New	50%	50%	60%	60%	SWA report	SWA
	Bulk meters installed at intakes.	Output	New					MWCSD/IWSA reports	MWCSD
	Regular water quality samples in schemes by MOH	Output	New					MWCSD/IWSA reports	MWCSD
6. Integrate environmentally sensitive wastewater disposal & sanitation with provision of water	SSDP phase 2 approved	Structure	Existing				X	ADB approval	MOF AID
	Septic tanks according to building code enforced	Output	Partly new						
7. Improve efficiency & performance of water service systems	Zoning for UFW completed	Output	Partly new	X				SWA reports	SWA
	UFW level reduced by 15% per treated area zone.	Output	Partly new	Fuluasou	Alaoa	MTP	Fuluasou new	SWA reports	SWA
	% of metered customers in rural areas	Output	Partly new	40%	45%	50%	60%	SWA reports	SWA
	Formulation of performance standards by IWSA	Structure	New					MWCSD/IWSA reports	MWCSD
	No of schemes meeting the standards	Output	New					MWCSD/IWSA reports	MWCSD
9. Promote conjunctive use of water	Endorsement from consulted utility on conjunctive use of water sources if applicable or not	Output	New	Dependent on project proposes				SWA/EPC project proposals	EPC/SWA
10. Supply alternative options for water supply	Promotion of rainwater tanks in villages as alternatives.	Output	Existing to be consolidated					EU Microproject records	MWCSD
Hydropower									
1. Improve and increase hydropower performance	% hydropower increase from previous year (KWH/year)	Output	Partly new	2%	2%	2%	2%	EPC reports	EPC
	Hydropower installed capacity (MW)	Output	Partly new	11.95	11.95			EPC reports	EPC
	Efficiency hydropower (actual vs design capacity) (kWh/Cubm)	Output	Partly new	0.68				EPC reports	EPC
2. Strengthen capacity of key stakeholder groups to fulfill their respective roles	Banks/GOS procedures harmonized	Structure	Existing to be consolidated					Donor/MOF reports	MOF AID

respective roles	WR data collection	Output	New	Diff. org. own data collection	MNRE all WR data collection				MNRE WRD
	WR data sharing	Output	New	Little data sharing	MNRE providing data (for free)				MNRE WRD
	Reduced no. of land-disputes	Output	Existing to be consolidated						MNRE Land Mgmt
	Reduced time to resolve land disputes	Output	Partly new						MNRE land mgmt
3. Coordinate investment and O&M of water uses (HYDRO – WS)	No. of EPC-SWA management meetings/yr	Output	New					EPC/SWA minutes	EPC/SWA
	No. of disputes/No. of disputes resolved between SWA-EPC	Output	New					EPC/SWA minutes	EPC/SWA
Irrigation									
1. Reassess potential & demand for irrigation and consider	Assessment made	Output	New	X					MAF Crops
	Strategy formulated	Output	New		X				MAF Crops
Environmental/Ecological water use									
1. To improve knowledge and understanding of water resource management issues	Appropriate % for minimum environmetal flow maintained (to be determined by MNRE)	Output	New				X	Assessments / Survey reports	MNRE DEC
2. Promote integrated water use	% of abstraction and licensing compliance	Output	New			X	X	Database	MNRE WRD
3. Strengthen capacity of key stakeholder groups to fulfill their respective roles	Reduced % of UFW	Output	New	X				Leak detection reports	SWA
	Appropriate legislation in place	Structure	Partly new	X				Legislative Assembly	Water Ministries
	Clear institutional arrangements	Structure	Partly new	X				WFL/Legislation	Water Ministries

WASTEWATER OBJECTIVES, INDICATORS AND TARGETS

OBJECTIVES	INDICATOR DESCRIPTION	INDICATOR TYPE	EXISTING/NEW	TARGETS				SOURCES OF VERIFICATION	RESPONSIBLE INSTITUTIONS
				2008	2009	2010	2011		
Golden Indicators									
Key objective 4: Improve sanitation, drainage and wastewater disposal	Access to adequate superstructure sanitation (% population)	Outcome	Existing	70%	72%	74%	76%	Census, Surveys	
	% collection and treatment of the flood prone area of Apia CBD (1 MLD)	Key objective 3	New	65%	70%	75%	80%	SWA	
Priority 1 Indicators									
On site sanitation									
1. Strengthen health & education awareness programmes	Increase in number of septic tanks constructed to standards	Output	Existing to be consolidated						MOH
	Private sector report higher business turnover (DELETE?)	Output	New						MOH
2. Increase the collection & treatment of wastewater in Apia Urban area	Record of disposals at landfill areas ?	Output	Existing to be consolidated						MNRE DEC
	Policy in place for monitoring of septic tanks	Structure	Existing to be consolidated						MOH
	Water quality samples from sea lagoons (discharge)	Output	New				X		MOH
	Confirms environmental standards (forecast) (DELETE **?)**	Output	Existing to be consolidated						MOH
3. Increase access to safe, environmentally friendly sanitation in rural areas	Records of monitoring vists	Output	Existing to be consolidated						MNRE DEC
	Records of use for all new landfill areas	Output	Existing to be consolidated						MNRE DEC

4. Establish safe & environmentally sensitive septage pump out & disposal services	Records of disposal sites	Output	Existing to be consolidated						MNRE DEC
5. Strengthen capacity for sanitation services	Coverage of population with access to safe sanitation	Output	New						MOH
	New landfill area in rural for septage disposal	Output	New						MNRE DEC
6. Develop & Implement sanitation systems for all new development areas	Licence for Building and Development permits	Output	Existing to be consolidated					PUMA reports	MNRE PUMA
Off site sanitation									
1. Develop & implement wastewater awareness & education programmes	Strategy developed	Output	New	X	X	X	X	SWA/MNRE/MOH	SWA
	No. of tv spots aired	Output	New	X	X	X	X	Videos	SWA
	No. of pamphlets distributed	Output	New	X	X	X	X	Pamphlets	SWA
	Impact monitoring reports (water consumption in ww services area reduced)	Output	New	X	X	X	X	Documents	SWA
2. Develop Santation Masterplan	Masterplan drafted	Output	New	X				Documents	PUMA
	Increase in customers connected to WW system	Output	New				X	SWA Billing System	SWA
3. Institutional Strengthening & Capacity Building	Decrease in wastewater operational faults	Output	New	X	X	X	X	SWA Complaints Register	SWA
	Staff retained	Output	New	X	X	X	X	HRA monthly report	SWA
	Upgrade in staff qualifications	Output	New	X	X	X	X	Documents	SWA
	Contractors fulfill their contractual obligations	Output	New	X	X	X	X	Documents	SWA
	New staff familiar with concepts of system	Output	New					Documents	SWA
4. Policy Development & Review	Government Endorsement	Output	New			X		Documents	SWA/AG
	Consultations held	Output	New	X				Documents	SWA/AG
	Final Draft Policy	Structure	New		X			Documents	SWA/AG
Drainage									
1. Reduce the risk of flooding in Apia Catchment Area (preventive)	Number of kilometers of annually cleared urban drains	Output	Existing to be consolidated					Progress & Annual Reports	MWTI
	Number of kilometers of annually cleared rural roadside drains	Output	Existing to be consolidated					Progress & Annual Reports	MWTI
	Annual amounts of insurance claims due to flooding	Outcome	New					Annual Reduction	Insurance Companies
	% reduction of public complaints on flooding water quality, odour etc.	Outcome	Existing to be consolidated					Annual reduction in registered com-plaints/FESA/MOH	MWTI
	No. of watershed management plans being developed and implemented	Output	Existing to be consolidated	1	2	3	4	Management Plans in place	MNRE WRD
2. Minimze damage and disruption due to flooding and drainage problems	Closure of high risk areas during floods	Output	New					MOH Register	MWTI
3. Develop and implement drainage systems for all new	% increase in building applications in compliance with the development standards	Output	Existing to be consolidated					Annual reports and Progress Reports	MNRE PUMA

ANNEX V Capacity building needs by sub-sector and objective

SUB-SECTOR	OBJECTIVES	CAPACITY BUILDING NEEDS	CAPACITY BUILDING ACTOR	BENEFICIARY ORGANISATION																	
				CDC-JWSSC	SWA	EPC	MNRE WRD	MNRE DEC	MNRE MET	MNRE PUMA	MOH	MWTI	MAF	MWCSD	IWSA	MPAG	MESC	Communities	Schools	Pump Operators
Orient	1. Promote a sector-wide approach based IWRM principles and practices	Increased understanding/awareness and benefits of the approach.	MOF WSMU	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		Orientation/understanding at ministerial and CEO level of the sector wide approach	TA	X	X	X					X	X	X	X						
		Workshops/seminars on functional roles of organizations in the sectors to identify roles, links and overlaps.	MOF WSMU	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		Cabinet directive to support such an approach.	TA	X	X	X					X	X	X	X						
		Conduct promotional campaigns to explain advantages and implications of a sector wide approach	MOF WSMU	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
	2. Create an effective apex body and associated coordination framework to oversee water sector coordination & development	To have the advantages known and perceived more powerful than disadvantages.	MOF WSMU	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		To have a properly defined mandate of legal issues which is understood and accepted by the different organizations.	TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		Conduct Public consultation/ awareness raising using mass media i.e newspaper, television, talk shows etc.	MNRE WRD	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
	3. Adopt and implement the Water for Life with a mid-term review of the strategy to follow	External visits of TA for update of WFL	TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		Establish a short term facility of experts for water governance	TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		Institutional reviews to be undertaken on as need arises basis	TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		Training/attachment/twinning arrangements with other relevant small island development states (namely the Caribbean countries) on water governance issues	TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		Study tour arrangements	TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		Training for project management	TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		Presentations to JWSSC and CDC on the status of the sector	MOF WSMU	X																
		Training on M & E plans/strategies	TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		Provide training on MTEF development, use and monitoring for IAs and WSMU	TA	X	X	X	X	X	X	X	X	X	X	X						
		Conduct workshop for communities	MOF WSMU															X		
	4. Adopt and integrate the MTEF into the government	Training on EC budget support	TA	X	X	X	X	X	X	X	X	X	X	X						
		TA to update the MTEF after PMS input	TA	X	X	X	X	X	X	X	X	X	X	X						
	5. Develop and Implement effective (sub-)sector performance monitoring and reporting	Identify other financing/funding options: i. tariff rise/review ii. licensing iii. donor funding	TA	X	X	X	X	X	X	X	X	X	X	X						
		Responsible agencies to develop effective performance monitoring and reporting systems	TA	X	X	X	X	X	X	X	X	X	X	X						
		- Review existing performance monitoring mechanisms to identify why the monitoring is not being implemented, or how it can be improved. - Undertake capacity building in terms of staff training and res	TA	X	X	X	X	X	X	X	X	X	X	X						

SUB-SECTOR	OBJECTIVES	CAPACITY BUILDING NEEDS	CAPACITY BUILDING ACTOR	BENEFICIARY ORGANISATION																	
				CDC-JWSSC	SWA	EPC	MNRE WRD	MNRE DEC	MNRE MET	MNRE PUMA	MOH	MWTI	MAF	MWCSD	IWSA	MPAG	MESC	Communities	Schools	Pump Operators
		- Identify priority indicators which are critical, and also the ones which are being measured (SMART). This avoids long lists of indicators which are not being measured and are also not as important to indicate performance	TA	X	X	X	X	X	X	X	X	X	X	X						
	6. Improve efficiency and effectiveness of the development regulatory system	Awareness raising on need and methods for networking and coordination																			
		Technical training on development control and coordination																			
		Awareness raising, and capacity building on EIA need and methods																			
		Strenghten monitoring and enforcement compliance	TA							X											
		Develop education and awareness activities	TA							X											
Various	7. Develop and Implement updated water-related legislation and regulation	1. Build capacity of courts and police in enforcing water related laws 2. Develop and implement village bylaws to allow for law enforcement at the village level 3. Conduct public awareness and ed	MNRE WRD/TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X			
		1. Monitoring and Evaluation Training 2. Ensure multi-stakeholder participation in policy development 3. Promote research/evidence-based policies 4. Secure financial support for policy implemen	MNRE WRD/TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X			
		Formulation and Implement Water Security Plans to safeguard water resource sand supply from sabotage	TA		X		X				X				X						
		Formulation and Implement Safety Plans for significant water schemes	TA		X		X				X				X						
		WSP Assessor Training in NZ	MOH		X		X				X				X						
WR	1. Create greater community awareness of water resources issues	1. Identification of all relevant stakeholders 2. Wider community involvement in awareness programmes, for active participation/enforcement of bylaws 3. Accessibility to appropriate information (baseline data) 4. Enhance understanding of the value of wate	MNRE WRD	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		
		1. Teachers Training on how use the guide	MNRE WRD														X		X		

SUB-SECTOR	OBJECTIVES	CAPACITY BUILDING NEEDS	CAPACITY BUILDING ACTOR	BENEFICIARY ORGANISATION																	
				CDC-JWSSC	SWA	EPC	MNRE WRD	MNRE DEC	MNRE MET	MNRE PUMA	MOH	MWTI	MAF	MWCSD	IWSA	MPAG	MESC	Communities	Schools	Pump Operators
		1. Media Workshop to engage the media in reporting, awareness & investigating water resource issues 2. Monthly	MNRE WRD/ Media/TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		Undertake national public awareness campaigns and consultations on water resources management issues	MNRE WRD												X			X		
		Ongoing awareness programs on Water Safety	MOH												X			X		
	2. Improve knowledge & understanding of water resources	1. Capacity building and procurement of state of the art equipments 2. Knowledge transfer /knowledge management plans 3. Database and knowledge management (anecdotal/tacit) programmes 4. Short term training for relevant staff	MNRE WRD/TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		1. Wider community involvement in awareness programmes, workshops, planning etc	MNRE WRD /MWCSD/SU NGO/IWSA												X			X		
		1. Capacity building on water quality sampling/testing/analysis	TA				X													
		1. Capacity building on hydrological and hydrogeological aspects of the resource	TA				X													
		1. Capacity building and procurement of resources	MNRE WRD / DEC/TA				X	X										X		
		1. Financial resources for use of equipments	MNRE WRD/ TA/LM				X													
		Build technical capacity of MNRE and stakeholders to improve their knowledge of water resources - identifying training opportunities - development of on-the-job training modules	MNRE WRD	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		Build technical capacity at the community level for effective management of water resources	MNRE WRD												X			X		
	3. Conserve & rehabilitate water resources in partnership with all stakeholders	1. Monitoring and Evaluation Training 2. Ensure multi-stakeholder involvement in implementation and monitoring 3. Secure financial support for strategy implementation and monitoring	MNRE WRD/TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		1. Secure financial resources	MNRE WRD/TA															X		
		1. Monitoring & evaluation of information provided	MNRE WRD/TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X		

SUB-SECTOR	OBJECTIVES	CAPACITY BUILDING NEEDS	CAPACITY BUILDING ACTOR	BENEFICIARY ORGANISATION																	
				CDC-JWSSC	SWA	EPC	MNRE WRD	MNRE DEC	MNRE MET	MNRE PUMA	MOH	MWTI	MAF	MWCSD	IWSA	MPAG	MESC	Communities	Schools	Pump Operators
		1. Financial assistance	MNRE WRD/TA				X											X		
		1. Secure financial and technical assistance	MNRE WRD/TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
	4. Protect water resources from the adverse impact of human activities	1. Financial and technical assistance	MNRE WRD /PUMA/TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		1. Monitoring and Evaluation Training 2. Ensure multi-stakeholder involvement in development, implementation and monitoring 3. Secure financial support for plan implementation and monitoring	MNRE WRD/TA/Legal	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
	5. Promote community, national , regional and global partnerships to support the management of water resources	1. Conduct awareness and educational programmes for the communities	MNRE WRD/MWCSD															X		
		1. Continue Multi-stakeholder consultations and national water forums	MNRE WRD	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		1. Continue dialogue and persevere with regional partners	MNRE WRD	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		1. Participation in international and regional initiatives ie. COPs / meetings / symposiums / workshops etc. 2. Capacity bui	MNRE WRD/TA	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
	6. Realize the establishment of a Public Health Surveillance Monitoring Laboratory	Training on the Evaluation and Monitoring of Programs	MOH															X		
		Assuring commitment for sustainability of WQ analysis	MOH		X						X			X						
	7. Ensure National Drinking Water Standards are in place to regulate and monitor Water Safety	Training on WSP to identify and eliminate risks on the water supply	MOH/MWSCD		X										X					
		Collect baseline WQ data over 3 years see confirm the trend	MOH		X										X					
		WSP Assessor Training in NZ	MOH		X						X			X						
	8. Promote community, national , regional and global partnerships to support the management of water resources	Active participation in regional COPs/Summits/Symposiums/forums/bodies (APWF/SOPAC/SPREP/PWA etc)	MNRE WRD	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
Water Supply	1. Ensure adequate awareness of roles & responsibilities of service providers & consumers in sustainable water services	Ensure wider consultation/ promote dialogue and/or discussions	TA		X										X			X		
		Training/identify sponsor MOH/WHO	TA												X					
		Good budgeting	TA												X					
		Disaster mitigation plan	TA												X					
		Village policies to protect water catchement areas	MNRE WRD															X		
		Training must be on going	TA												X					
		Central collection point to back up village database	TA												X					
		Training/identify sponsor MOH/WHO	TA												X					
		No one to police the implementation of policies	TA				X													
		Water tanks for Water harvest options	TA												X			X		
		Information and Comm.	MWCSD												X			X		

SUB-SECTOR	OBJECTIVES	CAPACITY BUILDING NEEDS	CAPACITY BUILDING ACTOR	BENEFICIARY ORGANISATION																	
				CDC-JWSSC	SWA	EPC	MNRE WRD	MNRE DEC	MNRE MET	MNRE PUMA	MOH	MWTI	MAF	MWCSD	IWSA	MPAG	MESC	Communities	Schools	Pump Operators
		Capacity building for stakeholders	MWCSD												X			X		
		Relevant Stakeholders workshops/meeting/consultation	MWCSD												X			X		
		Basic Plumbers training for Water committees	MWCSD												X			X		
		Administrative support on financial management	MWCSD												X			X		
		Management training of Water committees e.g financial	MWCSD												X			X		
		Train IWS to develop Water Safety Plan	MOH												X			X		
		Assist communities to develop water management plan	MNRE WRD												X			X		
		Training & capacity to maintain	MWCSD												X			X		
	2. Increase stakeholder participation in planning, design and implementation of water service delivery	Enactment and enforcement of water resources bill by MNREM- and dissemination	TA				X													
	3. Increase level of cost recovery and financial	Implement upgrade works	TA		X															
		Capacity building in business culture	TA		X															
	4. Improve and co-ordinate collection of data for water service planning & management	Specialist training in GIS and UFW	TA		X															
	5. Provide appropriate quantities & qualities of potable water in accordance with a 'levels of service charter'	Technical support for service charter	TA		X															
	6. Integrate environmentally sensitive wastewater disposal & sanitation with provision of water supply	Strengthening Wastewater division	TA		X															
	8. Strengthen capacity of key stakeholder groups to fulfill their respective roles	Institutional review report	TA		X															
		Implement institutional review report	TA		X															
		Capacity Building (business efficiency, UFW, water treatment, water analysis, infrastructure maintenance)	TA		X															
Hydro Power	1. Improve and increase hydropower performance	Provide more engg. scholarships and training	MFAT	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		Improve COA and negotiation skills in EPC	TA			X														
		Awareness raising and creating partnerships with communities	EPC															X		
		Training on risk reduction and mitigation; catchment management	TA			X														
	2. Strengthen capacity of key stakeholder groups to fulfill their respective roles	Awareness raising	MOF AID	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
		Awareness raising on legislation	TA				X													
		Communities: improve awareness and support at hydro sites	EPC															X		
	3. Coordinate investment and O&M of water uses (HYDRO – WS)	Regulator training	TA							X										

SUB-SECTOR	OBJECTIVES	CAPACITY BUILDING NEEDS	CAPACITY BUILDING ACTOR	BENEFICIARY ORGANISATION																		
				CDC-JWSSC	SWA	EPC	MNRE WRD	MNRE DEC	MNRE MET	MNRE PUMA	MOH	MWTI	MAF	MWCSD	IWSA	MPAG	MESC	Communities	Schools	Pump Operators
Irrigation	1. Reassess potential & demand for irrigation and consider development of an irrigation strategy	Training and awareness on irrigation (and potentials)	TA										X							
		Workshops to develop strategies	TA										X					X		
Environ	1. To improve knowledge and understanding of water resource management issues	Technical and financial assistance	TA					X												
	2. Promote integrated water use	Ongoing consultations	TA					X												
		Ongoing consultations / clear institutional arrangements	TA					X												
		Technical and financial assistance	TA					X												
		Inventory of existing action plans	TA					X												
On site Sanitation	1. Strengthen health & education awareness programmes	Ongoing Sanitation Awareness Program in the Communities																X		
		Strengthen leadership of MOH on on site sanitation policy	TA								X									
		Training on the Evaluation and Monitoring of Programs	MOH								X							X		
		New staff: 1) MOH Principal Sanitation Officer, 2) MOHSenior Sanitation Officer									X									
		Develop and run Awareness programs targeting community	MOH															X	X	
	2. Increase the collection & treatment of wastewater in Apia Urban area	financial system in place	TA								X									
		Provide incentive for Private Upgrading of sanitation facilities (septic tank)	TA								X									
		Develop Wastewater Standards and implement Wastewater testing and monitoring 2) Recruit MOH Principal and Senior WW Officers	MOH								X									
		Incorporate sanitation legislation and regulation into the Draft Public Health Bill 2007	TA								X									
		Awareness programs on Sanitation	TA								X									
		Awareness programs on Sanitation	TA								X									
		1) Develop Wastewater Standards and implement Wastewater testing and monitoring 2) MOH Principal and Senior WW Officers	TA								X									
	5. Strengthen capacity for sanitation services	govt assistance incentives/subsidies for transport of sludge	MNRE DEC																	X
Off site Sanitation	1. Develop & implement wastewater awareness & education programmes	SWA Public Relations Unit capacity building and resource funding	TA		X															
		Effective implementation of awareness campaign & monitoring regime formulated	SWA															X		
		SWA	SWA/TA															X		
		SWA	SWA/TA															X		
		Awareness of linkages of water to wastewater and implications	SWA/TA		X						X							X	X	X
	2. Develop Santation Masterplan	Training for PUMA staff in developing masterplans & hydraulic modelling	TA							X										
	3. Institutional Strengthening & Capacity Building	Technical Support for specialised wastewater system	TA		X															
		Build capacity of personnel (OHS & O&M)	TA		X															

SUB-SECTOR	OBJECTIVES	CAPACITY BUILDING NEEDS	CAPACITY BUILDING ACTOR	BENEFICIARY ORGANISATION																		
				CDC-JWSSC	SWA	EPC	MNRE WRD	MNRE DEC	MNRE MET	MNRE PUMA	MOH	MWTI	MAF	MWCSD	IWSA	MPAG	MESC	Communities	Schools	Pump Operators
		Regime established for skills transfer, retaining staff	TA		X															
		Contract Management and Supervision training	TA		X															
		Strengthen operational section of WW Division (Build technical capacity to improve understanding of systems)	SWA/TA		X															
		Improve monitoring regimes	SWA/TA		X															
		Ensure skills transfer takes place - policy	SWA/TA		X															
	4. Policy Development & Review	Better understanding of policy development & implementation	TA		X															
		Awareness of policies for stakeholders	SWA/TA															X		
		Relate policies to existing legislation (AG's involvement)	TA/AG		X															
Drainage	1. Reduce the risk of flooding in Apia Catchment Area (preventive)	Awareness raising	PUMA															X		
		Capacity building for Ministry of Policy and Prisons, AG's Office to enforce legislation	TA													X				
		Extend and improve public awareness	PUMA															X		
		Enforcement of monitoring and complying process	PUMA															X		
		Increase awareness on vulnerable areas, limiting contributing factors	MWTI															X		
	2. Minimze damage and disruption due to flooding and drainage problems	Increase capacity of MET & WRD – Monitoring of rainfall and floods.	TA				X													
		Flood modeling and climate change projections	TA				X					X								
		Increase awareness on vulnerable areas, limiting contributing factors	MNRE WRD															X		
	3. Develop and implement drainage systems for all new development	Capacity building for PUMA in monitoring and linkages with enforcement agencies	TA							X										

ANNEX VI Activities and needs by sub-sector, objective and organization

MNRE Water Resources Division

Sub-Sector	Objectives	Needs/Activities	Activity Coop	Timeframe				Implementatio		Budget	
				2008	2009	2010	2011	Start	Finish	Investment	Recurrent
Orient	2. Create an effective apex body and associated coordination framework to oversee water sector coordination & development	Carry out legislative review including consultations with all water sectors resulting in the formulation of a water resource mandate	MOH/MWCSD/MWTI/PUMA/MAF/SWA/EPC/IWSA					2008	2008	√	
		Draft the legislation	AG					2008	2008	√	
		Conduct Public consultation/ awareness raising using mass media i.e newspaper, television, talk shows etc.						2008	2008	√	
		Secure legislation accepted/ passed	AG					2008	2009	√	
	7. Develop and Implement updated water-related legislation and regulation	Approve Water Quality Standards			Approv	Effectiv		2009	2010		√
		Formulate and Implement the Water Resources Act	AG	Approv e	Effectiv e			2008	2009		√
		Formulate and Implement the Watershed Conservation Policy						2009	2010		√
		Formulate and Implement Water Allocation Policy						2009	2010		√
		Review Water Resources Policy		Approv				2008	2013		√
		Develop Water Services Policy	MWTI/MWCSD					2010	2013	√	
		Develop and Implement "licensing regulations"	AG					2009	2013		√
		Ensure that all future water related policies and legislation are formulated in order to be easily accepted and appreciated by the various agencies and community schemes	MOH/MWCSD/MWTI/PUMA/MAF/SWA/EPC/IWSA					2010	2013	√	
WR	1. Create greater community awareness of water resources issues	Awareness package programs for all sectors for villages and develop a communication strategy that highlights water resources issues	MWCSD/IWSA					2008	2013	√	√
		Produce and disseminate community awareness packages for all water resources issues	MWCSD/IWSA								
		Promote (and monitor) the use/ implementation of the Environment Resource Guide for schools.	MESC					2008	2013	√	√
		Work with the media to disseminate water resources information									√
	2. Improve knowledge & understanding of water resources	Build technical capacity of MNRE and stakeholders to enhance their knowledge of water resources									
		Improve monitoring and water resource assessment – monitoring network									
		Build capacity at the community level for effective management of water resources	MWCSD								
		Develop and implement knowledge management plans (succession plans)									
		Conduct Water Quality Baseline Assessments						2008	2013		√
		Conduct Watershed Characterisation Baseline assessments (eg. Inventory of fauna and flora; soil types)	MNRE DEC/MNER LAND					2008	2013		√

	Continuous improvement and update of the NWRMIS						2008	2013		√
	Determine minimum environmental flows for proritised watershed areas	MNRE DEC					2008	2013		√
	Undertake (sustainable yield assessment) low flow assessments and monitoring for prioritized water catchments						2008	2013		√
3. Conserve and rehabilitate water resources in partnership with all stakeholders	Implement and monitor the NWRMS						2008	2013		√
	Reforestation of degraded watershed areas						2008	2013	√	
	Develop and update a national inventory of water users						2009	2013		√
	Conduct water consumption surveys at prioritized water catchment areas	SWA					2008	2013		√
	Maintenance of Plant Nurseries						2008	2013		√
	Develop and Implement a Water Use Licensing System						2008	2013		√
	Develop and Implement Catchment/Aquifer Abstraction Plans						2008	2013		√
	Develop and Implement Drought and Flood Management Plans for prioritized catchment areas and aquifers	MNRE MET/DMO/PUMA					2008	2013		√
	Reinforce sustainable Management planning development control processes (PEARs and EIAs)	PUMA					2008	2013		√
4. Protect water resources from the adverse impact of human activities	Develop and implement a monitoring network programme for coastal waters and springs						2008	2013		√
	Formulate and implement Land Use management plans for prioritised watershed areas	MNRE LAND					2008	2013		√
	Develop new and review existing watershed management plans						2008	2013		√
	Implement watershed management plans for priority catchment areas						2008	2013		√
	Develop and Implement Drought and Flood Management Plans for prioritized catchment areas and aquifers	MWTI					2008	2013		√
	Reinforce sustainable management planning development control processes (PEARs and EIAs)	PUMA					2008	2013		√
	Develop and implement bylaws at the local level	AG					2008	2013		√
8. Develop and implement management mechanisms to control the allocation of water	Identification of watershed areas						2008	2009		√
	Quantification of production / supply (max. & min. flows)						2008	2009	√	√
	Quantification of demand						2009	2010	√	√
	Prioritise water use						2009	2010	√	
	Develop and implement policy on rights of access to water						2008	2009	√	
	Develop and implement policy on allocation of water	AG					2008	2013	√	
	Develop and implement the WR legislation	AG					2008	2013	√	√
	Develop and implement regulations and licenses	AG					2009	2013	√	√

	9. Promote global partnerships to support the management of water resources	Implement community-based projects ie. community reserves, nurseries etc.	MWCSD					2008	2009	√	√
		National level – Establishment of an Apex body / Executive / Secretariat	AG/WSMU					2008	2009	√	√
		Regional level – Active participation in regional COPs/Summits/Symposiumss/forums/bodies (APWF/SOPAC/SPREP/PWA etc)						2008	2013		√
		Global level – work closely with international funding agencies (GEF/EU/UN) and technical assistance agencies like JICA/PEACE CORPS						2008	2013		√
Water Supply	1. Ensure adequate awareness of roles & responsibilities of service providers & consumers in sustainable water services	Water Services Policy	MWCSD/AG/SWA/IWSA					2008	2009	√	
		Dissemination of WS Policy	MWCSD/SWA/IWSA					2009	2010		√
		Water management plan	SWA/MWCSD/IWSA					2008	2013		√
		Conservation plan MNRE/MAF	SWA/MWCSD/MAF					2009	2010		√
		Conservation plan MNRE/MAF	MWCSD/MAF								
		Assist communities to develop water management plan	MWCSD/IWSA					2008	2013	√	√
Hydro Power	2. Strengthen capacity of key stakeholder groups to fulfill their respective roles	Collation and sharing of all necessary WR data						2008	2013		√
		Enforcement of WRM legislation						2008	2013		√
	3. Coordinate investment and O&M of water uses (HYDRO – WS)	Regulate allocation and use of water						2008	2013		√
Environ	1. To improve knowledge and understanding of water resource management issues	Develop and execute flood risk Assessment programs	MNRE DEC/MWTI					2008	2013		√
	2. Promote integrated water use	Develop and implement abstraction plans								√	
		Assess and monitor water resources for efficient water use						2008	2013		√
		Conduct Demand Assessments and provide advise to water users						2008	2013		√
		Conduct programs to assess and determine water yield during droughts						2008	2013		√
	3. Strengthen capacity of key stakeholder groups to fulfill their respective roles	Review & Implement existing action plans related to water use						2008	2013		√
On site	1. Strengthen health & education awareness programmes	curriculum reviewd and finalized for primary schools to incorporate subjects for sanitation and water quality	MOH					2008	2008	√	√
Drainage	1. Reduce the risk of flooding in Apia Catchment Area (preventive)	Conduct flood models, monitoring of river flows, and rainfall	MWTI					2008	2013		√
		Prepare and implement flood models incorporating climate change	MWTI					2009	2010		√
		Formulation of Flood Hazard Maps – Zoning	MWTI					2008	2009		√
		Research feasibility of on-site retention of storm waters before entering into rivers/drainage	MWTI					2011	2012	√	
	2. Minimze damage and disruption due to flooding and drainage	Increase awareness on vulnerable areas, limiting contributing factors	MWTI/MNRE MET					2008	2010		√

	problems	Forecasting and Early Warning Systems implemented	MWTI/MNRE MET					2009	2010		√
		Institutions preparedness – Disaster Response Plans around flood prone areas	MWTI/DMO					2009	2011		√

MNRE DEC

Sub-Sector	Objectives	Needs/Activities	Activity Coop	Timeframe				Implementati		Budget	
				2008	2009	2010	2011	Start	Finish	Investment	Recurrent
Environ	1. To improve knowledge and understanding of water resource management issues	Determine minimum environmental flow						2008	2012	√	√
		Conduct an inventory of flora and fauna within the watershed area						2008	2013		√
		Classification of soil types								√	
		Determine the landuse within the watershed area						2008	2013	√	√
		Conduct aquatic ecosystem assessments									√
On site	2. Increase the collection & treatment	Ensure the sludge treatment is properly carried out	SWA					2008	2013	√	
	3. Increase access to safe, environmentally friendly sanitation in rural areas	assess current practices- landfill not there, whether disposing at rivers & beaches									
		increase landfill sites - for rural areas, (transportation problem)									
		areas where not enough water for sanitation									
	4. Establish safe & environmentally sensitive septage pump out & disposal services	3 operators in Apia- 5/6 clients per day- present market for sludge- capacity of private sector to cater to be assessed- what capacity is needed to be determined?								√	
		No institution for licencing of services								√	√
		costs for rural areas- need extra dump sites								√	
	5. Strengthen capacity for sanitation services	better roads for transportation						2008	2011		
		govt assistance incentives/subsidies for transport of sludge									√
Off site	4. Policy Development & Review	Reviewing and drafting sanitation framework and policy	MOH					2008	2009	√	
		Promotion of best practices	MOH					2008	2013		√

MNRE PUMA

Sub-Sector	Objectives	Needs/Activities	Activity Coop	Timeframe				Implementati		Budget	
				2008	2009	2010	2011	Start	Finish	Investment	Recurrent
Orient	6. Improve efficiency and effectiveness of the development regulatory system	Promote networking and coordination amongst development partners and stakeholders									
		Improve development control and coordination of all land used and coastal based activities									
		Ensure that all significant development projects within the water sector prepares an EIA before works commence	MNRE WRD								

		Develop sustainable management plans for geographical areas and growth centres prone to flooding									
		Develop planning provisions and codes that encourage best practice	MNRE WRD								
		Strenghten monitoring and enforcement compliance	MNRE WRD								
		Develop education and awareness activities	MNRE WRD								
On site	6. Develop & Implement sanitation systems for all new development areas	plans for new areas- vaitele, vailele and tourist sites- policy ?	MWTI/MOH								
		Construct treatment plant/septic tank first as part of	MWTI/MOH								
		Sanitation is part of all approvals- Building and Development consents- policy	MWTI/MOH								
	5. Strengthen capacity for sanitation services	Develop masterplan for Apia area- septic tank dominant system for rural area and urban area	MWTI/MOH							√	
Off site	2. Develop Santation Masterplan	Prepare sanitation masterplan						2008	2008	√	
	4. Policy Development & Review	Compliance of National building code	MOH					2008	2013		√
Drainage	1. Reduce the risk of flooding in Apia Catchment Area (preventive)	Enforcement of existing development standards and guidelines within flood plains	MWTI					2008	2013		√

MNRE Land Division

Sub-Sector	Objectives	Needs/Activities	Activity Coop	Timeframe				Implementati		Budget	
				2008	2009	2010	2011	Start	Finish	Investment	Recurrent
Hydro Power	3. Strengthen capacity of key stakeholder groups to fulfill their respective roles	MNRE: improve land data and enforce legislation						2008	2013		√

MOF Aid Coordination & Debt Management

Sub-Sector	Objectives	Needs/Activities	Activity Coop	Timeframe				Implementati		Budget	
				2008	2009	2010	2011	Start	Finish	Investment	Recurrent
Hydro Power	3. Strengthen capacity of key stakeholder groups to fulfill their respective roles	Banks: harmonize procedures with GOS						2008	2013	√	

MOF Water Sector Management Unit

Sub-Sector	Objectives	Needs/Activities	Activity Coop	Timeframe				Implementati		Budget	
				2008	2009	2010	2011	Start	Finish	Investment	Recurrent
Orient	1. Promote a sector-wide approach based IWRM principles and practices	Conduct promotional campaigns to explain advantages and implications of a sector wide approach						2008	2008	√	
		Establish a sector-wide approach						2008	2013		√

2. Create an effective apex body and associated coordination framework to oversee water sector coordination & development	Secure the existence of a general secretary							2008	2008	√	
	Establish an Apex body							2009	2009	√	
	Secure functioning of the Apex body and the general secretary							2009	2013		√
3. Adopt and implement the Water for Life with a mid-term review of the strategy to follow	Conduct workshop for communities	MOH/MWCSD/MWTI/PUMA/MAF/SWA/EPC/IWSA						2008	2008		√
	Secure approval by core IAs (WFL coordinators)	MOH/MWCSD/MWTI/PUMA/MAF/SWA/EPC/IWSA						2008	2008	√	
	Secure submission to JWSSC and CDC for approval							2008	2008	√	
	Secure publication of approved WFL							2008	2008		√
	Launch WFL	MOH/MWCSD/MWTI/PUMA/MAF/SWA/EPC/IWSA						2008	2008	√	
	Conduct mid-term review consultations	MOH/MWCSD/MWTI/PUMA/MAF/SWA/EPC/IWSA						2010	2010		√
	Carrry out independent evaluation of the performance of the strategy							2010	2010	√	
	Carry out final review and evaluation of the strategy							2013	2013	√	
	Establish a sector coordinating unit post WaSSP							2009	2013		√
	Identify the lead agency for the sector							2008	2008	√	
	Secure approval by core members							2008	2013		√
4. Adopt and integrate the MTEF into the government budget system	Identify mechanisms for channeling funds to SOE's and NGOs							2010	2010		√
	Strengthen the revenue section in the current MTEF	MOH/MWCSD/MWTI/PUMA/MAF/SWA/EPC/IWSA						2008	2008		√
	Carry out annual review of the MTEF in line with govt. MTEF	MOF Budget						2008	20132		√
	Review the need for a separate MTEF or a national MTEF	MOF Budget						2008	2008	√	
	Possible review of national budget coding or MTEF classification	MOF Budget						2009	2009	√	
5. Develop and Implement effective (sub-)sector performance monitoring and reporting	Government to fund performance monitoring and reporting	MOF Budget						2008	2013		√
	Sub-sectors to formulate/ review standards/baseline data required for monitoring							2008	2013		√
	Set up a national Central information Center for efficient data sharing critical for performance monitoring					Approve	Effective	2010	2011	√	
	Establish or mandate a focal point for sectoral performance monitoring, such as the MoF which currently requires these data for budgetary and other financial needs							2009	2013	√	

Ministry of Health

Sub-Sector	Objectives	Needs/Activities	Activity Coop	Timeframe				Implementati		Budget	
				2008	2009	2010	2011	Start	Finish	Investment	Recurrent
Orient	7. Develop and Implement updated water-related legislation and regulation	Formulate and Implement a Sanitation Policy				Approv	Effectiv	2010	2011	√	
		Review Health Ordinance 1959 and finalize NDWQS	AG					2008	2009		√
		Review Codex on water bottling companies				Review		2010	2010		√
		Formulate and Implement Safety Plans for significant water schemes - Develop Framework for National WSP and provide technical advice on WSP - transfer to WQ Subsector	MNRE WRD/MWCSD/SWA/IWSA					2008	2013	√	
		Formulate and Implement Water Safety Plans to safeguard water resource sand supply from sabotage	MNRE WRD/MWCSD/SWA/IWSA					2010	2013	√	
WR	5. Create greater community awareness of water quality issues	Ongoing awareness programs on Water Safety	MWCSD/SWA/MNRE WRD					2008	2013		√
	6. Realize the establishment of a Public Health Surveillance Monitoring Laboratory	Produce quaterly reports on water quality						2008	2013	√	√
		Water Quality Analysis are carried out according to WQ Monitoring Plan	WRD/SWA					2008	2013		
	7. Ensure National Drinking Water Standards are in place to regulate and monitor Water Safety	Finalize NDWQS and use as National Standards to adhere to for Water Safety (CONSULTANT FUNDED BY WHO)	WRD/WHO					2008	2008	√	√
		Develop Framework for National WSP and provide technical advice on developing WSP for water supplies	WRD					2008	2009	√	√
		Carry out prefeasibility study on water quality private bottling water companies						2008	2008		√
Water Supply	1. Ensure adequate awareness of roles & responsibilities of service providers & consumers in sustainable water services	Water Safety Plan	SWA, MNRE WRD/MWCSD/IWSA					2008	2013		√
		Train IWS to develop Water Safety Plan	MNRE WRD/MWCSD/IWSA					2008	2013		√
		Introduce standard designed septic tanks	MWCSD/MWTI					2008	2009		√
	9. Improve understanding of Health Risks related to Water Supply										
On site	1. Strengthen health & education awareness programmes	Ongoing awareness programs on Sanitation	MWCSD					2008	2013	√	√
	2. Increase the collection & treatment of wastewater in Apia Urban area	Develop and Implement Sanitation Policy	MWTI					2009	2009	√	
		Training for staff to carry out wastewater monitoring of effluent from WWTP						2009	2009		√
	3. Increase access to safe, environmentally friendly sanitation in rural areas	Coordinate and supervise the National Sanitation Project for primary schools and district hospitals	MESC					2008	2008		√
		Carry out training workshop for masonary builders on proper constuction of septic tanks against	MWTI					2009	2009	√	
	4. Set up the sanitation unit at MOH to effectly achieve objectives of the project	Set up sanitation unit at the MOH						2008	2008	√	√

Ministry of Women, Community & Social Development

Sub-Sector	Objectives	Needs/Activities	Activity Coop	Timeframe				Implementati		Budget	
				2008	2009	2010	2011	Start	Finish	Investment	Recurrent
Water Supply	1. Ensure adequate awareness of roles & responsibilities of service providers & consumers in sustainable water services	Establishment and recognition of the IWSA						2008	2013	√	√
		Information and Comm.						2008	2013	√	√
		Capacity building for stakeholders									
		Relevant Stakeholders workshops/meeting/consultation						2008	2013		√
		Basic Plumbers training for Water committees								√	
		Administrative support on financial management						2008	2011	√	√
		Management training of Water committees e.g financial						2008	2013		√
		Set up database & Collection system									
		Provision of H2S paper strip tests for IWSA						2008	2009	√	√
		Tool box for water system maintenances						2008	2008	√	
		Improved water design systems , catchments, pipes						2008	2010	√	
		Training & capacity to maintain									
		Incentive funds to support the design of technical scheme upgrade						2008	2013	√	√
		Cofinancing upgradiing of Water Schemes						2008	2013	√	√
		Engineer/technician to work IWSA						2008	2013	√	√
		Rainwater harvesting options from selected villages						2008	2010	√	√
	9. Strengthen capacity of key stakeholder groups to fulfill their respective roles	Institutional Review	MWTI/SWA/IWSA					2008	2008	√	

Ministry of Works, Transport & Infrastructure

Sub-Sector	Objectives	Needs/Activities	Activity Coop	Timeframe				Implementati		Budget	
				2008	2009	2010	2011	Start	Finish	Investment	Recurrent
Water Supply	9. Strengthen capacity of key stakeholder groups to fulfill their respective roles	Institutional Review	MWCSD/SWA/IWSA					2008	2008	√	
On site	2. Increase the collection & treatment of wastewater in Apia Urban area	monitoring septic tanks (size & type) against building code standards	MOH					2008	2013	√	√
Drainage	1. Reduce the risk of flooding in Apia Catchment Area (preventive)	Maintain existing drainage infrastructure						2008	2013		√
		Upsize/increase capacity of existing drainage system						2009	2010	√	
		Increase awareness on vulnerable areas, limiting contributing factors						2008	2009		√
		Plan and implement seawall protection works						2010	2013		√

		Determine and implement possible ways to reduce inflow of coastal waters into the current drainage system						2010	2013	√	
		Assess feasibility of additional channels from the main market area at Fugalei to the harbour area						2010	2012	√	
	2. Minimze damage and disruption due to flooding and drainage problems (curative)	Possibilities of developing new pumping system for drainages to enable fast removal of flood waters						2010	2012	√	
	3. Develop and implement drainage systems for all new development	Ensure the implementation of development master plan around the urban areas						2008	2013	√	√
		Incorporating drainage system requirements into the Building Code						2008	2009		√
		Cost benefit analysis on widening of streams eg. Gasegase River						2008	2010	√	

MAF Crops Division

Sub-Sector	Objectives	Needs/Activities	Activity Coop	Timeframe				Implementati		Budget	
				2008	2009	2010	2011	Start	Finish	Investment	Recurrent
Irrigation	2. Reassess potential & demand for irrigation and consider development of an irrigation strategy	Reassess potential and demand						2008	2008	√	
		Consultation with stakeholders						2008	2008	√	
		Workshops to develop strategies						2009	2009	√	
		Develop irrigation strategy						2009	2009	√	

Samoa Water Authority

Sub-Sector	Objectives	Needs/Activities	Activity Coop	Timeframe				Implementati		Budget	
				2008	2009	2010	2011	Start	Finish	Investment	Recurrent
Orient	7. Develop and Implement updated water-related legislation and regulation	Develop integrated mechanisms (licensing mechnisms) /legal framework to fully regulate water use and services (quality & quantity)	??			Effectiv e		2008	2010	√	
Water Supply	2. Increase stakeholder participation in planning, design and implementation of water service delivery	consultation with stakeholders for new scheme and upgrade works developments (i.e resource use-IWS,MNRE,EPC,Communities)						2009	2010	√	
		Awareness Programs						2008	2013		√
		AP- customer survey						2008	2013		√
		AP- COA & COP programs- media coa talkback montthly-						2008	2013		√
		treatment Plant operation video for Schools						2008	2013		√
		Educational materials						2008	2013		√
		COA adverts/documentary						2008	2013		√
		consultation with stakeholders for new scheme and upgrade works developments (i.e resource use-IWS,MNRE,EPC,Communities)						2009	2010	√	
		COA workshops & consultations include survey of services						2009	2010	√	

	3. Increase levels of cost recovery & improve financial viability of water service providers	Tariff Review and implementation of new tariff						2008	2008	√	
		Drilling operations- additional revenue source for SWA						2008	2008	√	
		Review Water Quality Analysis services and pricing	MOH					2008	2013		√
		Increasing commercial efficiency						2008	2013		√
		Pilot Outsourcing maintenance operations (feasibility)						2008	2009	√	
		Computerised financial management system upgrade						2008	2009	√	
		Improve computer hardware (newtork, antivirus, monitors, shelves)						2008	2009	√	
		Notice on TV and newspaper- stationary for new bills						2008	2008		
		Tariff billing/ meter reading internal training						2008	2008		
	4. Improve and co-ordinate collection of data for water service planning & management	Asset management (include review of stds, calibration meters etc)									
		UFW									
		Mapping									
		Updating consumer database									
		Asset management (include review of stds, calibration meters etc)						2008	2013	√	√
		UFW						2008	2013	√	√
		Mapping						2008	2013	√	√
		Updating consumer database						2008	2013	√	√
	5. Provide appropriate quantities & qualities of potable water in accordance with a 'levels of service	Services Code/Charter Developed						2009	2009	√	
		Upgrade of Urban Systems						2010	2013	√	
		Upgrade of Rural Schemes						2011	2012	√	
	6. Integrate environmentally sensitive wastewater disposal & sanitation with provision of water supply	SSDP Phase 2						2010	2011	√	
	7. Improve efficiency & performance of water service systems	Demand management for systems (including leak detection)						2008	2013	√	√
	9. Strengthen capacity of key stakeholder groups to fulfill their respective roles	Capacity Building (business efficiency, UFW, water treatment, water analysis, infrastructure maintenance)						2008	2013	√	√
Off site	1. Develop & implement wastewater awareness & education programmes	Media Campaign						2008	2013		√
		Develop informational segments for tv						2008	2013	√	
		Develop informational and education material for stakeholders						2008	2013	√	
		Awareness of linkages of water to wastewater and implications						2008	2013		√
	2. Develop Santation Masterplan	Identify priority areas								√	
	3. Institutional Strengthening & Capacity Building	Review O&M procedures									√
		Development of OH&S procedures									√
		Strengthen operational section of WW Division (Build technical capacity to improve understanding of systems)									√

		Improve monitoring regimes								√	
		Ensure skills transfer takes place - policy						2008	2013		√
	4. Policy Development & Review	Identify Lead Agency						2008	2008	√	
		Policy development (wastewater tariff review)	MWTI					2008	2009	√	
		Legislation Review	AG					2008	2009	√	

Electric Power Corporation

Sub-Sector	Objectives	Needs/Activities	Activity Coop	Timeframe				Implementati		Budget	
				2008	2009	2010	2011	Start	Finish	Investment	Recurrent
Hydro Power	1. Improve and increase hydropower performance	Assess existing hydro schemes						2008	2008	√	
		Improve efficiency of existing hydro schemes						2009	2009	√	
		Investigate addl hydro schemes						2008	2009	√	
		Improve dam and intakes level monitoring						2011	2013	√	
		Procure and install measuring equipment to monitor hydropower efficiencies.						2008	2013		√
		Construct addl hydro schemes						2011	2013	√	
		O&M all hydro schemes efficiently						2008	2013		√
	2. Strengthen capacity of key stakeholder groups to fulfill their respective roles	Communities: improve awareness and support at hydro sites						2008	2013		√
	3. Coordinate investment and O&M of water uses (HYDRO – WS)	Monthly management meetings SWA-EPC on O&M	SWA					2008	2013		√
		Annual management meetings SWA-EPC on Planning	SWA					2008	2013		√