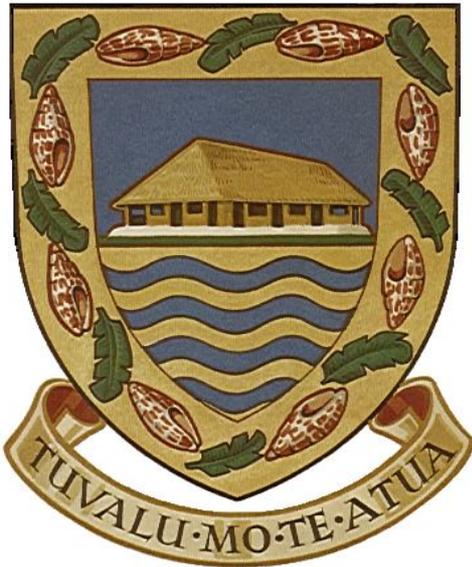

REPORT OF THE AUDITOR-GENERAL



PERFORMANCE AUDIT REPORT ON ACCESS TO SAFE DRINKING WATER





TUVALU GOVERNMENT

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Our Reference: 05/05/10

DATE: 24 October 2011

Honourable Speaker of Parliament
Office of the Speaker of Parliament
Parliament of Tuvalu
Vaiaku

Dear Sir,

AUDITOR GENERAL'S REPORT: PERFORMANCE AUDIT REPORT ON ACCESS TO SAFE DRINKING WATER

The Tuvalu Audit Office has undertaken an independent performance audit on Access to Safe Drinking Water with the authority contained in the Audit Act of 2008. I present the report to you as required under section 45 of the Audit Act 2008 since the House of Parliament is not sitting. Nineteen (19) bound copies of the report are provided herewith for distribution to all Honourable Members of Parliament.

Appreciate proper arrangement for all purposes, taken to be a document published by order or under the authority of Parliament and proper scrutiny by the Public Accounts Committee.

Sincerely,

Isaako K. Kine
Auditor- General for Tuvalu

Cc: All Honourable members of Parliament
Secretary to Government
Secretary for Health
Secretary for Public Works and Utilities

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1.0 EXECUTIVE SUMMARY

Introduction

This is the Office of the Auditor General of Tuvalu's second Performance Audit Report. The audit was conducted on Access to Safe Drinking Water in Tuvalu as part of the Pacific Association of Supreme Audit Institution (PASAI) cooperative performance audit initiative.

The Audit Office's mandate, as per Part 3 section 25 of the *Audit Act 2008*, permits the Auditor-General to conduct an audit of all or any particular activities of a public sector entity that may be considered appropriate and to report findings accordingly to Parliament.

The Water Division under the Public Works Department (PWD) and Environment Health Unit (EHU) are the key agencies involved in dealing with water distribution, monitoring and water quality.

The objective of the audit is to assess the effectiveness of the Water Division and the Environment Health Unit in enabling access to safe drinking water by determining the following:

- 1) Is there a legal and policy framework to ensure access to safe drinking water?
- 2) Has the framework been implemented?
- 3) Is the effectiveness of implementation monitored and can improvements be demonstrated?

Key Audit Findings

Existence of a legal & policy framework

The following audit findings were noted during the review process:

1. No National Water Policy is in force in Tuvalu, it remains in an early draft form. The Environment Health Unit is currently using World Health Organisation (WHO) guidelines for water monitoring and quality activities.
2. The Tuvalu *Public Health Regulations (PHR)* and *Public Health Act (PHA)* have both been revised in 2008. Both emphasise the prevention of pollution and the requirement to maintain clean water storage devices.
3. The Integrated Water Resources Management (IWRM) Plan is in draft form and is awaiting approval from Parliament. It covers most of the goals and actions required in the Pacific Regional Action Plan and as well as the Millennium Development Goals.
4. The *Emergencies and Threatened Emergencies Act* is used in times of drought and has relief measures.
5. The *Water Supply Act* which was enacted in 2008 does not provides a clear institutional legal framework for the management and supply of water in Tuvalu. The

Water Supply Act requires a national water management strategy that specifies the roles and responsibilities of key agencies.

6. The roles and responsibilities set out in the IWRM Plan have not been adequately disseminated and are not accessible to key agencies because the Plan is awaiting approval.
7. The National Water Policy and Water Resources Bill remain in draft form. These should be finalised and Parliamentary approval obtained.

Process by which the legal & policy framework been implemented?

1. There are no written procedures for PWD (Public Works Department) in terms of water distribution.
2. Duties and Responsibilities for the water section staff are set out in their letter of appointment, however, nowhere else.
3. The Water Supply Act and Public Health Act should be revised and amended to meet the changing environment and the new requirement of Millennium Development Goal number 7.
4. The Water Supply Act and Public Health Act are unclear in clarifying key agency's roles and responsibilities in addressing 'access to safe drinking water' which have been covered by the KAKEEGA II – Tuvalu National Sustainable Development Plan 2005 -2015.
5. The fees for obtaining desalination water charged by the PWD are below cost of production and distribution of the water. The fees have not contributed significantly to the operational cost of maintaining the plant; they are used to offset part of the electricity power costs.
6. Unstable and inadequate funding is available to improve water monitoring and quality services. Implementation of activities is heavily reliant on donor agency funding.
7. Staffs in key agencies are under qualified to effectively operate and manage the water quality test kit equipment and facilities.
8. There is no coordination of roles and functions of key agencies involved with access to safe drinking water. Consequently, there are overlapping roles of some key agencies which lead to unnecessary costs.

Is the effectiveness of implementation monitored and can improvements be demonstrated?

1. There is an improvement in the documentation and maintenance of statistical data regarding the volume of water collected, supply and leakage. Statistical data has been collected from 2006 to present.
2. The reporting on the volume of water collected and distributed by the PWD to the Ministry of Works is done on a monthly basis.
3. There is regular monitoring of the level of water (sounding) in government reserves by the Water Division twice a month. Monitoring is increased during drought to 4 to 5 times per month
4. The Environmental Health Unit (EHU) is up to date with statistical data regarding the results of the testing activities that they have conducted on a monthly basis. However, further improvements can be made through speeding up the process of compiling its quarterly data report to the chief of public health for further evaluation as the current process is very slow.
5. The EHU performed nine water quality tests on government housing in which twelve tests should be performed annually according to their department work plan requirement. The work plan requirement is consistent with WHO requirements. Tests for non-government housing are only conducted if there is direction made by the outpatient doctor due to an observed outbreak of disease caused by drinking water.
6. The lack of human and financial resources were the major problems faced by EHU and the Water Division which resulted in them not meeting set targets and activities set out in their strategic plans.

Conclusion

To support the full implementation of the National Water Policy and Water Resource Bill and ensure that access to safe drinking water is available, a National Sanitation and Water Management Committee needs to be developed to coordinate the roles, responsibilities and functions of key agencies involved with water quality management and monitoring arrangements. This coordination is also required to coordinate the donor agencies as they provide technical and financial support which has come to be heavily relied upon. Audit concludes that Environmental Health Unit, Water Division, IWRM Project and the Water & Sanitation committee should address the following issues when updating the National Water Policy and Water Resource Bill and IWRM plan:

1. Responsibilities for the supply of water to in Funafuti needs to be rationalised
2. There is need for stable and adequate funding of water quality, supply and monitoring services
3. New operational approaches need to be implemented

4. Community awareness on water issues needs to be raised from grass root level
5. Appropriate monitoring mechanism need to be established
6. Capacity building programmes need to be in place for staff involved in water quality and monitoring activities.

2.0 INTRODUCTION

This section of the report provides background information on access to safe drinking water arrangements in Tuvalu, the reasons why we conducted the audit, the mandate of the audit, and the entities we audited who are responsible for the management of access to safe drinking water arrangements in Tuvalu.

2.1 Background

Tuvalu is an atoll country consisting of 9 atolls, with a total land area of 26 km² dispersed over 1.2 million km² of the Pacific Ocean. Total population estimate for Tuvalu for 2006 was 11,810. Population pressures on the capital of Tuvalu, Funafuti, are high with a population density of 1,600 persons per km².

Tuvalu is ranked as one of the most environmentally vulnerable states in the Pacific region in dealing with water issues, largely because of its low relief, small land area and rising population density. The geography, geology and soil are the characteristics of the island that determine the type of water resources available. Soil and water interact with each other, like all natural systems, the health of one is dependent on the health of the other. Soil acts as a purifier of water as it moves through the hydrological cycle. In the case of Tuvalu, low lying atolls without much soil, means that water just drains right through the soil.

Tuvalu does not have a centralised piped water supply system. Each individual household on Funafuti has rainwater harvesting systems such as water tanks or cisterns. Water supply also comes from government reserves and communal reserves. The quantity of fresh water supply is subject to seasonality due to reliance on rainfall, low rain water storage capacity and poorly constructed communal and household rainwater harvesting systems. In addition poor maintenance of water and wastewater management at the household level can contribute to low volume, scarcity and unsafe drinking water. When household supplies are depleted the community depends on the government to transport water to their homes from national reserves and the government owned desalination plant.

There are three distinct problems affecting the availability of water in Tuvalu. First, the use of water exceeds the rate at which it is being replenished. Second, many human activities use water as an input, and when the water runs off to groundwater level, its quality is diminished. Third, many activities use groundwater and rain-water as means to dispose of waste, increasing demand for water.

2.2 Why we performed the audit and our mandate

The Office of the Auditor-General undertook this audit for a number of reasons. First, due to the public concerns over water, scarcity and significance of water resource in Tuvalu, it was necessary to undertake an audit on access to safe drinking water arrangements.

Secondly, PASAI at its 13th PASAI Congress held in Kiribati in 2010, agreed and endorsed the second regional cooperative performance audit. The topic selected for the audit was “access to safe drinking water”. This was part of an initiative developed by PASAI with the support of the ADB and IDI. Ten

PASAI member countries in the Pacific, including Tuvalu, were selected to participate in the cooperative audit.

Thirdly, this was an opportunity for the Tuvalu Audit Office to engage in its second performance audit and to build capacity within the performance audit division.

The Audit Office's mandate, as per Part 3 section 25 of the *Audit Act 2007*, permits the Auditor General to conduct an audit of all or any particular activities of a public sector entity that may be considered appropriate and to report findings accordingly to Parliament.

2.3 Entities Audited

In conducting this audit, we examined the following entities:

1. the Water Division (WD) which is a division of the Ministry of Works (MOW);
2. the Environment Health Unit (EHU) under the Department of Public Health (DOPH);
3. the IWRM (Integrated Water Resources Management) Project funded by SOPAC (South Pacific Applied Geosciences Commission); and
4. The Kaupule (Island Councils) of each of Tuvalu's islands.

The audit focused on the first two entities listed above as they were considered to play the major role in the management of water resources.

The Water Division in the Ministry of Works is the governing agency of water management at the national level in water storage, water supply, collection of water fees, and maintenance of utilities.

The Environmental Health Unit is the governing agency for public health, and is responsible for not only the water safety system, but vector control, food safety and control, quarantine of incoming vessels and aircrafts, sanitation programs, and neglected tropical diseases (NTDs). NTDs are group of tropical infections which are especially endemic in low-income populations in developing regions

Apart from the two major agencies mentioned above, The IWRM Project has also partly contributed to the management of water resources in Tuvalu. It aims to manage both water and land resources through improved sector wide collaboration and partnership between the government functions and those of civil society. The IWRM Project focuses on establishing and improving the linkages between land and water management, competing sectors, government agencies, civil society, and the private sector. The IWRM Project is not part of the Tuvaluan Government and it is funded by the Global Environment Fund (GEF) and the United Nations Development Program (UNDP) through SOPAC.

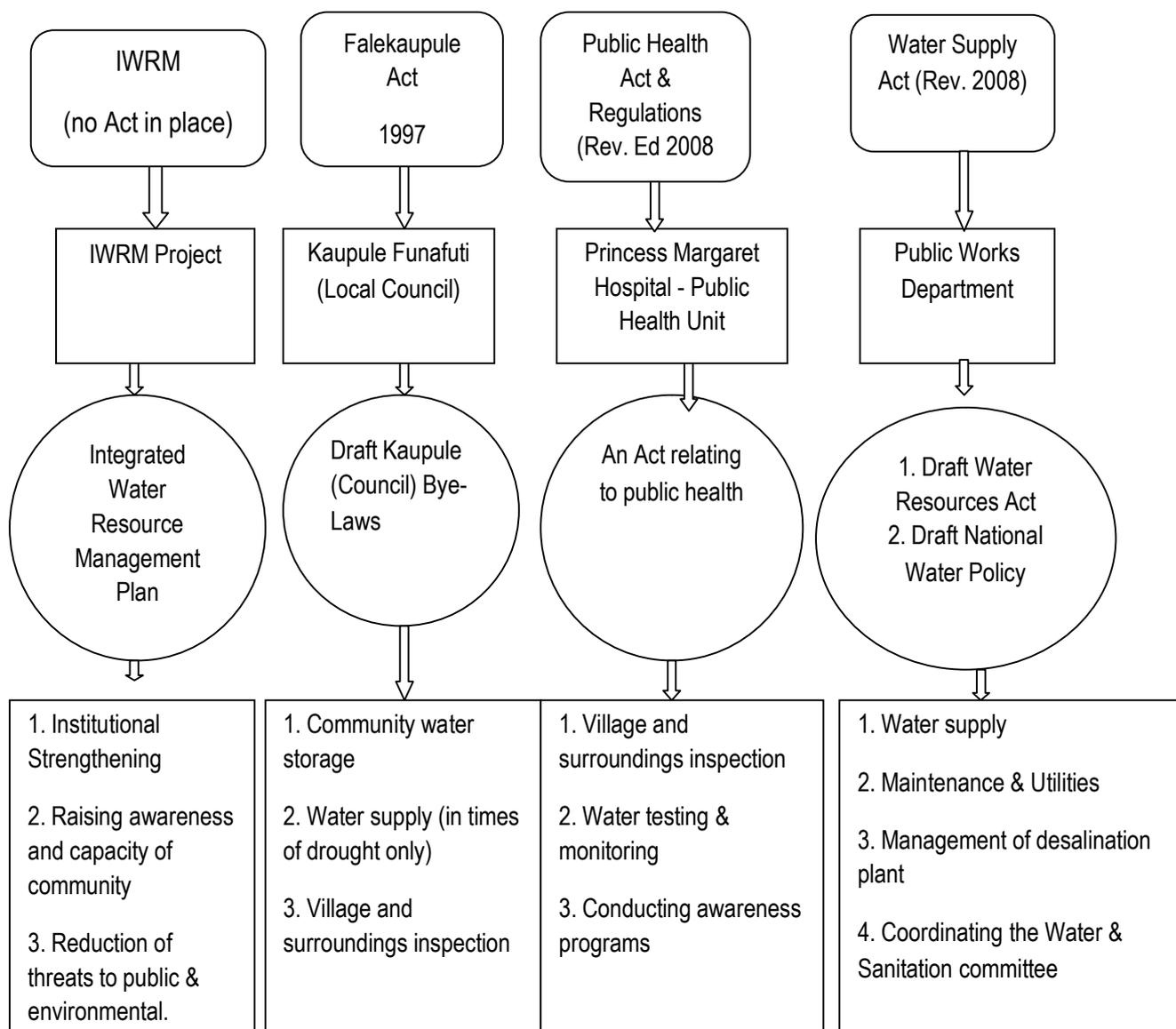
The Kaupule (Island councils) are responsible for water storage and supplying of water in times of dry periods. On each of the outer islands (non Funafuti) of Tuvalu the Kaupule is the key water agency that supplies water to the general public. The *Falekaupule* Act governs the actions of each Kaupule and contains requirements to maintain, protect and distribute the supply of water and to ensure buildings are built to a standard.

The following diagram illustrates the various agencies mentioned and their involvement in the management of water in Tuvalu. The diagram also indicates the legislations/regulations governing their responsibilities pertaining to the management of water.

Figure 1 . TUVALU NATIONAL WATER MANAGEMENT LEGAL AND POLICY FRAMEWORK

The diagram is split into four levels.

1. Acts which are in place (if applicable)
2. Who is responsible for implementation
3. Subordinate legislation/policies/plans
4. Responsibilities under the framework



3.0 AUDIT OBJECTIVES AND SCOPE

The objective of the audit was to assess the effectiveness of access to safe drinking water in Tuvalu. The three lines of enquiry assessed by the Tuvalu Audit Office were:

1. Does an adequate legal and policy framework for access to safe drinking water exist in Tuvalu?
2. Has the Framework been implemented?
3. Is the effectiveness of implementation monitored and can improvements be demonstrated?

The audit only covered the capital island of Tuvalu, Funafuti and did not include the outer islands.

4.0 AUDIT METHODOLOGY

This Section of the report outlines the methodologies used by the audit team to gather information utilised for the audit. In addition to documentary reviews and interviews the audit also conducted site visits.

4.1 Documentation and legislation reviewed

The following table details documents obtained and reviewed by audit in order to gain an understanding of the framework.

Document	Source
<i>Public Health Act 1978 Revised Edition 2008</i>	Public Health Unit / Ministry of Health
Strategic Health Plan 2009-2019	Public Health Unit/Ministry of Health
Public Health Regulations	Public Health Unit / Ministry of Health
World Health Organisation guideline on water quality	Public Health Unit/ Ministry of Health
Integrated Water Resources Management (IWRM) Plan 2010	IWRM Project/ Public Works Department
<i>Water Supply Act of 2008</i>	Public Works Department / Ministry of Public Utilities
Water Supply Regulations	PWD/ Ministry of Public Utilities
KAAKEGA II – National Strategy for Sustainable Development	Government of Tuvalu

Draft Water Resources Bill	IWRM & PWD
Draft National Water Policy	IWRM Project

4.2 Interviews conducted

The following table details the officers whom we interviewed in order to confirm our understanding.

Officer and their position	Entity
Water Officer – Mr Gunter Kopke	Public Works Department of Ministry of Works. (PWD of MOW)
Acting PWD Director – Mr Elekana Tofiga	PWD of MOW
IWRM Officer – Mr Pisi Seleganiu	PWD of MOW
Chief of Public Health – Dr Nese Conway	Ministry of Health (MOH)
Director of Health – Dr Stephen Homasi	MOH
Senior Health Inspector- Mrs Falealili Feagai	MOH

4.3 Onsite visits

An onsite visit to the Desalination Plant and Water Division work site was conducted to observe the process of transferring sea water into the desalination plant, desalination of the water and storage in reserve water tanks before distribution to households.

A visit to the Environmental Health Unit (EHU) was performed to confirm that water testing done by the Senior Health Inspector at the Princess Margret Hospital is conducted and is according to the WHO Guidelines Framework which has been adopted.

A visit to the World Water Day expo was also performed to confirm our understanding of the framework and key entities. The visit assisted with identifying the Non Government Organisations involved with access to safe drinking water in Tuvalu.

5.0 EXISTENCE OF A LEGAL POLICY AND FRAMEWORK

5.1 Audit Criteria: There should be a legal and policy framework that is supported by adequate legislation, regulation(s) and policies which clearly defines the roles of agencies to ensure access to safe drinking water arrangements in Tuvalu.

5.1.1 There is legislation in place that supports the water arrangements in Tuvalu. Relevant legislation on water resources is listed in table 1.1

Table 1.1 Relevant legislation governing the legal framework

LEGISLATION	IMPLEMENTING AGENCY	WATER SERVICES COVERED
1. <i>Water Supply Act</i> 1967 (Revised 2008)	Water Division (PWD)	Protection of water supply
2. <i>Water Supply Bulk Regulations</i> 1976	Water Division (PWD)	Water Supply and charges
3. <i>Public Health Act</i> 1926 (Revised 2008)	Environmental Health Unit	Prevention of pollution and requirement to maintain clean water
4. <i>Public Health Regulations</i> 1926 (Revised 2008)	Environmental Health Unit	Maintain standards of health
5. WHO Guidelines on water quality	Environmental Health Unit	Water quality testing
5. <i>Falekaupule Act</i> 1997	Funafuti Kaupule	Water Storage, Supply and Charges
6. <i>Emergencies and Threatened Emergencies Act</i> (Special Powers)	Disaster Task Force	Useful for Drought and Relief

5.1.2 No country specific National Water Policy is in force in Tuvalu. The National Water Policy specific to Tuvalu is in an early draft form. The responsible agency, the Environmental Health Unit (EHU) is currently using WHO guidelines on water quality (the Guidelines) for water monitoring and quality services. The primary purpose of the Guidelines for drinking-water quality is the protection of public health. The Guidelines promote a framework for safe drinking-water, composed of health-based targets, water safety plans, and independent surveillance. Moreover, it discusses the roles and responsibilities of different stakeholders, including the complementary roles of national regulators, suppliers, communities and independent surveillance agencies. The guidelines are considered to be sufficient for Tuvalu's purposes.

5.1.3 The *Public Health Regulations* (PHR) and *Public Health Act* (PHA) both have been revised in 2008. The emphasis of these Acts is the prevention of pollution and to maintain clean water storage in Tuvalu.

5.1.4 The *Water Supply Act* which was revised in 2008 does not provides a clear institutional legal framework for the management and supply of water in Tuvalu.

5.1.5 A number of reports compiled by donors and academics have echoed the need to review water legislation and regulation in Tuvalu. The two reports which are the most recent and identify the majority of gaps in the current legislation and regulation of water are 'Reserve Water Storage

Requirement' by Wolff (2009) and 'Diagnostic Report' by SOPAC (2007). The issues identified were surrounding:

1. Management of water demand and conservation practices;
2. Establishment of an overarching water and sanitation Agency;
3. Regulation of collection and storage of water;
4. Monitoring of water quality;
5. Distribution of water storage devices;
6. Disposal of water;
7. Usage of water saving devices; and
8. Pricing structure of water in Tuvalu.

- 5.1.6 The Water Resource Bill has been drafted to address these gaps. However this legislation is only effective and enforceable when formally endorsed by Parliament.
- 5.1.7 The Parliament of Tuvalu has developed and endorsed the Te Kakeega II – National Strategy for Sustainable Development Plan (NSSDP) 2005 – 2015. The NSSDP address water issues and encompasses the strategy in place in order for Tuvalu to achieve the Millennium Development Goals (MDG) in relation to water.
- 5.1.8 Tuvalu is also a signatory to Pacific Regional Action Plan (PRAP) on sustainable water management which requires Tuvalu to develop a water resource strategy. Tuvalu with the assistance of SOPAC is in the process of developing an Integrated Water Resource Management Plan (IWRM Plan) in response to PRAP.
- 5.1.9 The IWRM Plan covers most of the goals or actions stated in the PRAP and as well as the MDG in relation to water. It aims to manage both safe drinking water and environmental conservation through improved collaboration between sectors and partnership between government functions and those of civil society. It specifically focuses on establishing and improving the linkages between land and water management, competing sectors, government agencies, civil society, and the private sector.
- 5.1.10 The roles and responsibilities of key agencies set out in the IWRM Plan have not been adequately disseminated as the plan is in draft form and is awaiting approval.
- 5.1.11 There is a number of individual documents and policies that have been drafted concerning water issues. Through these there is a complex allocation of roles and responsibilities in managing water resources. Audit noted that there is no one document or piece of legislation that deals directly with the management of water. Audit also found that there is no country specific national water policy that binds and coordinates the individual policies to achieve common goals.

5.1.12 The *Water Supply Act* which was enacted in 2008 does not provide a clear institutional legal framework for the management and supply of water in Tuvalu. The *Water Supply Act* requires a national water management strategy that specifies the roles and responsibilities of key agencies, however, does not outline the strategy.

5.1.13 The *Emergencies and Threatened Emergencies Act* is used in times of drought and has drought relief measures contained in it. In a state of emergency, the Act can authorise the Government to seize private water supplies for rationing to the general public.

5.2 Recommendations

The Tuvalu Audit Office recommends:

1. that a review of the current legislation is undertaken to address the gaps identified;
2. the draft National Water Policy and legislation is completed and then formalised to provide management and regulatory tools to properly conserve, protect and manage water resources;
3. a Water and Sanitation Committee is formed to coordinate the roles, responsibilities and functions of key agencies involved with water quality management and monitoring to ensure that the framework is effectively implemented;
4. the roles and responsibilities of key agencies set out in the IWRM Plan should be clearly communicated to the agencies responsible;
5. the IWRM Plan should clearly adopt and incorporate parts of the WHO guideline on water quality testing into its plan; and
6. the Government should provide additional financial support to the EHU in order to meet set targets or activities related to water set out in their Strategic Health Plan.

5.3 Conclusion

There is no formal national water and sanitation plan or legislation that provides management and regulatory tools to ensure access to clean safe drinking water. There is a public expectation that all agencies involved in water resources in both the Tuvaluan Government and Kaupules coordinate their activities to ensure that access to clean safe drinking water is adequate. Without a formalised framework, it is difficult to coordinate the efforts and roles of agencies in order to reduce the risk of duplication or non performance of activities. Given there is a limited formalised framework in place, the remaining lines of enquiry will be assessed against the draft framework.

6.0 HAS THE LEGAL FRAMEWORK AND POLICY BEEN IMPLEMENTED BY THE KEY AGENCIES?

6.1 Audit Criteria: The key agencies should have clear responsibilities for effectively implementing and coordinating the legal frame work.

6.1.1 The agencies responsible for supplying water in Tuvalu are the Public Works Department (PWD) Water Division and the Kaupules (Island Councils). The Tuvalu Government is the major supplier of water and the Kaupule supply water in times of extreme dry periods. Except on Funafuti, the Government controls the supply of water. Under the Ministry of Works, the Water Division of PWD is responsible for all pumping and utilities including management of the desalination plant and national water reserves. PWD is engaged in planning and implementing water projects, and carrying out plumbing works.

6.1.2 In Funafuti the Environmental Health Unit (EHU) is responsible for conducting testing on water quality. While the EHU it does not have its own standards, it uses the WHO guidelines standard, which are considered to be applicable and acceptable. The EHU also runs public awareness campaigns surrounding safe drinking water. The campaigns are conducted over radio Tuvalu and through in-country training workshops.

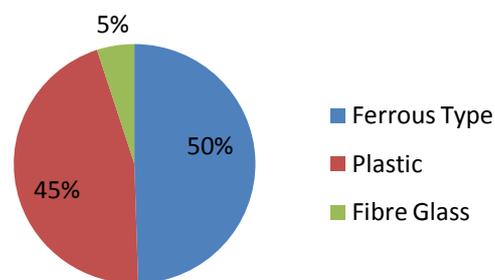


School children inspecting water quality test results at the World Water Day expo Source: Tuvalu Audit Office 2011

6.1.3 Water services and supply in Tuvalu are heavily funded by overseas donors. More than half of the ferrous type cement household tanks and community cisterns were donated by external donor agencies. Even government owned water reservoirs and desalination plants were donated by external donors.

6.1.4 The pie diagram on the right illustrates the various water tanks available on Funafuti.

6.1.5 The planned activities in the framework and plan are largely dependent on donor funding. If there is no funding available to finance parts of the framework, then that part of the framework is not undertaken. With multiple donors, with overlapping priority areas, this can lead to the potentially inefficient allocation of resources to less crucial activities within the framework. For example, the IWRM Project and Tuvalu Association of Non-Government Organisations (TANGO) have in the past performed the same activity in the same period of fixing and supplying gutter to households on Funafuti. These activities were carried out with the assistance of two different donors.



Water tank types on Funafuti Source: 'Reserve Water Storage Requirement' by Wolff (2009)

6.1.6 The *Water Supply Act* and *Public Health Act* are insufficient to meet the changing environment and the new requirements of the Millennium Development Goals in relation to water. Both Acts have been revised in 2008, however, do not assign functions to each responsible agency in implementing water arrangements activities.

- 6.1.7 The key agencies involved with water assessments lack the technology and human resources to conduct proper water assessments in order to provide quality information to policy makers. The agencies are dependent on foreign assistance for technical and financial support. Most of the work that is done to address water problems in Tuvalu is through health projects or regional projects funded by donors. The Tuvaluan Government alone has been unable to perform these types of tasks due to budget constraints and the lack of an appropriately skilled labour force.
- 6.1.8 The SOPAC 'Diagnostic Study' (2007) made reference to the complexities of having different bodies managing water resources in Tuvalu. The SOPAC Diagnostic Study describes the overlapping roles and responsibilities of stakeholders involved in Water and Sanitation Management in Tuvalu, and recommended that these roles are clearly defined and allocated to minimise overlap.
- 6.1.9 Audit has confirmed that some activities specified in the IWRM Plan in relation to water management have been carried out. These activities were not performed as part of the framework but were performed due to the individual initiatives of key agencies.
- 6.1.10 Audit found that there is little communication and reporting of information among key agencies. It is clear that individual agencies are carrying out activities independent of each other rather than working towards the same goals.
- 6.1.11 The absence of a working Water and Sanitation Committee to coordinate the activities and responsibilities of key agencies and to review water policy and legislation was noted. This includes setting standards for water quality and quantities.
- 6.1.12 During visits and interviews with PWD it was found that there were no written procedures for PWD in terms of water distribution and allocation from the desalination plant, it appeared this was being performed on an ad hoc basis. Duties and responsibilities for the water distribution staff were only set out in their letter of appointment.
- 6.1.13 The fees for obtaining desalination water charged by the PWD are below cost of production and distribution of the water. The fees have not contributed significantly to the operational cost of maintaining the plant; they are used to offset part of the energy costs.

Table 1: PWD Water Rates

PRIVATE		COMMERCIALS		VESSELS	
Vol. (gallons)	Price	Vol. (gallons)	Price	Vol. (gallons)	Price
500	\$13.50	500	\$30.50	500	\$30.50
1,000	\$16.00	1,000	\$48.00	1,000	\$48.00

Source: PWD

Table 2: Summary of water charges for July

Category	No.	Charges	Amount delivered (gallons)
Public service (households)	207	\$2,997.00	144,000
Government service	11	\$1,319.17	22,000
Water truck hire	4	\$60.00	8,000
Total	222	\$4,376.17	174,000

Source: PWD Data 2011

- 6.1.14 In addressing access to safe drinking water issues which have been identified by the Kakeega II National Strategy for Sustainable Development, the *Water Supply* and *Public Health* Acts are unclear in clarifying key agency's roles and responsibilities.
- 6.1.15 The key agencies staff in responsible for effectively operating and managing the water quality test kit equipment and facilities were found to require additional development to ensure that a high standard of service is delivered.

6.2 Recommendations

The Tuvalu Audit Office recommends:

1. That the Water and Sanitation committee is empowered and strengthened to assist in the implementation, coordination and oversight of all safe drinking water activities. This should be the main role of the committee. This would assist in coordinating efforts of agencies, externally funded projects, non-governmental organisations and other stakeholders in implementing water activities set out in the legal framework;
2. The Water and Sanitation committee is also involved with the creation of common strategies and planning;
3. Funding applications lodged with donors or the Tuvaluan Government should seek long term funding for the most efficient and effective activities within the IWRM Plan as determined by the Water and Sanitation committee; and
4. The PWD clearly document all operational procedures for distribution, maintenance and utilities;
5. Additional training and development opportunities are created for key staff involved in EHU & PWD in order to develop capacity and improve quality of work;
6. The Government provides additional funding for each of the agencies involved with water management to assist in executing activities within the IWRM Plan.
7. The responsible agencies (Water Division and Environmental Health Unit) work together, communicate well and share information in order to achieve the same goals.

6.3 EHU, IWRM & PWD Comments

IWRM: IWRM has provided an institutional strengthening report for the water sector which involves the roles and responsibilities.

PWD: Proper funding should be allocated to implement the Tuvalu National Water Policy

6.4 Conclusion

The implementation of the framework is being performed by multiple government agencies without an overarching body to ensure that the framework is being implemented. The agencies are performing activities within the framework, however, there is limited coordination between the agencies to ensure that the most effective activities are performed. Donor funding largely dictates which parts of the framework is be implemented.

7.0 IS THE EFFECTIVENESS OF IMPLEMENTATION MONITORED AND CAN IMPROVEMENTS BE DEMONSTRATED?

7.1 Audit Criteria: Key Agencies such as Environmental Health Unit and Public Works Water Unit should have concrete monitoring mechanisms, benchmarks and reports on the effectiveness of their actions for evaluating their performance and compliance with the legislative framework

Findings

- 7.1.1 Given that the IWRM Project is still finalising the IWRM Plan which remains in draft, the effectiveness of implementation monitoring has not been fully demonstrated as yet.
- 7.1.2 There is ongoing monitoring of the individual projects being performed and statistical monitoring at a high level as part of the Millennium Development Goals reporting, however, there has been no benchmarks set as part of the IWRM Plan.
- 7.1.3 There is an improvement in the documentation and maintenance of statistical data regarding the volume of water collected, supply and leakage. Statistical data stored is from 2006 to present..
- 7.1.4 The reporting on the volume of water collected and distributed by the PWD to the Ministry of Works is done on a monthly basis.
- 7.1.5 There is regular monitoring of the level of water (sounding) in government reserves by the Water Division twice a month and monitoring is increased during drought to 4 to 5 times per month
- 7.1.6 The EHU is up to date with statistical data regarding the results of the testing activities they have conducted on a monthly basis. However, further improvements can be made through speeding up the process of compiling its quarterly data report to the chief of public health for further evaluation.
- 7.1.7 The EHU performed nine quality tests on government. Audit confirmed that EHU have met 75% (9 out of 12) of the department's annual work plan requirement. This requirement of once a month is to comply with the department water testing work plan drawn up by the Health Inspector. Tests for non-government housing are only conducted if there is a direction made by the outpatient doctor due to an outbreak disease caused by drinking water.
- 7.1.8 The testing is considered to be consistent with the WHO requirements for the frequency of testing. The requirements of the WHO surrounding frequency of testing are:
1. on a regular basis (the frequency of verification testing will depend on several factors, including the size of the community supplied, the reliability of the quality of the drinking-water / degree of treatment and the presence of local risk factors);

2. on an occasional basis (e.g., random or during visits to community-managed drinking-water supplies); and
 3. increased following degradation of source water quality resulting from predictable incidents, emergencies or unplanned events considered likely to increase the potential for a breakthrough in contamination (e.g., following a flood, upstream spills).
- 7.1.9 The EHU and the Water Division were unable to perform all activities set out in their Health strategic plan and carry out their normal daily tasks due to the lack of human and financial resources. The Health Strategic plan is a practical document that is used by the Ministry of Health to plan activities in line with the Government's budgetary process. The Health strategic plan is designed to improve systematic and programmatic management as well as fiscal management of the Tuvalu health sector.
- 7.1.10 Audit confirmed that EHU report on a quarterly basis to the Chief of Public Health on the progress on the activities accomplished and activities that could not be accomplished and other important issues. The EHU staff also meet with the Chief of Public Health to discuss matters raised in the report.
- 7.1.11 Complaints from the public surrounding water deliveries are directly made to the PWD Head Office during working hours. Areas mostly complained about are high volume of water leakage during the distribution process; volume delivered into their tanks is less than the volume they purchased. Typical purchase is 1000 gallons of water which costs \$16 for a household.
- 7.1.12 All complaints related to quality of water and health issues suspected to be caused by water are made directly to the EHU department. They attempt to address the complaint immediately but sometimes this cannot be met due to staff availability and resourcing issues. To monitor complaints daily relating to water was not considered feasible as other public health matters may take precedence.
- 7.1.13 Audit confirmed that PWD has no specific electronic water database system in place to monitor the quantity of water stored and distributed; however, a manual system is in use.

7.2 Recommendations

The Tuvalu Audit Office recommends:

1. A simple set of benchmarks to monitor the progress of water management is created and are included in the IWRM plan. These should be more detailed than the MDG's relating to safe water access. These could include:
 1. Minimum number of cubic metres of water storage per person per island;
 2. Number of water related illnesses reported and treated in the Tuvalu Hospital and health clinics;
 3. Square metres of catchment area per person per island;

4. Number of water catchment areas without sufficient transfer systems to the water tank per island;
2. The Water and Sanitation Committee have sufficient oversight of the plan and the benchmarks developed and are monitoring compliance. Traffic light reporting on simplified goals in a single page form could be used. These results could be published on the internet and announced on the radio.
3. PWD improve its water manual database system for data collection concerning pricing, quantity, distribution. The information should be make the data available to data to the public, the Tuvaluan Government, the Funafuti Kaupule, local communities and all nongovernmental organisations involved with managing water resources.

7.3 EHU, IWRM & PWD Comments

PWD: We have tried several times to collaborate with them (Environmental Health Unit) however they always say that they are busy.

7.4 Conclusion

Given the draft form of the IWRM Plan, the *Water Resource Act* and *Regulations*, the monitoring of the implementation is still in infant form. There is limited reporting performed by PWD, detailed reporting performed by the PHU, however, there is limited reporting surrounding the framework as a whole.

8.0 OVERALL CONCLUSION

1. The legal and policy framework on access to safe drinking water is mostly in draft form in Tuvalu. Further development of the framework is required surrounding the prioritisation of the activities in the IWRM Plan and the management of donor funding to ensure that the highest priority work is completed.
2. The management of water in Tuvalu currently is via the *Water Supply Act*, the *Public Health Act* and various regulations. The other two draft framework items (IWRM Plan and the Water Resources Bill) should be finalised and then implemented.
3. The absence of Kaupule by-laws for all town councils is a concern, considering that it is the primary regulation governing water management in times of dry periods within the Kaupule in Tuvalu.
4. Difficulties exist in the effective implementation of the legal and policy framework. This is causing slow progress in achieving most of the objectives of the action plans and the targets outlined in the National Strategy for Sustainable Development (Kakeega II). The deficiency is mainly the result of the water and sanitation committees finding difficulties in securing the co-operation of the implementing agencies.
5. The findings in this report suggest that the effective management of water is heavily reliant on the support and commitment of all stakeholders including the Tuvaluan Government and overseas donors who have contributed financial and technical resources for the management of water in Tuvalu. Without such commitment and support the effective management water will continue to be a struggle in the long run.

9.0 REFERENCES

1. Water Resources in Tuvalu, Luke Paeniu, 2010
2. Diagnostic Report, SOPAC 2007
3. Ministry of Health Strategic Health Report 2008
4. National Strategy for Sustainable Development (NSSD) or Kakeega II
5. Draft National Water Policy
6. Draft IWRM Plan
7. Draft Water Resources Act
8. WHO guideline for drinking water quality
9. Reserve Water Storage Requirement by Wolff (2009)

10.0 APPENDICES

APPENDIX 1: Meeting with Senior Health Inspector: Mrs Falealili Feagai – 6/12/10

Falealili works for the Public Health Department at the Princess Margaret Hospital, under the Environmental Health Unit (EHU).

The results of our discussions are as follows:

4. The EHU are using the *Public Health Act* and *Public Health Regulations* as their legal framework. The EHU has adopted the WHO Guidelines on Water Quality and Surveillance in carrying out their duties and responsibilities in testing the quality of water and monitoring
5. Falealili's duties as a Senior Health Inspector are vector control, food safety and control, drinking water quality and safety, and quarantine of incoming vessels.
6. Testing and monitoring of water for Government housing is done once a month and this is due to lack of qualified staff to assist her in carrying out this duties.
7. Testing and monitoring of water for private housing is only carried out by direction from a doctor who has identified an outbreak disease caused by water.
8. Activities are set out in the Budget Plan but there is not enough funding to carry out ll these planned activities.
9. The Public Health Unit and the Water Section at Public Works are not on good terms in terms of sharing information and incorporating their duties and responsibilities together. For example, the Senior Public Health inspector wants to test water before distribution; however, the Water Officer refuses as they don't have time to allow the Inspector to carry out testing prior distribution.
10. National Water Monitoring Surveillance – unfortunately did not occur as there was a lack of staff and finance to carry out this activity.
11. Pacific Regional Action Plan- Falealili did not attend this meeting but her superiors did. She is not aware of the outcomes from the Pacific Actions Plan meeting which Tuvalu is signatory to.
12. Public Awareness Programs are broadcast to the public on radio Tuvalu on a daily basis via advertisements and workshops. Training is carried out twice per month, depending on financial resources available The program and trainings stress the following topics:
 - proper construction and maintenance (including cleaning) of household their rainwater harvesting systems;
 - prevention of contamination in water tanks or cisterns from animal droppings and other sources;

- boiling drinking water including water used for ice; and
 - explaining diseases caused by drinking contaminated water.
13. Falealili identified that there was a lack of test kit equipment and qualified staff to fully implement the framework and policy.

APPENDIX 2: Meeting with water officer Mr Gunter Kopke (Water Officer) – Public Works Department 2/12/2010

Gunter works for the Water Section at the Public Works Department under the Ministry of Works and Public Utilities.

The results of our discussions are as follows:

1. There is no National Water Policy which is in force in Tuvalu. It remains in a draft form. The Water Division is working according to their duties and responsibilities as stated in their letter of appointment.
2. The PWD is responsible for water distribution and monitoring. Water distribution is performed to commercial, government and private households on Funafuti daily
3. The PWD does not test water quality prior to the distribution of water to the public.
4. Monitoring of volume of water for government reserves, housing and community is carried out twice a month (first week and third week of the month).
5. If the water level found in those government water reserves is half then they will reduce the quantity each household is allow to purchase from 1000 to 500 gallons per household.
6. Sounding of water volumes in public houses is carried out twice a month but in times of drought or critical situation PWD may carry out this task more times as needed. Their findings will report to the Director of Works, then to the Secretary, then to the Disaster Coordinator members. The Disaster Coordinators will meet and make a decision to call for national emergency if water supplies reach critical levels.
7. **Process of Distributing Water to the Public**
 - Payment is made to the Accounts Clerk at the front desk. The fee schedule does not cover production and distribution costs of water, only part of the electricity used to produce it. The rates are considered to be affordable.

PWD Water Rates:

PRIVATE		COMMERCIALS		VESSELS	
Vol. (gallons)	Price	Vol. (gallons)	Price	Vol. (gallons)	Price
500	\$13.50	500	\$30.50	500	\$30.50
1,000	\$16.00	1,000	\$48.00	1,000	\$48.00

- Gunter will collect all the receipts at 12 noon (for payment made in the morning). The afternoon receipts he will collect the next morning.
- Gunter will give all copies of receipts to the 2 water delivery boys

- Then they will distribute the water according to the names on receipts to their respective household.

APPENDIX 3: Relevant extracts from the Framework in place and commentary

Legislation

1. *Public Health Act 1926 (Revised in 2008)*:

The *Public Health Act* allows the Minister for Health to make regulations for the purpose of protecting and advancing the public health of Tuvalu. The section relevant to water includes:

Section 2 “sanitary inspector” means any such person as may be appointed in writing by the Minister to be a sanitary inspector under this Act and includes any medical officer;

Section 3 (1)

(a) latrines, dustbins and drains;

(h) securing the cleanliness and freedom from pollution of tanks, vats, cisterns and other receptacles for storing water used or likely to be used by man for drinking or domestic purposes, and for the purification of water intended to be used in commodities offered for sale;

(i) regulating or prohibiting the use of any rain, stream, well or other water supply and for the prevention of the pollution thereof;

2. *Public Health Regulations 1926 (Revised in 2008)*

The *Public Health Regulations* expand on the sanitary requirements of Tuvaluans as well as give sanitary inspectors certain powers. Relevant extracts of the *Regulations*:

5 Tanks, etc.

All tanks, vats and vessels used for retaining water shall be efficiently covered with mosquito-proof gauze, or shall be treated with petroleum or other suitable oil to the satisfaction of a sanitary inspector.

6 Water in boats

No stagnant water shall be allowed to lie in any boat or vessel whether afloat or ashore.

7 Guttering, etc.

The guttering and down-pipes connected with the roofs of all houses, buildings and premises shall be kept clean and efficient.

8 Inspection

A sanitary inspector or any member of his staff thereto authorised by him in writing may, at all such times as he shall think fit, enter upon any premises for the purpose of inspection.

11 Latrines

Every house or building in daily occupation shall be provided by the owner thereof with latrine accommodation as approved by a sanitary inspector.

12 Cleaning of latrines

(1). Latrines shall be kept thoroughly clean.

(2) Occupiers of houses and buildings shall immediately report to the sanitary inspector should the latrine pans at their houses or buildings not be removed daily.

13 Destruction of latrine

A sanitary inspector may order the destruction without payment of compensation of any latrine which is, in his opinion, unfit for use, and a latrine approved by him shall thereupon be provided by the owner

20 Closing of wells

Any well or water supply which is injurious to health may be closed by order of a sanitary inspector.

The above provisions set out in the framework are the EHU responsibilities but also individual household's responsibility to maintain and carry out for their own good and benefit. According to a survey conducted by the NZ Environmental Army team on Funafuti, (44%) of Funafuti did not have screened or sealed inlets to water tanks, many households were tested positive for coliform & faecal coliforms which is a concern. It seems that the individual households are not followed and failed to meet the provisions set out in the framework.

3. *Falekaupule* Act 1997

Falekaupules are the town councils on each of Tuvalu's nine islands. Under the *Falekaupule* Act they are responsible for the following water related matters:

8. *Public Health*

(a) to safeguard and promote public health, including preventing and dealing with any outbreak or the prevalence of any disease, in accordance with the Public Health Act;

(g) to establish, maintain and carry out services for the removal and destruction of, or otherwise dealing with, all kinds of rubbish, refuse or excreta and by bye-laws to require householders to contribute to such services;

(i) to provide, erect and maintain a public water supply, and impose water rates in accordance with the Water Supply Act;

(j) to establish, maintain and control public wells, springs, bathing places, wash houses and swimming pools;

(k) by bye-laws to regulate or prohibit the sinking of wells and provide for the closing of wells;

(l) to prevent the pollution of any water, and by bye-laws to prevent access to any polluted source of water;

4. *Water Supply Act* of 2008:

This is the Act in Tuvalu which establishes a water authority, and makes provision regarding the entering and detaining of land for water related purposes. The power for the Minister to create regulations surrounding inspection, repairing of leaks, charging for water supplies is granted in this Act.

19 Regulations

(1) The Minister may make such regulations as he shall think necessary for:

(a) the position and construction of, and the size, material, kind and number of service pipes to any house, premises and property and of the water supply fittings therein;

(b) inspection of service pipes and water supply fittings;

(c) prevention, notification and repairing of leaks in service pipes or water supply fittings;

- (d) Licensing of persons to perform work connected with the supply of water;
- (e) the charge to be made for water supplied, otherwise than by meter, and the method by which it shall be imposed and collected;
- (f) the position and construction of and the use, inspection and approval of meters and the charge therefore including meter rent and the amount of deposit against cost of a meter and the scale of charges to be made when water is supplied by meter;
- (g) the charge to be made for water supplied to ships, boats, hulks, steamers or other vessels and the method of collecting the same: Provided that it shall be lawful for the Minister from time to time to exempt any of Her Majesty's ships of war or the ships of war of any foreign power from payment of any charge for water supplied;
- (h) exempting such persons, corporations, institutions or otherwise, as the Minister shall think fit from the payment of charges under this Act;
- (i) Generally for such other purposes as may be found necessary for the maintenance of an efficient water supply to all users of the same and for carrying out the provisions and purposes of this Act.

5. Water Supply (Delivery of Bulk water) regulations

These are the only regulations surrounding the Water Supply Act. This regulation is setting up the charge for water by the authority.

2 Charge for delivery from Government storage cisterns

The Authority shall charge persons desiring to be supplied with water from Government storage systems at the rate of \$5 for every 1000 gallons, or part thereof, delivered.

Goals/ Developmental documents

1. Te Kakeega II (2005 to 2015)

The Te Kakeega II is the Tuvaluan National Strategy for sustainable development. Te Kakeega II is also Tuvalu's strategy to attempt to comply with the Millennium Development Goals.

Access to safe drinking water is mentioned in Te Kakeega II under Goal 7.3 under the housing goal. This relates to modifying the building code to include requirements surrounding water and sanitation. Goal 8.1 also mentions increasing water infrastructure on the outer islands of Tuvalu. Goal 12 surrounding Infrastructure and support also includes the following priorities

1. Expand collection and storage of water for housing, businesses and other structures (especially in Funafuti).
2. Promote water conservation through education and awareness programmes.

2. Health sector master plan 2009-2019

The only section in Ministry of Health sector master plan is section 4.4

- 4.4 This includes strengthen programs in environmental health, including water quality and sanitation.

No other detail is given in terms of the strategy in use or a detailed plan to strengthen the programs.

3. Millennium Development Goals (MDG),

The millennium development target relevant to access to safe drinking water is Target 7.C which is to *halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation*. From the 2010 draft report it appears that Tuvalu is on target to meet this goal. The report, however, raises some concerns surrounding the quality of the drinking water reported and discusses some challenges including: Strengthening of institutions and framework; improvement of the monitoring framework; increased training and water awareness; and the improvement of co-ordination of stakeholders.

Draft/ Proposed Frameworks in place

1. The Integrated Water Resource Management Plan (IWRMP)

The Draft Integrated Water Resource Management Plan (IWRMP) objective is to:

1. Provide sufficient good quality freshwater for all Tuvaluans to enjoy;
2. Protecting all water resources to enhance the health of our Tuvalu environment and people.

Through achieving the three goals:

1. Guaranteed human health
2. Sustainable Social, Economic and Recreational Benefits of Water

3. Healthy Aquatic Ecosystems

The challenges of water that the plan envisages to meet these goals are:

1. The ability to provide adequate required resources to support water development initiatives
2. The need to change deeply-ingrained beliefs and perceptions about our water resource
3. A complex array of individual families, government and communal factions that each have roles in managing water issues.
4. Sustaining ecosystems while meeting the demands of society.
5. Prioritizing social and economic demands with limited financial capacity

The action plan chart separates out the goals and the initiatives which are required to be taken. Included in the plan is the initiative to create a National Water Policy; a Water Resources Act and corresponding regulations; and a Water and Sanitation Committee to oversee the implementation of the Act.

The plan has remained in draft form for a number of years. There is refinement required to ensure that prioritisation of the strategic goals occurs. From the review of the Integrated Water Management Resources Plan proposed programs it appears that there is a full listing of all potential activities which could be undertaken. This list is exhaustive and it is unlikely that there will be sufficient finances and human resource capital to carry out all of these activities.

2. Draft National Water policy

Tuvalu had a National Water Policy which was drawn in year 2005 and remains in draft form. The draft still requires considerable effort before being finalised.

3. Draft water resources Bill

The Draft Water Resources Bill is proposing to create and define the functions of the Water resources Committee, define requirements for catchment areas, define requirements for tanks and catchment facilities, give power to relinquish and re-distribute water in times of drought and create rules for ground water usage.

APPENDIX 4: Extract from Millennium Development Goals Report 2011

Challenges and Opportunities

In general, Tuvaluans have excellent access to safe drinking water and sanitation. However, there is still room for improvement. The following are some of the strategies that can be implemented or are in the process of implementation:

1. Institutional strengthening

Officials need to work to improve the environment by supporting the Government and Parliament in the revision and enactment of the Water Resources Act (formerly known as the Resources and Sanitation Management Bill). Cabinet should take necessary steps to ensure that the National Integrated Water Resources Plan is endorsed and for the National Water and Sanitation Committee to monitor progress. Support and endorsement of the draft Building Code so that it will be implemented, including the regulations with regard to improving piping standards, water storage and maintenance of sanitation facilities with improvement in designs to limit contamination of soil and marine life.

2. Improved monitoring

Data collection and evaluation can detect where issues are, and therefore enable responsible agencies to develop strategies for improvement. It is important that there are enough personnel with tools to monitor bacteria levels in rainwater storage facilities.

3. Training and awareness

There appears to be limited understanding of the linkages between poor sanitation and water borne diseases, degradation of the marine and aquifer environment and the indirect and direct impacts on livelihood and food security. Practical training will not only raise skills and actions but also raise awareness. It is important that there is strong support from the community and Non-Government Organizations in awareness and training. Health and media cannot be ignored in training and awareness.

4. Improved coordination

As several reports stated (including the National Integrated Water Resources Report – 2007), there is a complex array of agencies that each have a role in monitoring the quality of rainwater in storage facilities. However there is no proper document or policy outlining these. It is important to ensure that different Government agencies, groups, and Kaupule coordinate their activities properly to avoid duplication and overlapping responsibilities.

APPENDIX 5: Responsibilities and contributions of the Ministry of Works (PWD) and Ministry of Health

Agency	Responsibilities and contribution
Environment Health Unit (EHU)	<ul style="list-style-type: none"> • quality sampling and testing of freshwater from tanks and water reservoir; • mosquito larvae treatments in water cistern, tanks and pulaka pits; • spraying of town area; and • inspection of houses, roof-tops and town area
Public Works Department (PWD)	<ul style="list-style-type: none"> • provide technical advice to the public; • formulation of building code that includes sanitation, rain water harvesting and inspection of government facilities wastewater systems; • maintain and repair government facilities water supply and septic systems; • construction of government building water supply and septic systems; • operate and maintain desalination plant; • water distribution; and • plumbing supervision.

APPENDIX 6: List of Acronyms

ADB	-	Asian Development Bank
DOPH	-	Director of Public Health
EHU	-	Environment Health Unit
EDF	-	European Development Fund
EU	-	European Union
GEF	-	Global Environment Facility
IDI	-	INTOSAI Development Initiative
INTOSAI	-	International Organization of Supreme Audit Institutions
IWP	-	International Water Project
IWRM	-	Integrated Water Resource Management
IWRMDP	-	Integrated Water Resource Management Draft Plan
MCPU	-	Ministry of Communication & Public Utilities
MDG	-	Millennium Development Goals
MHA	-	Ministry of Home Affairs
MOH	-	Ministry of Health
MOW	-	Ministry of Works
NSSDP	-	National Strategy for Sustainable Development Plan
NTD's	-	Neglected Tropical Diseases
NWSC	-	National Water & Sanitation Committee
PASAI	-	Pacific Association of Supreme Audit Institutions
PHA	-	Public Health Act
PHR	-	Public Health Regulations
PHU	-	Public Health Unit
PICs	-	Pacific Island Countries
PMH	-	Princess Margaret Hospital

PRAP	-	Pacific Regional Action Plan
PWD	-	Public Works Department
SOPAC	-	South Pacific Applied Geosciences Commission
SPREP	-	South Pacific Regional Environment Programme
TANGO	-	Tuvalu Non-Government Organisations
TWWS	-	Tuvalu Water, Waste and Sanitation Project
UNDP	-	United Nations Development Programme
WD	-	Water Division
WHO	-	World Health Organization