



SOLOMON ISLANDS

NATIONAL WATER AND SANITATION IMPLEMENTATION PLAN

2017 - 2033

An integrated national water resource and sanitation management plan to implement the goals and objectives of the National Water and Sanitation Policy

**Wata hem laef
Gud wata hem presis fo evriwan
Evriwan mas luk aftarem wata**

**National Intersectoral Water Coordination Committee
Ministry of Mines, Energy and Rural Electrification
June 2017**



Figure 1 The provinces and islands of Solomon Islands (http://www.lib.utexas.edu/maps/cia12/solomon_islands_sm_2012.gif)

This integrated National Water and Sanitation (WATSAN) Sector Plan was developed by the Cabinet-appointed **National Intersectoral Water Coordination Committee (NIWCC)** which reports through Minister of Mines, Energy and Rural Electrification to Cabinet of the Solomon Islands Government (SIG). Its development was supported by the **Secretariat of Pacific Countries (SPC) Applied Geoscience Division (SOPAC)** under the **Pacific IWRM National Planning Programme** in a process facilitated by Professor Ian White of the Australian National University. Development of the plan was based on the principles of integrated water resource management in island counties, water use efficiency and adaptation to climate change.

The NIWCC is chaired by the Permanent Secretary, Ministry of Mines, Energy & Rural Electrification (MMERE) or his delegate and includes representatives from:

Water Resources Division (WRD), MMERE
 Geology Division, MMERE
 Ministry of Agriculture and Livestock (MAL)
 Ministry of Development Planning & Aid Coordination (MDPAC)
 Ministry of Finance and Treasury (MFT)
 Fisheries Division (FD), Ministry of Fisheries and Marine Resources (MFMR)
 Commissioner of Forest, Ministry of Forest Development & Research (MFDR)
 Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM)

Environmental Health Division (EHD), Ministry of Health and Medical Services (MHMS)
 Commissioner of Land, Ministry of Lands, Housing and Survey (MLHS)
 Ministry of Provincial Government and Institutional Strengthening (MPGIS)
 Solomon Islands Development Trust (SIDT)
 General Manager, Solomon Islands Water Authority (SIWA) now Solomon Water (SW)
 Solomon Islands Christian Association (SICA)
 Ministry of Women, Youth & Children Affairs, (MWYCA)

Table of Contents

1. Purpose of this Plan	7
2. Central Values	8
3. Vision Statement	8
4. Mission	8
5. Resources Required to Implement this Plan	9
6. Challenges addressed in this Plan	9
6.1 Governance and Information	9
6.2 Capacity and Resources and Education	11
6.3 Community Engagement and Participation	11
6.4 Safe, Secure, and Protected Water Sources	11
6.5 Sustainable Water Supplies and Conservation	12
6.6 Sanitation and Waste Management	14
6.7 Climate Extremes, Disasters and Climate Change	15
7. Policy Goals and Objectives	16
8. Strategies to Implement Policy	19
8.1 Build Social License	19
8.2 Establish the legal basis	19
8.3 Sound information base	19
8.4 Build Capacity	20
8.5 Effective Coordination	20
8.6 Engage Stakeholders	20
8.7 Implementation	20
8.8 Monitor outcomes	20
9. Activities to Achieve Policy Objectives,	21
10. Resource Implications of Policy and Implementation Plan	30
11. Activity Time schedule	32
12. Inclusion in Ministry Corporate Plans	40
13. Monitoring, Review and Revision of Policy and Implementation Plan Outcomes	40
14. Minister Submitting this National Policy Implementation Plan	41

15. Cabinet Endorsement

41

Tables

Table 1 Sources of drinking water used in Provinces in Solomon Islands (Census 2009)	12
Table 2 Sources of washing water used Provinces in Solomon Islands (Census 2009)	13
Table 3 Available statics on water supply in several urban centres in Solomon Islands	13
Table 4 Available statics on water supply in several urban centres in Solomon Islands	14
Table 4 Policy Objectives, Indicators, Responsibilities and Time Frames	21
Table 6 Estimated additional staff required over the next 12 years to implement National Policy and this plan	31

Figures

Figure 1 The provinces and islands of Solomon Islands	2
Figure 2. Sequential framework for implementing the goals and objectives of the National WATSAN Policy.	19

Acronyms and Abbreviations

ADB	Asian Development Bank	NGO	Non-government Organisation
AG	Attorney Generals (MJLA)	NIIP	Draft National Infrastructure Investment Plan 2013
AusAID	Australian Agency for International Development	NPP	National Population Policy
CBO	Community-based Organisation	NWSRC	National WATSAN Reform Committee
CSO	Community Service Obligation	OPMC	Office Prime Minister and Cabinet
EC	The European Community	PCCSP	Pacific Climate Change Science Program
EHD	Environmental Health Division, MHMS	pers	persons
ENSO	El Niño Southern Oscillation	PEHD	Provincial Environmental Health Division
EIB	European Investment Bank	PG	Provincial Governments
EU	The European Union	PIAC	Pacific Infrastructure Advisory Centre (ADB, AusAID)
FD	Fisheries Division, MFMR	PIC	Pacific Island Country
GD	Geology Division, MMERE	PWA	Pacific Water Association
HCC	Honiara City Council (MHA)	PRIF	Pacific Regional Infrastructure Facility (ADB, AusAID, EU, EIB, NZaid, WB)
IWRM	Integrated Water Resources Management	RAP	Pacific Regional Action Plan for Sustainable Water Management 2003
JICA	Japan International Cooperation Agency	RO	Reverse osmosis (desalination)
L	litre	RWSS	Rural Water Supply and Sanitation Unit (in EHD, MHMS)
L/pers/day	litre per person per day (per capita water consumption rate)	SBD	Solomon Islands dollar
M	million	SI	Solomon Islands
MAL	Ministry of Agriculture and Livestock	SICA	Solomon Island Christian Association
SDG	Sustainable Development Goals (UN)	SICC	Solomon Islands Chamber of Commerce
MDPAC	Ministry of Development Planning & Aid Coordination	SIDT	Solomon Islands Development Trust
MECDM	Ministry of Environment, Climate Change, Disaster Management & Meteorology	SIEA	Solomon Islands Electricity Authority (an SOE)
MEHRD	Ministry of Education and Human Resources Development	SIG	Solomon Islands Government
MFDR	Ministry of Forest Development and Research	SIEA	Solomon Islands Electricity Authority
MFMR	Ministry of Fisheries and Marine Resources	SIWA	Solomon Islands Water Authority (now Solomon Water an SOE)
MFT	Ministry of Finance and Treasury	SOE	State-owned-enterprise
MHA	Ministry of Home Affairs	SOPAC	Applied Geoscience Division of the SPC
MHMS	Ministry of Health and Medical Services	SPC	Secretariat of the Pacific Community
MID	Ministry of Infrastructure Development	SST	Sea surface temperature
MJLA	Ministry of Justice and Legal Affairs	SW	Solomon Water (formerly Solomon Islands Water Authority)
MLHS	Ministry of Lands, Housing and Survey	ToR	Terms of Reference
MMERE	Ministry of Mines, Energy and Rural Electrification	UN	United Nations
MPGIS	Ministry of Provincial Government and Institutional Strengthening	UTC	Urban Town Councils
MPS	Ministry of Public Service	WATSAN	Water and Sanitation
MRD	Ministry of Rural Development	WASH	Water Sanitation and Hygiene
MWYCA	Ministry of Women, Youth & Children Affairs	WB	World Bank
NDS	National Development Strategy 2016-2035	WRD	Water Resources Division (MMERE)

Definitions

Brackish Water	Water containing more salinity than freshwater but less than seawater. Water having total dissolved salt concentrations between 0.05% and 3%
Catchment	An area of land where water from rain converges to either a single point, or where the waters join another water body, such as a river, lake, reservoir, estuary, wetland, sea, or ocean. Also referred to as drainage basin or water shed.
Demand management	Strategies used to control the use of freshwater through incentives, tariffs, restrictions and rationing
Down-stream ecosystems	Ecosystems that are downstream from water sources and receive discharge from them, these include near-shore reefs and coastal environments.
Ecosystem	A community of living organisms (plants, animals and microbes) in conjunction with the nonliving components of their environment (things like air, water, mineral soil, rocks and logs), interacting as a system. These living and nonliving components are linked together through water and nutrient cycles and energy flows.
Fresh water	Water containing low concentrations of dissolved salts and total dissolved solids. Sometimes called “sweet water” with total dissolved salts less than 0.05%
Governance	The act of governing. It relates to decisions that define expectations, grant power, allocate resources or verify performance. Governance is the use of institutions, structures of authority and collaboration to allocate resources and coordinate or control activity in society or the economy
Governance instruments	Those measures which help define expectations, grant power, allocate resources, verify performance, or coordinate or control activity, including policy, plans, legislation, regulation, strategies and budgets
Groundwater	Water below the ground surface in soils, sediments and rocks in which the pore space is fully saturated with water
Hygiene	Conditions and practices that help to maintain health and prevent the spread of diseases.
Incentive program	A formal scheme used to promote or encourage specific actions or behaviour by a specific group of people during a defined period of time. These can include payment for environmental services, eco-compensation or partnership arrangements
Non-revenue water	Unbilled water consumption and water losses
Saline water	Water containing dissolved salts with total dissolved concentrations between 3% and 5%
Sanitation	Procedures for and application of hygienic measures designed to protect public health, especially the provision of clean drinking and bathing water and the adequate disposal of sewage, wastewater and other wastes.
Surface water	Water in streams, rivers, lakes, ponds, reservoirs, dams and swamps
Wastes	Materials that can cause health problems or degrade the environment including human and animal faeces, solid wastes, domestic wastewater (sewage, sullage, greywater), industrial wastes and agricultural wastes.
Water quality	The chemical, physical and biological characteristics of water. A measure of the condition of water relative to the requirements of human need or purpose. Most frequently used in reference to a set of standards against which compliance can be assessed. The most common standards used to assess water quality relate to safety of human drinking water or contact or to health of ecosystems.
Water Resources	Sources of water which are useful or potentially useful. In this policy water resources include both fresh water and brackish water
Water source areas	Those areas of land which contribute water to surface and groundwater sources
Water sources	Surface and groundwater sources of fresh or brackish water including rainfall, swamps, creeks, rivers, springs, groundwater from shallow unconfined aquifers and deeper confined aquifers and contained in karstic limestone, fractured rock and freshwater lenses, and urban drains
Water-related ecosystems	Ecosystems that are either involved in the capture and transition of water in catchments such as forests and agricultural lands or aquatic ecosystems in streams, ponds reservoirs and lakes.

Title: National Water and Sanitation Implementation Plan

Short Title: National WATSAN Plan

1. Purpose of this Plan

This National Water and Sanitation Implementation Plan is a 12 year integrated whole-of-government plan to implement the goals and objectives of the Solomon Islands National Water and Sanitation Policy (National WATSAN Policy), the sector goals of the National Development Strategy 2016-35 (NDS). It is consistent with other Government initiatives and strategies, including the Draft Rural Water, Sanitation and Hygiene (RWASH) Policy, National Adaptation Plan of Action, 2009, Draft Medium Term Development Plan, 2013, Solomon Water (SIWA) Development Plan 2013-2015, National Disaster Risk Management Plan 2011 and the water and sanitation sector component of the Draft National Infrastructure Investment Plan 2013 (NIIP).

This National Water and Sanitation Plan (National WATSAN Plan) is a key Government strategy for ensuring that economic development, public health and food production are not compromised by inadequate, unreliable and unsafe water supplies and lack of appropriate sanitation. It is a response to priority concerns of rural and urban communities and most sectors throughout Solomon Islands (SI) about water supply and sanitation, identified in nation-wide consultations for the National Development Strategy 2016-35 (NDS).

This WATSAN Plan has been developed by the Cabinet-appointed whole-of-government and community National Intersectoral Water Coordination Committee (NIWCC) through the of the Ministry of Mines Energy and Rural Electrification (MMERE) through its Water Resources Division (WRD)

The purpose of this plan is to:

- 1. implement the Government's Water and Sanitation National WATSAN Policy goals and objectives and sector goals and objectives in the NDS and RWASH Policy**
- 2. detail activities for implementing goals and objectives**
- 3. provide performance indicators for activities**
- 4. assign responsibilities for carrying out activities**
- 5. give a timetable for implementing activities**
- 6. provide mechanisms for monitoring progress**
- 7. Improve development opportunities, the health, and well-being of all Solomon Islanders**
- 8. Ensure that water sources and down-stream ecosystems are protected and well-managed**
- 9. Increase access to adequate, safe, reliable water supplies and appropriate sanitation services**
- 10. Transition water supply and sanitation systems to a sustainable basis**

2. Central Values

The universally held central values of the National WATSAN Policy and this Plan are in plain language are:

❖ Wata hem laef	Water is life
❖ Gud wata hem presis fo evriwan	Good water is precious for everyone
❖ Evriwan mas luk aftarem wata	Everyone must look after water

3. Vision Statement

The vision of Solomon Islands Government for water resources and sanitation throughout Solomon Islands is.

Well-managed, protected water sources; safe, reliable, sustainable, and affordable water supplies; appropriate sanitation and waste management; for continued development, improved health and well-being of all Solomon Islanders and for sustaining our water-related ecosystems which support us.

4. Mission

The mission of the Solomon Islands Government and its agencies and enterprises is to enhance economic development, improve public health and sustain food production in rural and urban communities by ensuring that:

all communities have access to adequate, reliable and safe water supplies and appropriate sanitation through protection and sustainable management of our water sources, supply and waste management systems and catchment areas.

This mission commits the Solomon Islands Government to:

- **Improve management of the nation's water resources, water supply and sanitation and waste management systems**
- **Identify priorities and responsibilities, increase capacity, improve governance, expand WATSAN education and give clear directions in the water and sanitation sector**
- **Understand, protect and conserve reliable sources of good water**
- **Make sure communities have access to approved, adequate, safe, reliable, sustainable, affordable and well-managed water supplies, hydro-power, appropriate sanitation and waste treatment and disposal**
- **Look after our unique, water-related ecosystems which sustain us,**
- **Form partnerships with communities and organisations and provide incentives to achieve these, and**
- **Review WATSAN policy outcomes regularly, revising policy and plans where necessary**

5. Resources Required to Implement this Plan

Despite the high priority of adequate, safe and reliable water and appropriate sanitation to National Development, public health and food production, there has been an underinvestment in the sector. An initial injection of 54 trained staff, 36 in the Provinces, is required at the national, provincial and local levels to advance this Plan. Solomon Islands National Infrastructure Investment Plan 2013 lists proposed water supply, sanitation and hydropower infrastructure projects in rural and urban areas valued at over SDB 1,100 m over the next 7 years. It is clear that this amount is beyond the current means of SIG and will require donor assistance. The large financial burden can be spread by implementing projects in a phased pilot project approach.

6. Challenges addressed in this Plan

The very diverse and complex WATSAN challenges in rural and urban areas in Solomon Islands requiring national and provincial government intervention fall within seven high priority policy areas:

1. **Governance and Information**
2. **Capacity Development and Education**
3. **Community Partnerships**
4. **Safe, Secure, and Protected Water Source Areas**
5. **Sustainable Water Supplies and Conservation**
6. **Sanitation and Waste Management**
7. **Climate extremes, Disasters and Climate Change**

The NIWCC using the Rural WASH Policy, NDS, NIIP, and many previous national consultations, studies and analyses identified a large number of challenges under each of these policy areas.

6.1 Governance and Information

Governance in the WATSAN sector is how Governments make a difference. In SI WATSAN governance is below regional standards. Good governance requires good and accessible information. In general WATSAN information is not readily available. The highest priority issues are:

Water and sanitation appear to be a low priority for the Government and have limited support.

- 6.1.1 The general absence of WATSAN policies, plans, master plans, water safety plans and strategies at national and provincial levels
- 6.1.2 WATSAN laws, regulations and ordinances are incomplete, outdated and not enforced
- 6.1.3 Limited coordination and cooperation between ministries, departments, agencies and SOEs whose roles require clarification
- 6.1.4 Incomplete, inaccessible information on WATSAN systems, water resources, water use, health and climate change impacts
- 6.1.5 No systematic monitoring and reporting to government on the use and condition of the nation's water resources and sanitation services

6.1.6 The need for water resource to be commercialise through the appropriate agencies and SOE as there is no legislation that specify the commercialisation of the resource

6.2 Capacity and Resources and Education

The number of trained and skilled people and the resources available to plan and manage water resources, and sanitation, and to design, manage and maintain adequate supplies of good quality water and appropriate sanitation services at the national, provincial and rural levels in SI is very limited. Changing behaviour and perceptions is a key to improving WATSAN outcomes. This requires a coordinated, focussed WATSAN education program at all school levels for sustained improvement. The highest priority issues are:

- 6.2.1 Shortage of trained local hydrologists, water engineers, sanitation specialists, technicians and plumbers
- 6.2.2 Limited resources for training in the WATSAN sector
- 6.2.3 Shortage of training schemes for rural communities in the operation, maintenance and repair of water supply and sanitation systems
- 6.2.4 Need for improved education programs at primary secondary and tertiary levels on water, sanitation and hygiene

6.3 Community Engagement and Participation

The large number of rural communities dispersed across Solomon Islands makes it impossible to service their needs from the capital. It also means that local communities must actively participate in the planning, management and maintenance of their water supply and sanitation systems and must vigorously protect water source areas. Engaging and raising awareness of WATSAN, particularly amongst the young, requires a major effort. The highest priority concerns are:

- 6.3.1 Limited awareness about the value of and vulnerability of good sources of water, or about protection and conservation and impacts of land use and waste on water.
- 6.3.2 Limited local community participation in the planning and running of water supply schemes, protection and conservation of water resources, or in promoting improved sanitation systems.
- 6.3.3 Poor maintenance of community and household water and sanitation infrastructure.
- 6.3.4 No incentive schemes for encouraging community or household rainwater harvesting and use.

6.4 Safe, Secure, and Protected Water Sources

The incidences of preventable water-borne diseases in SI are unacceptably high. One of the most important strategies for providing safe water for human use is to protect water source areas from contamination, misuse, misappropriation and urbanisation. There is very limited protection in SI. Hydropower generation is also very limited despite the potential for increased generation. Both water supply and hydropower schemes must be access to reliable sources of water but customary land tenure limits accessibility. Ensuring land use does not degrade water resources is major, contentious issue. Customary land-tenure in catchments, high population growth rates, increasing demand, especially in urban and peri-urban areas, and development pressures from mining, forestry and agriculture, means that securing safe, protected water sources is a major, and complex challenge. The major issues are:

- 6.4.1 The high rates of preventable water-borne diseases in urban and rural communities.

- 6.4.2 **Lack of protection of surface and groundwater sources, particularly from mining, forestry farming, waste disposal and urbanisation.**
- 6.4.3 Uncontrolled land uses, particularly urban and peri-urban development, logging, mining, farming and waste disposal in water supply catchments and groundwater production areas and their impacts on near-shore marine environments and ecosystems.
- 6.4.4 No licensing system or approvals process for construction and operation of rural water supply and sanitation systems.
- 6.4.5 **Unregulated groundwater extraction**
- 6.4.6 Effect of customary land tenure on access to, reliability of and water sources and operational costs of water supply systems.
- 6.4.7 Lack of standard, equitable, national scheme for compensation of traditional owners in water supply catchments.
- 6.4.8 Absence of no social benefits to communities in water catchments from current compensation payment system.

6.5 Sustainable Water Supplies and Conservation

Supplying adequate, reliable safe water to the highly dispersed, largely rural population is a major challenge which has to rely on partnerships with local communities or community organisations such as churches. Many rural systems have no demand management mechanisms and are financially unsustainable. In urban areas, the challenge of supplying water to largely unplanned and rapidly growing centres with aging infrastructure presents major problems. Current urban systems have only partial coverage and supply water intermittently. Unacceptably high non-revenue water losses threaten the viability of the suppliers and there are no national targets for household consumption. There is potential for a significant increase in rainwater harvesting and collection at both community and household levels.

Baseline information in Tables 1, 2 and 3 from Census 2009 and from the Solomon Islands National Infrastructure Investment Plan 2013 provides an indicator of the current water supply situation. While the data is four years old, population growth has probably exacerbated the issues.

Table 1 Sources of drinking water used in Provinces in Solomon Islands (Census 2009)

Province	Metered SIWA	Communal Standpipe	HH tank	Communal Tank	Well-protected	Well-unprotected	River/Stream	Bottled Water	Other	Population
Choiseul	0%	30%	24%	18%	0%	0%	25%	0%	2%	26,372
Western	0%	30%	33%	18%	0%	0%	14%	1%	3%	76,649
Isabel	0%	64%	10%	11%	1%	0%	11%	0%	2%	26,158
Central	1%	39%	19%	18%	1%	0%	18%	2%	2%	26,051
Rennell-Bellona	0%	0%	80%	13%	1%	1%	0%	3%	2%	3,041
Guadalcanal	6%	27%	5%	7%	7%	6%	38%	0%	4%	93,613
Malaita	2%	45%	5%	8%	2%	0%	33%	1%	4%	137,596
Makira-Ulawa	0%	50%	3%	8%	1%	0%	34%	0%	3%	40,419
Temotu	0%	38%	10%	24%	2%	6%	8%	0%	11%	21,362
Honiara	75%	4%	10%	1%	0%	3%	5%	1%	1%	64,609
Total	9%	35%	12%	11%	2%	2%	25%	1%	4%	515,870

Table 2 Sources of washing water used Provinces in Solomon Islands (Census 2009)

Province	Piped-private	Piped Shared	Common Standpipe	Well protected	Well-unprotected	HH Tank	Common Tank	Sea	River/Lake /Stream	Other
Choiseul	2%	6%	39%	4%	6%	5%	1%	0%	34%	1%
Western	8%	8%	36%	8%	2%	11%	1%	0%	26%	1%
Isabel	8%	17%	48%	1%	1%	1%	0%	0%	24%	1%
Central	6%	16%	24%	10%	27%	2%	1%	0%	13%	1%
Rennell-Bellona	0%	0%	0%	1%	4%	67%	3%	0%	22%	3%
Guadalcanal	5%	12%	15%	8%	5%	1%	1%	0%	52%	1%
Malaita	7%	11%	31%	5%	4%	1%	1%	0%	38%	2%
Makira-Ulawa	7%	11%	35%	1%	4%	0%	0%	0%	41%	2%
Temotu	1%	3%	34%	4%	20%	7%	5%	9%	13%	3%
Honiara	61%	26%	2%	1%	2%	2%	0%	0%	5%	1%
Total	13%	13%	26%	5%	5%	3%	0.9%	0.4%	32%	1.4%

Table 3 Available statics on water supply in several urban centres in Solomon Islands

Urban Centre	Estimated Water Extracted (m ³ /day)	Non-Revenue Water	No. of Connections	Estimated People Served	Estimated Domestic Demand (L/pers/day)	Estimated Daily Supply (hrs/day)
Honiara	27,000	54%	7,060	64,000	120	10
Auki	1,300	49%	425	3,000	63	5
Noro	1,560	54%	355	1,900	193	?
Tugali	520	77%	162	1,100	?	?
Total	30,380	54%	8,002	70,000	—	—
Water extracted per person served (L/pers/day)					430	

The highest priority issues in sustainable water supplies and conservation are:

- 6.5.1 Very limited access to safe, treated piped water and especially in schools, hospitals and clinics and the absence of national water quality guidelines
- 6.5.2 Unreliable, intermittent water supplies and incomplete coverage in urban areas
- 6.5.3 Excessive non-revenue water from piped systems due to unmetered and illegal connections, aging infrastructure and poor maintenance
- 6.5.4 Uncertain financial viability of urban water supply systems

- 6.5.5 High water pumping costs and the use of non-renewable energy for pumping
- 6.5.6 Lack of resources for training for operation and maintenance of rural water supply systems
- 6.5.7 Lack of coordination in aid and donor water projects coupled with lack of engagement with Provincial Governments and local communities in project planning and ownership
- 6.5.8 Limited use of rainwater harvesting
- 6.5.9 High population growth rates and increasing demand in largely unplanned urban and per-urban areas
- 6.5.10 Lack of equitable system for managing demand in non-metered water supply systems and no national targets for water consumption

6.6 Sanitation and Waste Management

Over 80% of rural households and rural schools have no sanitation systems. Urban sanitation is a major concern with only about 11% of households in the small, central area of Honiara connected to a reticulated sewerage. Poorly constructed septic tanks and pit latrines also contaminate the soil and groundwater and overflowing sewage is significant problem in wet seasons. Incidences of diarrhoea and water-borne diseases throughout SI are unacceptably high and cause needless personal and economic damage. Wastes and pollution from untreated sewage discharge, solid, hazardous and toxic wastes are also a major threat to human health, receiving waters, downstream ecosystems and marine environments. Some public sanitation systems have also been installed without government approval.

Census 2009 details sanitation systems used throughout Solomon Islands (Table 5) and is useful for future comparisons of progress.

Table 4 Available statics on water supply in several urban centres in Solomon Islands

Province	Flush Private	Flush shared	Water Sealed (Private)	Water Sealed (Shared)	Pit latrine (Private)	Pit latrine (Shared)	Other	None
Choiseul	4%	1%	5%	1%	3%	1%	13%	72%
Western	11%	2%	12%	2%	3%	1%	25%	44%
Isabel	3%	0%	7%	5%	23%	3%	57%	1%
Central	6%	1%	2%	1%	0%	1%	27%	62%
Rennell-Bellona	2%	0%	22%	1%	58%	15%	2%	0%
Guadalcanal	5%	4%	7%	2%	20%	5%	25%	31%
Malaita	4%	0%	5%	1%	16%	27%	26%	21%
Makira-Ulawa	3%	1%	3%	4%	2%	1%	37%	49%
Temotu	2%	1%	2%	2%	1%	0%	11%	80%
Honiara	54%	9%	13%	6%	11%	3%	2%	1%
Total	10%	2%	7%	2%	12%	9%	24%	33%

The highest priority issues in sanitation and waste management are:

- 6.6.1 High percentage of rural and peri-urban households without adequate sanitation
- 6.6.2 Very limited, aging, financially precarious piped sewerage systems with no treatment and dilapidated sewerage outfalls to the sea in urban centres.
- 6.6.3 Many poorly designed and constructed septic tank systems in urban areas with inadequate desludging tanks and poor septic sludge disposal
- 6.6.4 Public sanitation systems constructed and installed without government approval
- 6.6.4 Disputes over which agency is responsible for sludge treatment and disposal
- 6.6.5 Impact of waste disposal on near-shore environments and ecosystems
- 6.6.6 Inadequate solid waste collection, storage or disposal sites
- 6.6.7 Discharge of polluted urban stormwater drainage into the sea

6.7 Climate Extremes, Disasters and Climate Change

Variable rainfalls in the Solomon Islands are coupled to large-scale swings in sea surface temperature in the surrounding seas characterised as ENSO events. Frequent flooding as a result of tropical cyclones and accompanying landslides are major issues, especially in urban areas, where drainage is inadequate. SI is also subject to a high frequency of natural disasters such as storm surges and island overtopping, earthquakes and subsequent tsunamis, such as those in 2007 and 2013, as well as volcanic eruptions, all of which disrupt water supplies and sanitation services. Climate change is expected to increase the frequency of extreme events and groundwater sources in low islands, atolls and coastal areas are exceptionally vulnerable to sea level rise. Being able to cope with the current climate extremes in SI will provide a solid platform for coping with future climates. The highest priority issues are:

- 6.7.1 Poor coordination in disasters and limited resources for disaster preparedness
- 6.7.2 Vulnerability of water supply infrastructure to extreme events and lack of alternate water supplies in emergencies
- 6.7.3 Vulnerability of groundwater in low islands and atolls to sea level rise
- 6.7.4 Poor drainage in urban and peri-urban areas
- 6.7.5 Total reliance on fossil fuel for electricity generation, especially for pumping water
- 6.7.6 Failure to capitalise on hydro-power opportunities due to requirements for land registration

7. Policy Goals and Objectives

To address the above challenges the National WATSAN Policy has set the following Policy Goals and Objectives.

Policy Area	Policy Goal	Policy Objectives
1. Governance and information	1 Policies, plans, legislation, and organizational structures established for sustainable management of water resources, water supplies and sanitation, based on reliable and accessible information.	1.1 Water resource, water supply, hydro-power, other commercial purposes and sanitation policies, plans and guidelines endorsed and implemented. 1.2 Legal and regulatory base for developing and managing water resources, supplies, sanitation and hydro-power and other commercial purposes updated and enforced. 1.3 Sector organisation responsibilities and coordination reformed to increase effectiveness and efficiency of services. 1.4 Outcomes of this policy and plan monitored and updated where necessary 1.5 National WATSAN monitoring and reporting program established and operational. 1.6 Accessible, up-to-date National WATSAN Data Bases on line. 1.7 Annual reports on policy implementation and the state of the nation's water resources, their catchments and aquifers, water use, sanitation services, related public health and hydro-power systems submitted to Cabinet
2. Capacity Development and Education	2. Well-trained and skilled staff employed in efficient, adequately-resourced organisations to manage water and sanitation supported by national WATSAN and hygiene education programs operating in schools at all levels.	2.1 Skills training programs for water and sanitation managers, technical staff and community operators running successfully. 2.2 Water and sanitation agencies are staffed with skilled, trained personnel and collaborate effectively with NGOs, donors & communities. 2.3 Water and sanitation agencies are adequately resourced for their priority tasks. 2.4 Primary, secondary & tertiary educational curricula on water, sanitation, waste management and hygiene improved and taught in all schools and institutions
3. Community Partnerships	3 Rural and urban communities understand the importance of good quality water and appropriate sanitation and are engaged in the protection of water resources, water conservation, planning and management of community systems	3.1 Public education and awareness campaigns operating in rural and urban Constituencies to increase awareness of the importance of good quality water, conservation, water source protection, adequate sanitation and hygiene. 3.2 Training programs running in rural Constituencies on ownership, management, operation and maintenance of local water supply, sanitation and hydro-power systems and other commercial purposes
4. Safe, Secure, Water Sources	4. Surface and groundwater sources of freshwater are accessible for public water supplies and these sources and down-stream ecosystems are protected from contamination and misuse	4.1 Laws, regulations, ordinances and practices in place to protect public water sources and water source areas from pollution, misuse or over-use 4.2 Incentive program operating for engaging landowners in the protection of and providing access to source areas for water supply and hydro-power generation and other commercial purposes. 4.3 Efficient negotiation system in operation for improving access to and protection of community-owned water sources

Policy Area	Policy Goal	Policy Objectives
		4.4 Incentive scheme for on-polluting land use developed for water supply source areas.
5. Sustainable Water Supplies and Conservation	5. Adequate, safe, reliable, and financially sustainable water supplies are available at reasonable cost to all rural and urban communities, institutions and industries that in-turn conserve water, use it wisely and minimise losses and waste.	<p>5.1 All schools, hospitals and clinics have safe, adequate and reliable water supplies as highest priority.</p> <p>5.2 All rural and urban communities have access to approved, safe, adequate, reliable, affordable and sustainable water supplies</p> <p>5.3 Increased use of household and community rainwater harvesting</p> <p>5.4 Water supply systems in non-urban, rural areas planned, owned and operated by local communities</p> <p>5.5 Increased hydropower generation and other commercial purposes</p> <p>5.6 Incentive schemes established to assist rural communities in operation and maintenance of water supply systems</p> <p>5.7 Increased use of renewable energy in water-supply systems</p> <p>5.8 Losses of water from piped systems reduced to less than 20%</p> <p>5.9 Fair, equitable, tiered-water tariffs introduced for all urban piped water systems to control growth in demand and discourage waste of water</p> <p>5.10 Systems to encourage water conservation operating in rural areas.</p> <p>5.11 Public awareness campaign for conserving water in rural areas operating</p> <p>5.12 Water conservation and wise use included in school curricula.</p>
6. Sanitation and Waste Management	6. Appropriate sanitation and waste management systems available throughout Solomon Islands which minimise health and environmental impacts especially on coastal environments.	<p>6.1 Open defecation no longer practised in Solomon Islands</p> <p>6.2 All schools hospitals and clinics have safe, appropriate sanitation as highest priority</p> <p>6.3 Approved, appropriate sanitation available to all communities</p> <p>6.4 All rural communities trained in the use and maintenance of sanitation facilities and on hygiene.</p> <p>6.5 Sewerage outfalls and waste disposal sites in all urban centres constructed to minimise off-site pollution</p>
7. Climate extremes, Disasters and Climate Change	7. Risks due to climate variability, natural disasters and projected impacts of climate change incorporated into all aspects of water and sanitation planning and management	<p>7.1 Effective use of seasonal weather forecasts by Government, public, businesses and institutions to prepare for extreme events.</p> <p>7.2 Coordination improved between Government agencies for disasters affecting water supply.</p> <p>7.3 Adaptation strategies in place for increasing the resilience of water supply and sanitation systems and communities to the impacts of climate change</p> <p>7.4 Improved urban and peri-urban drainage</p>

8. Strategies to Implement Policy

Because of the wide-ranging, urgent issues that need to be tackled in the WATSAN sector, in Solomon Islands a broad range of strategies are required to implement the National WATSAN Policy to ensure a solid base for progress. The past has shown that simply supplying infrastructure does not produce lasting benefits when continuing problems in governance, information, capacity and coordination are not addressed. The highly dispersed and culturally diverse communities of the Solomon Islands pose major challenges for the implementation of national policy which requires an integrated approach. Figure 2 shows a sequential framework for implementation of the policy goals and objectives.

8.1 Build Social License

It has been found that social relationships are paramount to the success of enterprises in SI. “Social license” is fundamentally important and of higher priority than the law. In order that water sources can be secured and adequately protected it is necessary to establish the priority of safe adequate water supplies over other rights which requires building a national social license.

8.2 Establish the legal basis

The laws, regulations and ordinances regarding water resources and sanitation are largely out-dated and incomplete. Water resources are largely unprotected legally, major groundwater resources are not covered by law, government agencies have insufficient legal basis for monitoring and regulating resources and their uses, and the legal responsibilities of agencies are confused. Review and revision of the legal basis for water and sanitation is required as an **urgent step** to establish the legal basis for WATSAN management. The draft 2006 Water Resources Bill is a good basis for revision. For both surface and groundwater it provides for: the statutory basis and responsibility for administration; water rights; protection of water sources; licensing of sustainable extraction for public or commercial purposes; investigations ; enforcement and penalties

8.3 Sound information base

It is almost impossible to manage what you do not know. The basic information to effectively manage water and sanitation in SI is incomplete and largely inaccessible. Even the knowledge of the distribution and variability of rainfall across the country is patchy. The availability and sustainable yield of surface and groundwater sources is poorly known as is its quality. Regional demand for water, particularly by institutions, industries, commerce and irrigated agriculture is largely undocumented and information on the types of water supply and sanitation systems in use is incomplete. As well, the statistics on water and hygiene related illnesses are sparse. The information that is available is not easily accessible. Establishing a sound information base is an essential step for better WATSAN management.

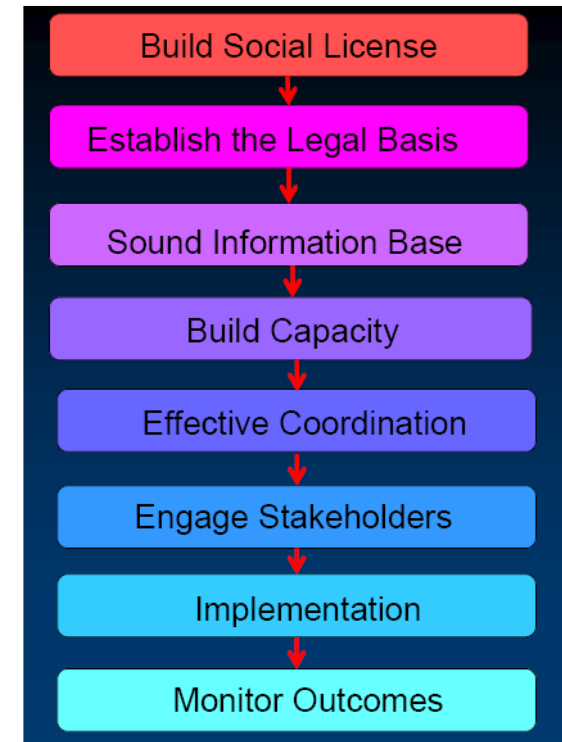


Figure 2. Sequential framework for implementing the goals and objectives of the National WATSAN Policy.

8.4 Build Capacity

The number of trained, qualified staff in WATSAN in SI is limited at the national, provincial and local levels. Human and financial resources needed to carry out the mission of SIG's policy aim in WATSAN in the NDS to '*Ensure clean water and proper sanitation is available in all communities, ensuring the water resources are sufficient and chemically safe for all communities*' are decreasing. It of strategic importance that the capacity of national and provincial government agencies and staff be built up and sufficient resources are available to implement SIG's policy and to plan projects. WATSAN education in schools at primary, secondary and tertiary level is critical to building general community capacity leading to further training. In planning implementation projects a systematic method of identifying priority tasks is required.

8.5 Effective Coordination

Many Government and Provincial agencies, SOEs, CBOs, NGOs and villages are engaged in the delivery of water and sanitation throughout SI. It is fundamentally important that a practical mechanism for multi-level governance collaboration in this vital task is established. The Policy calls for the establishment of a high level National WATSAN Reform Committee, NWSRC to coordinate and monitor policy and plan outcomes. NWSRC is to be assisted in this task by the NIWCC which the policy says should be expanded to include key peak community based organisations.

8.6 Engage Stakeholders

The last values statement of this Policy *Evriwan mas luk aftarem wata* says it all, from Cabinet to the remotest rural community. The highly dispersed, highly rural population of the SI means that it is not possible for government agencies and other providers to service all water and sanitation needs of remote communities across the country. Instead the stakeholders in this Policy, the rural and urban communities must be engaged in all aspects of the planning, conservation, protection and wise use of water and sanitation. In remote rural villages, the only viable option is for villages to be the owner-operators of the water supply and public sanitation systems. This will require both training and support from Provincial Governments. The cultural diversity of communities across Si also means that one method of engagement will not fit all situations. Because of this it is suggested that a series of pilot projects be run in selected Provinces to determine the most efficient way to proceed. Engagement of stakeholders is a critical strategy for progress in the sector.

8.7 Implementation

The success of implementation phase will depend on whether there is the necessary legal basis, sufficient information, personnel involved have the capacity, skills and resources to carry out the policy tasks and whether stakeholders have been engaged in the planning phase. The current limited capacity and resources at the national, provincial and local levels mean that it is not possible to roll at implementation projects across all Provinces. For this reason it is suggested that a phased implementation program be planned using selected Provinces as pilot projects.

8.8 Monitor outcomes

The National WATSAN Policy and this Implementation Plan are part of an adaptive process in which outcomes of implementation activities will be reviewed against policy goals and objectives. As outcomes are achieved it is important to review and report them and to modify the Plan and, periodically the Policy to reflect progress. Because of the cross-Ministry responsibilities of Policy goals and objectives, the NWSRC assisted by the expanded NIWCC is the proposed body for monitoring and reporting progress.

9. Activities to Achieve Policy Objectives,

Table 5 Policy Objectives, Indicators, Responsibilities and Time Frames

Policy Objectives	Activities	Indicators	Responsibilities	Time Frame*
1.1 Water resource, water supply, hydro-power and sanitation policies, plans and guidelines endorsed and implemented.	1.1.1 National WATSAN policy and Implementation Plan submitted to Cabinet	National WATSAN policy and Implementation Plan endorsed by Cabinet	MMERE & OPMC	6 mths
	1.1.2 Provincial WATSAN Policy and Plan Workshops with Provincial Govts to develop locally appropriate instruments	Workshops held & Provincial policy and plans developed and endorsed	MPGIS & selected Provincial Govts as a pilot project	2 years
	1.1.3 Publicity campaign to raise awareness of Govt Policy and Plans	Media publicity releases on Policy and Plan	NWSRC, NIWCC, MMERE	12 mths
1.2 Legal and regulatory base for developing and managing water resources, supplies, sanitation and hydro-power updated and enforced.	1.2.1 Review of all legislation , ordinances regulations relating to water sources, water supply, sanitation and hydropower and the statutory basis of their management	Recommendations to Cabinet on necessary revisions	Attorney Generals, MJLA, MHMS, SW	12 mths
	1.2.2 Water Resources Bill, regulations and ordinances submitted to Cabinet	Water Resources Bill, regulations and ordinances passed by parliament	OPMC, Attorney Generals, MJLA, MMERE	2 years
1.3 Sector organisation responsibilities and coordination reformed to increase effectiveness and efficiency of services..	1.3.1 Review of functions of water and sanitation agencies to identify opportunities for improved WATSAN management and service delivery	Report to Cabinet on structural reforms necessary to improve WATSAN management and service delivery	NWSRC, NIWCC	12 mths
	1.3.2 Organisational reform of WATSAN sector agencies where necessary	Reformed WATSAN agencies in place	OPMC, MPS	2 years
1.4 Outcomes of this policy and plan monitored, and reported annually and instruments updated where necessary	1.41 Annual review and report of Policy and Plan outcomes	Annual report to Cabinet on progress of WATSAN Policy and Plan with recommendations for revision, where necessary	NWSRC, NIWCC, MMERE	On-going, every 12 mths

Policy Objectives	Activities	Indicators	Responsibilities	Time Frame*
1.5 National WATSAN monitoring and reporting program and data base established and operational.	1.5.1 Rainfall, stream flow, and water quality monitoring system established for key public water supply catchments	Rainfall, stream flow, groundwater yield and water quality data base established and available for key water supply catchments	MMERE, MECDM, MHMS	3 years
	1.5.2 Monitoring system for groundwater levels, use and quality established	Groundwater level, use and water quality data base established and available for main aquifers	MMERE, MHMS	5 years
	1.5.3 Storages, rates of extraction, water quality, supply systems, energy use, non-revenue water and physical and financial condition of supply systems reported for all urban centres	Annual report to NWSRC & Cabinet	SW, Govts, NWSRC Provincial MFT,	On-going, every 12 mths
	1.5.4 Storages, rates of extraction, water quality, energy use and physical and financial condition of rural water supply and sanitation systems detailed	Report to NWSRC & Cabinet and data in data base	MHMS, Selected Provincial Govts, as a pilot project, MFT	3 years
	1.5.5 Survey of all sanitation systems in regional centres, their condition and environmental impacts	Report to Cabinet on all urban sanitation systems and their condition and environmental impacts	SW, Govts, MHMS, MECDM,	3 years
2.1 Skills training programs for water and sanitation managers, technical staff and community operators established and successful.	2.1.1 Skills training programs for water resources management, monitoring & data analysis for national and provincial levels	Programs established and trained staff graduated	MEHRD, MMERE, MHMS, MECDM, Aid donors	3 years and on going
	2.1.2 Skills training program for sanitation design, planning and management at national and provincial levels	Program established and trained staff graduated	MEHRD, MHMS, Aid donors	2 year and on going
	2.1.3 Skills training programs for urban water supply and sanitation system management, operation and maintenance for urban centres	Programs established and trained staff graduated	SW, MEHRD, MHMS, Aid donors	2 years and on going
	2.1.4 Skills program for plumbing and household rainwater harvesting	Program established and trained staff graduated	SW, MEHRD, MMERE, Aid donors	12 mths and on going

Policy Objectives	Activities	Indicators	Responsibilities	Time Frame*
2.2 Water and sanitation agencies adequately resourced and staffed with skilled, trained personnel	2.2.1 WATSAN agencies increase intake of trained staff	Annual report to NWSRC on qualifications and skill levels of agency staff	MPS, NIWCC, NWDRC	2 years and on-going
	2.2.2 Increase of resources for priority WATSAN tasks	Increase in finances and personnel assigned to WATSAN priority tasks	NWSRC, OPMC, MFT	12 mths
	2.2.3 Aid donors canvassed for support of priority projects	Aid support to priority tasks	MDPAC, MFT, Aid donors	12 mths and on-going
2.3 Primary, secondary & tertiary educational curricula on water, sanitation, waste management and hygiene improved and taught in all schools and institutions	2.3.1 Review of curricula on WATSAN and hygiene.	Report to Minister MEHRD and NWSRC with recommendations on improved WATSAN and hygiene curricula	MEHRD, NWSRC	18 mths
	2.3.2 Introduction of new or revised WATSAN and hygiene curricula including water conservation and wise use at all school levels	WATSAN and hygiene curricula included in all schools' education programs	MEHRD	2 years and on-going
3.1 Public education and awareness campaigns operating in rural and urban Constituencies to increase awareness of the importance of good quality water, conservation, water source protection, adequate sanitation and hygiene	3.1.1 Innovative promotional materials for public education and awareness WATSAN programs developed for rural and urban communities in SI	Promotional materials available for use	MEHRD, NGOs, Aid donors	12 mths
	3.1.2 Trial of public WATSAN education and awareness campaigns run in rural and urban areas	Pilot WATSAN education and awareness campaigns run in pilot studies	MHMS, MRD, selected Provincial Govts, SW, NGOs, Aid donors, churches	30 mths
	3.1.3 Review of success of trail public WATSAN education and awareness campaigns	Report to NWSRC and Cabinet	NWSRC, MHMS, MPGIS	3 years
	3.1.4 Roll out of public WATSAN education and awareness campaigns across SI	WATSAN education and awareness campaigns run in all Provinces	SW, MHMS, NGOs, Aid donors, churches	3 years and on going

Policy Objectives	Activities	Indicators	Responsibilities	Time Frame*
3.2 Training programs running in rural Constituencies on ownership, management, operation and maintenance of local water supply, sanitation and hydro-power systems	3.2.1 Trial Training programs developed on local ownership, monitoring, operation and maintenance of community, water, sanitation and hydro-power systems	Training programs trialed in pilot projects in selected Provinces	MHMS, selected Provincial Govts, MRD, NGOs, Aid donors, churches	18 mths
	3.2.2 Training programs run before and during installation of community WATSAN systems	Village water supply and sanitation systems owned and run by local community	MHMS, Provincial Govts, NGOs, Aid donors, churches	2 years and on going
	3.2.3 System for technical and management WATSAN advice available for local communities after system installation	Rural WATSAN advisory service established at Provincial level	Provincial Govts, MHMS	2 years and on going
4.1 Laws, regulations, ordinances and practices in place to protect public water sources and water source areas from pollution, misuse or over-use	4.1.1 Included in Water Resources Bill Activity 1.2.2	Water Resources Bill, regulations and ordinances passed by parliament	OPMC, Attorney Generals, MJLA, MMERE	2 years
	4.1.2 Guidelines trialed for safe, acceptable land uses and practices in water source areas that protect water supplies and downstream ecosystems	Report to NWSRC on pilot project on safe land use practices in water supply catchments	MMERE, MECDM, MAL, MFDR, selected PG	2 years
	4.1.3 National guidelines for safe, acceptable land uses and practices in water source areas that protect water supplies and downstream ecosystems	Guidelines published and operational at Provincial level	MMERE, MECDM, MAL, MFDR,	3 years
	4.1.4 Public education campaign on acceptable land uses and practices in water source areas and on penalties for polluting water sources	On-going campaign established	MMERE, MECDM	3 years and on-going
	4.1.5 All water extractions limited to less than or equal to the sustainable safe yield of catchment or groundwater systems	Licences issued for all public or commercial water extractions for public or commercial use specifying water extraction rates as per Water Resources Bill.	MMERE, Attorney Generals, MJLA	3 years and on going
	4.1.6 All groundwater bores and drillers licensed	Licences issued for all bores and drillers	MMERE, Attorney Generals, MJLA	2 years and on going

Policy Objectives	Activities	Indicators	Responsibilities	Time Frame*
4.2 Incentive program operating for engaging landowners in the protection of and providing access to source areas for water supply and hydro-power generation	4.2.1 Analysis of eco-compensation schemes to determine their applicability in water source areas in SI	Report to NWSRC and Cabinet	MFT, MMERE, MPGIS, MRD	12 mths
	4.2.1 Trial of equitable, wide incentive program established for encouraging landowners to protect water sources and allow access for public use	Trial incentive scheme run and report to NWSRC	MFT, MMERE, MRD, MLHS, MPGIS	2 years on going
	4.2.2 Nation-wide incentive scheme established	National incentive scheme available in all key catchments	MFT, MMERE, MRD, MLHS, MPGIS	5 years on-going
4.3 Improved and reliable access to of customary-owned public water sources	4.3.1 Analysis of methods for improving access to water sources in customary-owned lands	Report to NWSRC and Cabinet	MLHS, MRD, MMERE	2 years
	4.3.2 Trial a system for negotiation with landowners which is equitable and efficient	Pilot projects completed in selected Provinces	MLHS, MRD, MPGIS, MMERE	4 years
	4.3.3 Roll out of a national scheme for improving reliability and access to public water sources	Improved reliability and access to customary-owned public water sources	MLHS, MRD, MPGIS, MMERE	4 years on-going
5.1 All schools, hospitals and clinics have safe, adequate and reliable water supplies as highest priority.	5.1.1 Analysis of the water supply needs of hospitals, clinics, & schools	Report to Ministers MHMS, NWSRC, and MEHRD with recommendations on priority needs	MHMS, MEHRD	6 mths
	5.1.2 Priority program established for the provision of adequate, safe water to hospitals, clinics, and schools	Water supply systems progressively installed in hospitals, clinics and schools	MHMS, MRD, PGs, NGOs and Aid donors, MEHRD	12 mths & on-going over 6 years
	5.1.3 Provision of training on the operation and maintenance of hospital, clinic and school water supply systems	Trained local hospital, clinic and school communities	MHMS, Prov Govs, NGOs, Aid donors, MEHRD	On going over 6 years

Policy Objectives	Activities	Indicators	Responsibilities	Time Frame*
5.2 All rural and urban communities have access to approved, safe, adequate, reliable, affordable and sustainable water supplies	5.2.1 Analysis of the water supply needs of rural villages communities	Report to Minister MHMS and Provincial Govts with recommendations on priority needs	MHMS, MRD, Prov Govs	18 mths
	5.2.2 Priority program established for the provision of adequate supplies of safe water to all rural villages	Water supply systems progressively installed in rural villages who own, operate & maintain water supply system	MHMS, MEHRD, NGOs and Aid donors	18 mths & on-going over 12 years
	5.2.3 Analysis of the water supply needs of all urban centres	Report to NWSRC and Provincial Govts with recommendations on priority needs	SW, Prov Govs, MMERE, MHMS	18 mths
	5.2.4 Development of Water Master Plans for all urban centres	Master plans for water supply for all urban centres	SW, Prov Govs, MMERE, NGOs, Aid donors	3 years
	5.2.5 Progressive implementation of Master Plans for urban centres	Improved, sustainable water supply systems in urban centres	SW, Prov Govs, MMERE, NGOs, Aid donors	3 years & on going over 12 years
5.3 Increased use of household and community rainwater harvesting	5.3.1 Guidelines produced on the installation, operation and maintenance of rain harvesting and storage systems	Guidelines available on the installation, operation and maintenance of rain harvesting and storage systems	MMERE, MHMS, NGOs, Aid donors	6 mths
	5.3.2 Training programs for installation, operation and maintenance of rain harvesting and storage systems	Training programs run in Provinces	MMERE, MHMS, MRD, PGs	12 mths and on going
	5.3.3 Rainwater harvesting standards incorporated into building codes	Building codes specify standards for rainwater harvesting	MMERE, MLHS	18 mths
	5.3.4 Revolving loan fund established for the household and community purchase of rainwater harvesting and storage equipment	Revolving fund established and operational	MFT, MDPAC, NGOs and Aid donors	18 mths

Policy Objectives	Activities	Indicators	Responsibilities	Time Frame*
5.4 Water supply systems in non-urban, rural areas planned, owned and operated by local communities	5.4.1 Pilot project on local planning, ownership, management and maintenance of rural community water supply-schemes	Report on sustainability of pilot projects to NWSRC	MHMS, Provincial Govts, MRD, churches	2 years
	5.4.2 Guidelines for community participation in the planning of village water supply established	Guidelines available and in use	MHMS, Provincial Govts, MRD, churches	3 years
5.5 Increased hydropower generation	5.5.1 Update nationwide survey of all potential hydropower & joint water supply sites	Report to MMERE confirming priority sites	MMERE, SIEA	3 years
	5.5.2 Progressive installation of hydropower/ water supply systems	15% of electricity in SI generated by hydropower	MMERE, SIEA	12 years
5.6 Incentive schemes established to assist rural communities in maintenance of water supply systems	5.6.1 Revolving loan fund established for maintenance of water supply systems and related development activities	Revolving fund established	MFT, MDPAC, MRD, NGOs and Aid donors	18 mths
5.7 Increased use of renewable energy in water-supply systems	5.7.1 Surface water supply systems designed to generate hydro-power or minimise use of non-renewable fuels	Energy producing or energy use minimisation systems used in all new surface water supply systems	SW, SIEA, MMERE, Provincial Govts	2 years
	5.7.2 New renewable energy water supply pumping systems installed where practical	30% of power used in water supply systems from renewable energy	SW, SIEA, MMERE, MRD, Provincial Govts	2 years and on-going
5.8 Losses of water from piped systems reduced to less than 20%	5.8.1 Analysis of losses from piped water systems in urban centres	Report to Minister MMERE, NWSRC on water losses	SW, Provincial Govts	18 mths
	5.8.2 Phased loss reduction program commenced for urban centres	Losses of water from piped water systems progressively decreased to less than 20%	SW, Provincial Govts	2 years on-going
	5.8.3 Illegal connections to water supply systems discouraged through improved laws, regulations or ordinances	Percentage of illegal connections decreased by 80%	SW, Provincial Govts, Attorney Generals	2 years on-going

Policy Objectives	Activities	Indicators	Responsibilities	Time Frame*
5.9 Fair, equitable, tiered-water tariffs introduced for all urban piped water systems to control growth in demand and discourage waste of water	5.9.1 Water meters connected to all urban water users	Percentage of metered urban water users increases to 99%	SW, Provincial Govts	5 years on-going
	5.9.1 Uniform, equitable system for tiered-water tariffs introduced for all urban piped water systems	Revenue from tariffs exceeds costs of urban water supply systems, reduction in per capita water consumption	SW, Provincial Govts, MFT	12 years on-going
5.10 Systems to encourage water conservation operating in rural areas..	5.10.1 Community consultations on water conservation in rural areas undertaken	Report to NWSRC on community ideas for promoting water conservation	Provincial Govts, MHMS, MRD, NGOs, churches	2 years
	5.10.2 Pilot trials of community suggested schemes for conserving rural water supplies	Reduction in per capita rural water use	Provincial Govts, MHMS, NGOs, churches	2 years on-going
6.1 All schools hospitals and clinics have safe, appropriate sanitation as highest priority	6.1.1 Analysis of the sanitation needs of all hospitals, clinics, and schools	Report to Ministers MHMS and MEHRD and NWSRC with recommendations on priority needs	MHMS, MEHRD	6 mths
	6.1.2 Priority program established for the provision of appropriate sanitation systems water to all hospitals, clinics, and schools	Sanitation systems progressively installed in hospitals, clinics and schools	MHMS, MEHRD, NGOs and Aid donors	12 mths and on going over 6 years
	6.1.3 Provision of training on the operation and maintenance of hospital, clinic and school sanitation systems	Trained local hospital, clinic and school communities	MHMS, MEHRD, Provincial Govts, NGOs, Aid donors	12 mths and on going over 6 years
6.2 Approved, appropriate sanitation available to all communities	6.2.1 Approval process established for design and construction of rural sanitation systems	Regulation passed for licensing of public sanitation schemes and approval process established	MHMS, Provincial Govts	2 years
	6.2.2 Appropriate sanitation systems progressively installed in all communities	Rates of water-borne and hygiene-related illnesses decrease. Percentage of population with access to appropriate, improved sanitation increased to 70%	MHMS, Provincial Govts, WRD, NGOs, Aid donors, churches	2 years on going
6.3 All rural communities trained in the use and maintenance of sanitation facilities and on hygiene.	6.3.1 Training programs developed and run on the use. local ownership, monitoring, operation and maintenance of community, water, sanitation and hydro-power systems	Percentage of communities trained and running own systems use	MHMS, Provincial Govts, NGOs, Aid donors, churches	12 mths and on going

Policy Objectives	Activities	Indicators	Responsibilities	Time Frame*
6.4 Sewerage outfalls and waste disposal sites in all urban centres constructed to minimise off-site pollution	6.4.1 Designs developed for urban sewage and waste disposal systems to minimise off-site pollution	Designs available	MHMS, SW, MECDM	3 years
	6.4.2 New urban sewage and waste disposal systems installed	Percentage of improved sewage and waste disposal systems installed	MHMS, SW, Aid donors	3 years and on-going
7.1 Effective use of seasonal weather forecasts by Government, public, businesses and institutions to prepare for extreme events	7.1.1 Reliable systems for seasonal weather forecasts established	Seasonal forecasts available	MECDM	12 mths
	7.1.2 System for routinely and rapidly providing forecasts to agencies for wetter than normal and drier than normal conditions established	System established	MECDM, NIWCC	18 mths
	7.1.3 System for communicating routinely the risk of wetter than normal and drier than normal conditions to general public established	System established and used	MECDM	18 mths
	7.1.4 System for identifying and declaring droughts in SI established	System established and used	MECDM, MMERE	2 years
7.2 Coordination improved between Government agencies for disasters affecting water supply	7.2.1 Review of past disasters and response in relation to water supply	Recommendations to NWSRC	MECDM, MMERE, MHMS	12 mths
	7.2.2 Improved water-related disaster communication and coordination system established	Improved coordination and communication system operational	MECDM, MMERE, MHMS	2 years
	7.2.3 Regular testing of communication and coordination system carried out	Schedule for system testing operational	MECDM, MMERE, MHMS	2 years
7.3 Water supply and sanitation systems at risk from sea-level rise and storm surge identified	7.3.1 Analysis of vulnerable water supply and sanitation systems	Highest risk water and sanitation systems identified	MMERE, MECDM, MHMS	2 years
	7.3.2 Contingency plans developed for highest risk locations	Contingency plans in place	MMERE, MECDM, MHMS	3 years

Policy Objectives	Activities	Indicators	Responsibilities	Time Frame*
7.4 Adaptation strategies in place for increasing the resilience of water supply and sanitation systems and communities to the impacts of climate change	7.4.1 Survey of indigenous adaptation strategies in water supply carried out.	Report to Minister MECDM	MECDM, MMERE	3 years
	7.4.2 Pilot projects of trials of adaptation strategies in water supply undertaken in priority areas in SI	Number of pilot projects underway	MECDM, MMERE	6 years
	7.4.3 Public awareness, education and communication program based on successful pilots developed nationwide	Program established	MECDM, MMERE	6 and on-going
	7.4.4 Successful adaptation pilots rolled out nationwide	Number of villages participating	MECDM, MMERE	10 years
	7.4.5 Mainstream Disaster Risk Reduction into WATSAN planning and management Disaster	Risk Reduction incorporated into all WATSAN plans and management procedures	MECDM, MMERE, MHMS	12 mths and on going
7.5 Improved urban & peri-urban drainage	7.5.1 Drainage plans developed for all urban centres	All urban areas have drainage plans	MID, HCC, PG, MMERE	3 years
	7.5.2 Install planned drainage systems	Improved drainage in urban areas	MID, HCC, PG,	3 years and on-going

* Time frame from Government's endorsement of National WATSAN Policy and Plan

10. Resource Implications of Policy and Implementation Plan

The high priority and magnitude of rural and urban water and sanitation challenges requires adequate human and financial resources be allocated for the implementation of this Plan. The draft National Infrastructure Investment Plan 2013 identifies priority rural and urban water and sanitation projects with an estimated cost of about SBD \$420 M and hydropower projects with an estimated cost around SBD \$770 M. These are infrastructure costs only and do not reflect the increased personnel costs necessary to provide the information necessary to manage water and sanitation or to manage and protect public water sources and to manage and regulate public water supplies, sanitation services and waste disposal systems. A more precise estimate of the human and financial resources necessary to carry out this Plan will be available when the above activities are incorporated into Ministerial corporate plans. The very diverse rural population and the lack of resources invested in water and sanitation management and advice at the Provincial level means that there is an urgent need to invest in personnel in Provinces. Table 6 provides estimates of staff that may be needed to fully implement the policy and plan. It shows that up to 18 staff may be needed at the national level and up to 36 at the Provincial level. Estimates at the Provincial level have been based on Province populations. The high priority and magnitude of rural and urban water and sanitation challenges requires adequate human and financial resources be allocated for the implementation of this Plan. The costs given in the draft National Infrastructure Investment Plan 2013 for priority rural and urban water and sanitation and hydropower projects are infrastructure costs only. They do not reflect the increased personnel costs necessary to provide the information necessary to manage water and sanitation or to manage and protect adequately

public water sources and to manage and regulate public water supplies, sanitation services and waste disposal systems. A more precise estimate of the human and financial resources necessary to carry out this Plan will be available when the above activities are incorporated into Ministerial corporate plans.

Table 6 Estimated additional staff required over the next 12 years to implement National Policy and this plan

Ministry	Activity	Additional Staff
MMERE	Support for NWSRC – Policy & Plan	1
	Assessment of surface sources	2
	Licensing of water extraction	2
	Groundwater assessment & monitoring	2
	Data base establishment and support	1
	Coordination with provincial governments, NGOs	1
MHMS	Water quality monitoring	2
	Sanitation system design	2
	Data base establishment and support	1
MECDM	Land use impact assessments	1
	Seasonal climate forecasting and reporting	1
	Data base support	1
MJLA	Review of legislation, drafting Water Resources Bill	1
Provincial Governments		
Choiseul	Water supply planning, design, operation and maintenance training and advice to villages	2
Western		6
Isabel		2
Central		2
Rennell-Bellona		1
Guadalcanal		7
Malaita		11
Makira-Ulawa		3
Temotu		2
		Total

Activities	6mths	12 mths	18 mths	24 mths	30 mths	3 yrs	4 yrs	5 yrs	6 yrs	7 yrs	8 yrs	9 yrs	10 yrs	11 yrs	12 yrs
7.4.3 Public awareness, education and communication program based on successful pilots developed nationwide															
7.4.4 Successful adaptation pilots rolled out nationwide															
7.4.5 Mainstream Disaster Risk Reduction into WATSAN planning and management Disaster															
7.5.1 Drainage plans developed for all urban centres															
7.5.2 Install planned drainage systems															

12. Inclusion in Ministry Corporate Plans

The policy objectives and activities outlined in this Plan have been designed to be incorporated directly into medium term Ministry corporate plans and programmes and into annual work plans as well as into longer term sector strategies.

13. Monitoring, Review and Revision of Policy and Implementation Plan Outcomes

The high level National WATSAN Reform Committee, NWSRC, assisted by the expanded Cabinet-appointed National Intersectoral Water Coordination Committee is responsible for monitoring progress on Policy and Implementation Plan outcomes and reporting progress annually to Cabinet. The Policy and its Implementation Plan will be reviewed formally by NIWCC every 5 years or at the election of a new Government. Following these reviews, NWSRC will recommend to Cabinet any required revision of the Policy and its Implementation Plan.

14. Minister Submitting this National Policy Implementation Plan

This National Policy is submitted to Cabinet by the Minister for Mines, Energy and Rural Electrification, the lead water minister in Solomon Islands. The Implementation Plan has been developed by the Cabinet-appointed National Intersectoral Water Coordination Committee.

15. Cabinet Endorsement

This Policy and its accompanying Implementation Plan was endorsed by Cabinet of Solomon Islands Government.