

Cook Islands National Integrated Water Resources Management Policy

Draft date: 25 March 2014

Version: FINAL v1.0

Contents

Background	1
Purpose	1
Scope:	1
Definitions	2
Policy Context	3
Challenges and Considerations	7
Policy Principals	8
Vision	10
Policy Objectives	11
1. Reliable Potable Water and Standards for Water Quality and Resource Management	11
2. Water Testing	14
3. Sustainable Management of Water Resources	15
4. Community Engagement and Advocacy	17
5. Usage, Practice and Water Conservation	18
6. Consistent and Transparent Application of Water Policy	19
7. Resourcing and Capacity Building for IWRM	20
Role & Responsibilities	21
Summary of IWRM Policies	24

Background

The management of water resources is vital to the sustainability of the Cook Islands as a nation. Activities including agricultural practices, coastal fisheries, through to conservation of our environment and health of the general public, are all dependant on the proper sustainable management of our fragile water resources. Factors such as increased economic development and the effects of climate change are having an increasingly detrimental impact and will continue to pose a serious threat to the Cook Islands fragile water resources. This 'Integrated Water Resources Management Policy' (IWRM Policy) comes as a response to these threats and recognises that it is **crucial** the Cook Islands are proactive in protecting and effectively managing fresh water resources and coastal waters.

Purpose

The purpose of this document is to establish policies that will guide planning, actions and efforts in ensuring the sustainable integrated water resources management across the Cook Islands.

Scope:

This IWRM Policy addresses the management of water resources from 'ridge to reef' – that is, from the point that rain falls on our land to the point where water is returned to the ocean. Thus this policy encompasses all water resources between those two points, including:

- Ground water resources
- Lakes, streams and rivers
- Estuaries and wetlands
- Captured rain from rooftops
- Catchments
- Lagoon and coastal waters

This policy also focuses on themes including:

- Building resilience to climate change and natural disasters
- Conservation of natural ecology
- Water conservation and responsible usage

Definitions

‘Integrated Water Resource Management’

“... A process that promotes the coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.” (as defined by the ‘Global Water Partnership’)

Inland Waters - “the waters and banks of any stream rivers or lake together with the bed (whether dry or not) of any stream river. – For the purpose of this definition “bank” shall include all the area of land extending away from the Stream, river or lake and measured at right angles to a distance of five meters.

Rivers/ Streams/Creeks - Any natural occurring water way or course of water that originates inland and flows downwards until it reaches the sea.¹

Man-made water ways- Any water-way resultant from human development or intervention, whether a diversion of a natural waterway or the creation of artificial waterways from catchment.

Foreshore - All area between the mean high water mark (MHWM) and 30 meters inland or to the edge of natural vegetation growth, whichever is a greater distance. This also includes any estuary areas with the designated area (30m inland from the MHWM)

Wetlands – Areas of marsh swamp of water whether natural or artificial; permanent or seasonally flooded; with water that is static or flowing; fresh or brackish or salt and includes storage reservoirs, taro swamps and fish farms.

Lagoon – Shallow water bodies separated from the ocean by a barrier connected to it at least temporarily, by one or more restricted inlets.²

Potable Water – Potable Water is water that is considered to safe for consumption (drinking) by humans. This water is considered to be free of micro- bacteria and contains no chemical & physical contaminants.

Groundwater³ - Water found in the spaces between soil particles and cracks in rocks underground located in the saturation zone. Cracks in rocks can be due to joints, faults, etc. Groundwater is a natural resource that is used for drinking, recreation, industry, and growing crops.⁴

¹ UNESCO (2009) *Drops of water 1 – What is a River?*, Water Civilization International Centre, Venice, Italy - www.civiltacqua.org

² Isla, F.I (1981) COASTAL ZONES AND ESTUARIES – Coastal Lagoons, UNSECO – Encyclopedia of Life Support Systems

³ . Varady R G, Van Weert ,F. Megdal, S.B, Gerlak, A. Iskandar, C.A. House-Peters. L. (2009) Groundwater Policy and Governance
FAO

⁴ New York State Department of Environmental Conservation (Retrieved 30 June 2013) Groundwater Definitions

<http://www.dec.ny.gov/lands/76322.html>

Catchments - the area of the watershed within which rainfall is collected and drains through streams and rivers towards a common collection, intake or discharge point.⁵

Watershed – The area of land which includes the catchments within which rainfall is captured which drains through creeks, streams and rivers to an exit point which is the sea.⁶

Policy Context

The management and preservation of water resources is crucial for any country, with access and availability of fresh water being crucial to the welfare of people, the environment and the economy. The impacts of climate change (in particular the threat of more frequent droughts and more destructive cyclones), and the degradation of water resources from development, have made integrated water resource management an issue of the highest priority across many island nations, including the Cook Islands.

The National Sustainable Development Plan (NSDP 2011-2015)

Planning and policy in the Cook Islands is derived from a centralised planning document known as the National Sustainable Development Plan (NSDP). The NSDP recognises the value of the country's water resources with a strategic imperative to act upon improving the management of water in the 2011-2015 NSDP planning period.

This policy for integrated water resources management covers two of the key priority areas in the NSDP: Priority Area 2: "Infrastructure" and; Priority Area 6: "Ecological Sustainability". The specific strategic objective in the NSDP under "Infrastructure" is: *"Improved access to water resources for our communities"*

Under Ecological Sustainability the NSDP states the strategic objective:

"Improve the Management and Quality of our Water Resources through an Integrated Approach"

The NSDP also states under "Ecological Sustainability" the objective to "improve water quality through better sanitation measures". Policy and efforts around sanitation and wastewater are covered under the National Sanitation Policy (2013). It is envisioned that this IWRM Policy will work in conjunction with the sanitation policy to improve integrated water resources management across the country.

⁵ Hajkowicz, S. Okotai, P (2004) "An economic evaluation of water pollution in Rarotonga, the Cook Islands", IWP technical pacific report (International Waters Project) no.18, SPREP, Apia, Samoa

⁶ Hajkowicz, S. Okotai, P (2004) "An economic evaluation of water pollution in Rarotonga, the Cook Islands", IWP technical pacific report (International Waters Project) no.18, SPREP, Apia, Samoa

The National Environment Strategic Action Framework (NESAF) The National Environment Strategic Action Framework (NESAF) is the overarching strategy for the environmental management of the Cook Islands. The framework provides guidance and direction for achieving sustainable social and economic progress for the Cook Islands by utilising our natural resources and environment wisely. It aims to sustain efforts generated from growing environmental awareness to protect, conserve and manage our environment and natural resources. The National Environment Service (NES) has lead in coordinating the activities of all government agencies in compiling the 2013-2018 NESAF.

Goal 1 under Natural Resources Management Section, in the NESAF states:

“Enhance the management, protection and sustainable use of our natural resources.”

Under this goal are the areas pertaining to this IWRM Policy: ‘Land Use and Resources Management’ and ‘Freshwater Resources Management’. Land Use and Resources Management recognises the increasing risk of land degradation as a result of unchecked and inappropriate development. Under Freshwater Resources Management, it is accepted that greater planning and coordination between government agencies and islands is vital if water resources are to be sustainably managed. It is also stated that the NESAF will develop and adopt a National Water Resources Management Policy by 2017 and to make training of water quality related personnel a national priority.

Under Section: Waste Management and Pollution Prevention is Goal 2:

“Reduction and prevention of environmental degradation from waste and all forms of pollution.”

This goal outlines developing a National Integrated Waste management Plan to ensure that both solid and liquid waste will be safely disposed of to protect the environment and to establish waste monitoring programmes. The implementation of this is crucial in preserving the integrity of water sources from the liquid and solid waste contaminants that can result from poor waste management practices.

Past and Existing Projects

Initiatives such as the 1996 Integrated Urban Infrastructure Project and the 2007 ‘Preventative Infrastructure Master Plan’, have reported on the need to upgrade infrastructure and better manage fresh water management for Rarotonga and the wider Cook Islands. Other reports, such as the 2004 ‘Economic Valuation of Water Pollution on Rarotonga’, have documented the serious damage and negative impact of pollution and unsustainable practices on water in Rarotonga and the rest of the Cook Islands.

In addressing the urgent needs around water management and provision there has already been significant work carried out with the Northern Waters Programme in 2009-2012 and the Mauke Water Project, which was completed in 2011. The Cook Islands Government has embarked on a large scale water infrastructure project “Te Mato Vai” on the main island of Rarotonga to completely upgrade its water supply system, due to commence in 2013. Policy regarding water supply infrastructure and service delivery will be set out in a separate Water Policy, to be developed in conjunction with Te Mato Vai, however, the demands and impacts of this infrastructural development must be considered in the integrated management of water resources.

In monitoring Lagoon Health the Ministry of Marine Resources (MMR) has conducted a 'lagoon health monitoring programme' since 2004. This programme looks at sites on Rarotonga as well as the Outer Islands including Manihiki and Aitutaki. Manihiki's pearl farming industry is particularly vulnerable to poor lagoon health with a bacterial outbreak killing significant stocks of black pearl oysters in 2001.⁷ In administering its monitoring programmes MMR are working in conjunction multiple agencies including NES, the Ministry of Health, the Ministry of Infrastructure Cook Islands, and (New Zealand) National Institute of Water and Atmospheric Research (NIWA) with funding for this programme is provided by the European Union, NZAID and AUSAID.⁸

The IWRM Project

Pacific Island countries have uniquely fragile water resources due to their small size, lack of natural storage, competing land use, and vulnerability to natural hazards. In most Pacific countries, even small variations in water supply can have a significant impact on health, quality of life, and economic development.

Entitled "Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries" (the GEF Pacific IWRM Project) this Global Environment Facility (GEF) funded project is being executed by the Pacific Islands Applied Geoscience Commission (SOPAC) in cooperation with 14 Pacific Island countries.

In the Cook Islands, the IWRM Project is a joint initiative between the GEF, acting through SOPAC, and the Cook Islands Government, with focus on integrated freshwater and coastal management on Rarotonga.

The aims of the Project, which has been running since 2009, are to "improve groundwater, freshwater and lagoon water quality using an IWRM framework and to gain information on the availability of groundwater for drought relief."

To achieve this, the project consists of three key activities:

1. Technical assessment of water quality and quantity information measures
2. Knowledge dissemination to promote community knowledge and understanding
3. Institutional strengthening and human resource capability development measures

Under IWRM a number of activities have been completed to achieve these goals including the installation and monitoring of trial onsite sanitation systems, expanded and upgraded monitoring of the lagoon and groundwater, and GIS mapping of pollution sources.⁹ This IWRM Policy is also a major deliverable under the Project.

⁷ Stanley, D. (2004) *South Pacific*, p. 326, Moon Handbooks, Emeryville CA. USA

⁸ Retrieved 20th July 2013, Cook Islands Ministry of Marine Resources Website -

http://www.mmr.gov.ck/index.php?option=com_content&view=article&id=22&Itemid=22&dir=JSROOT%2Fwater_quality&old_foldername=2011

⁹ Retrieved 2013, September 29, <http://watsan.gov.ck/integrated-water-resource-management-project>

Where does this Policy fit?

This policy fits into the strategic objectives outlined by the NSDP and the goals of the NESAF and seeks to bring in line the overarching goals and principals of the various aforementioned water projects and plans. It also seeks to harmonise the objectives of the various agencies and stakeholders involved in the management of water in the Cook Islands.

The IWRM Policy is one of a suite of documents, including other plans and strategies, which will drive and enable development of the water sector and management of water resources in such a way that it will contribute to the sustainable development of the Cook Islands.

It is envisioned that this document will sit alongside the National Sanitation Policy and a National Water Policy in forming the policy backbone of the Cook Islands' Integrated Water Resource Management Strategy.

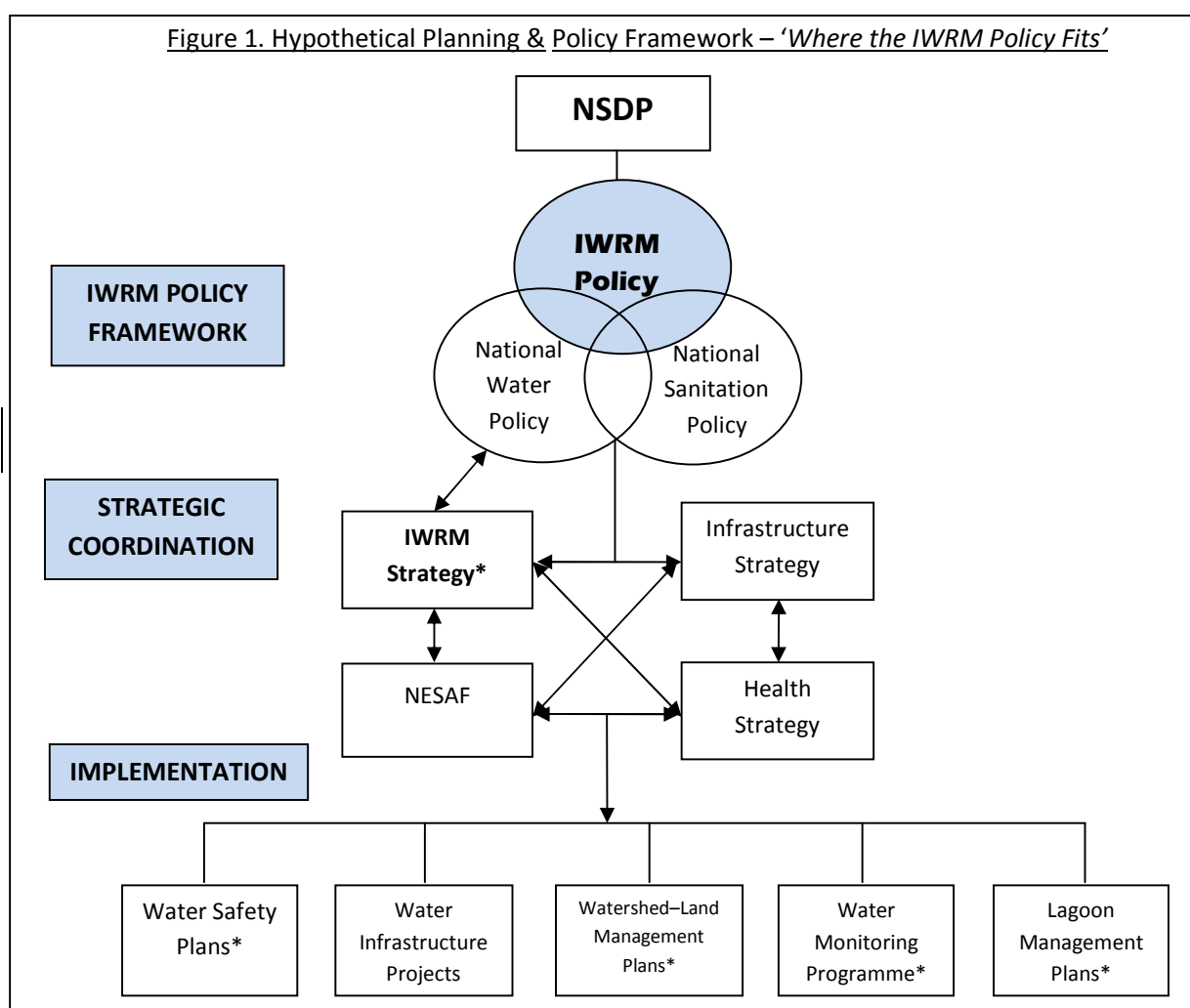
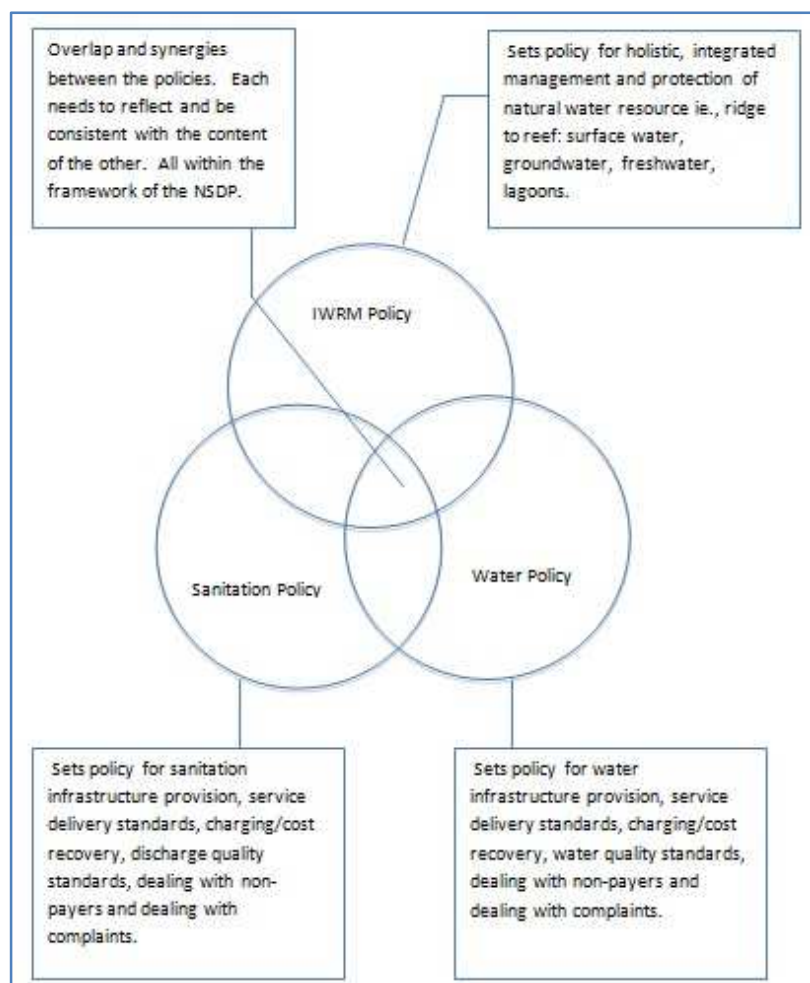


Figure 2. The IWRM Policy Coordination



Challenges and Considerations

Below are issues that are perceived to have bearing on the development of this water policy and the management of water resources.

- **Geographic and Demographic diversity**

The Cook Islands populace is spread across 12 separate and somewhat diverse islands with different geographic, geological and socio-economic contexts. A further three islands are uninhabited but require careful consideration and management of their natural environments including water resources. Policy and plans developed must look to enforce appropriate standards of practice and quality across the whole country whilst adapting to the differing contexts of each island and their communities.

- **Land Management & Environmental Conservation**

The effective management of water resources is indelibly linked to the management of land and wider economic, social, cultural, environmental and ecological considerations. Thus in

developing an IWRM policy we must endeavour to ensure that any land management policy reflects objectives of this policy and assists the greater environmental management framework in setting goals that give effect to improving the management of ecosystems as a whole.

- **Management and Collection of Data**

Policy should address the management and collection of data as the quality of information directly impacts the quality of policy and decisions made with respect to integrated water resource management. There has been a large amount of data that has been collected on the Cook Islands' water resources. However with the management of water resources being spread across a number of agencies, there have been issues with respect to consistency in the data itself and the manner in which it is collated.

- **Climate change**

The impacts of climate change on rainfall, cyclones and the greater ecology of the country must be factored in to the formulation of this policy. Policy must be designed with the intent to adapt to the projected medium to long term implications of climate change as well as addressing immediate concerns and vulnerabilities.

- **Scale & Isolation**

Being a small island developing state, the Cook Islands have both limited fiscal and human resources to manage its natural resource endowment. These challenges are further exacerbated when considering the isolation and even smaller scale of the different Outer Islands or "Pa Enua". In developing plans and policies to improve the integrated water resource management, the Cook Islands must improve their capacity, taking into consideration restriction of scale and the vulnerabilities of vast geographic isolation.

Policy Principals

Equity and Affordability

All groups and persons in the Cook Islands should have equal and equitable access to fresh water resources to improve their well-being. In delivering water to people and water for human use, the primary consideration will be ensuring all Cook Islanders have access to reliable and safe water that is affordable and fit for purpose.

Health and Water Quality

Water resources are managed appropriately to protect and enhance the quality of water, inland and coastal to ensure the health and safety of humans, and terrestrial and marine animals and plants life.

Collaboration and Cooperation

Government shall work in an integrated manner across all relevant ministries and agencies, and with communities, businesses and other stakeholders, to achieve the aims and implement the principles of this IWRM policy.

Precautionary Principle

Taking active measure to prevent serious or irreversible environmental damage or degradation whether the consequences are uncertain or not.

Accountability & Transparency:

Government agencies, the private sector and civil society organizations should act transparently and be accountable to the public or the interests they are representing.

Water Conservation

This policy will look to ensure that the principal of water conservation underlines all water based activities and uses, recognising the scarcity, fragility and value of our fresh water resources.

Sustainability & Environmental preservation

Policy will strive to protect and avoid interference with the natural ecology of the Cook Islands inland waters and lagoons and ensure that usage and management of water will be conducted in a manner that will preserve and enhance this resource for future generations to come.

Mitigation of the impact of Infrastructure and Development on Ecological Flows

In designing and delivering future water supply, infrastructure, services and operations will be provided in a manner that ensures that ecological flows are maintained in natural streams and waterways to the greatest extent practicable in order to ensure the protection of freshwater and coastal ecosystems.

Compliance with International Obligations

The Cook Islands will comply with all conventions or treaties related to water resource management and environmental protection that it has signed and committed to.

Cultural Sensitivity

Policies and actions should be consistent with the cultural context of the Cook Islands and recognise the cultural mechanisms and customs consistent with traditional water resource management.

Vision

In developing a vision for water management in the Cook Islands we must consider the scope and objectives of this policy.

Various visions and objectives for the management of different water sources and uses already exist and guide current planning activities.

The **Northern Waters** outlined the following strategic goals for the provision of fresh water in the Northern Group policy:

- *Encourage sustainable growth that would bring opportunities for employment, improved public health and well-being.*
- *Promote environmentally sustainable economic development.*

The department of Public Health have stated goals around water under their '**Health Water Quality and Safety Monitoring Protocol**'

Vision: "All Cook Islands living healthier lives and achieving their aspirations"

Strategic Goals: Access to safe drinking water for the entire population
 Safe drinking water through good water supply practice

Thus in encapsulating the aforementioned initiatives and the scope of the policy, as well as the future aspirations for integrated water resource management in the Cook Islands the following vision is proposed:

"To protect and enhance the inland and coastal water resources of the country to ensure the health of the people and the environmental and economic sustainability of the Cook Islands"

Policy Objectives

In achieving this vision we outline the following specific policy objectives:

1. Reliable, **potable water** for all who reside in the Cook Islands and the establishment of **standards for water quality and resource management**.
2. Optimise and standardise the regular **testing of water quality**.
3. **Sustainable management of both inland and coastal water** resources.
4. A **community that is engaged and active** in the sustainable management of the Cook Islands water resources.
5. **Equitable** systems for controlling demand and **appropriate usage, conserving water** and minimising waste and leakages.
6. **Consistent and transparent** application of water policy, plans and laws.
7. Appropriate **resources, capacity**, skills training, and information available for managing water sources and infrastructure.

1. Reliable Potable Water and Standards for Water Quality and Resource Management

Policies for Usage and Application

One of the key measures of an integrated water resource management system is the quality of water. In developing appropriate policies for water we must consider the different uses and applications of water in the water cycle. In doing so we consider the following areas:

1. Standards for drinking water
2. Bathing, washing and domestic usage
3. Commercial usage
4. Agriculture and Horticulture

This first area is crucial to in ensuring the health of all persons in the Cook Islands and is captured in the following policy:

Drinking Water for Human Consumption

1.1 We will ensure all persons in the Cook Islands shall have access to reliable, safe and potable **drinking water**.¹⁰

The implementation of this policy and the relevant standards across the country will have significant implications for water infrastructure and public health programmes, and upstream management of the water sources such as streams, rivers, ground water and intake areas.

Beyond drinking water, it is important to establish policies regarding appropriate water quality and Provision for domestic, commercial and agricultural use of water in the Cook Islands. This impacts not only tap water but the management of water resources upstream such that they are uncontaminated and suitable for human consumption. These policies are as follows:

Water for Domestic Usage

1.2 We will have reliable access to safe **water for bathing, cooking and cleaning** for all persons in the Cook Islands.

1.3 We will have reliable access to safe water ‘fit for purpose’ for **Business and Commerce** to use in a manner consistent with efforts to conserve fresh water resources and minimise any waste water to ensure the economic viability and environmental sustainability of the country.

1.4 We will have adequate, appropriate and reliable water for **horticultural and agricultural** production.

The specific scientific definitions of what is “safe” water quality for domestic and commercial use will be determined as part of Water testing and Water safety Plans.

Standards for Water Resource Management

The scope of this policy includes all inland water bodies, coastal waters, and drinking water (taps, water tanks) including:

- Streams, rivers and creeks
- Water catchment/ Intake areas
- Ground Water

¹⁰ This includes water that is potable after boiling for 5 minutes. All persons or communities dependant on tank water or water that is not UV filtered should boil water to ensure potability.

- Lagoon areas

It is important that we establish expectations and standards around the management and quality of these resources. Each of these sites requires their own policies, standards and practices that will ensure water resources are protected from contamination.

1.5 We will have Water catchment and intakes free of toxins and chemical contaminants so that water meets appropriate standards.

This has implications on water infrastructure and the management of these facilities and the catchment areas. The specific regulations pertaining to such areas shall be defined in water safety plans and catchment management plans.

1.6 We will develop appropriate water quality standards for streams, rivers and creeks such that effluent and wastewater does not adversely and permanently affect the natural environment and native species of the Cook Islands.

1.7 We will ensure Ground water is free of chemical and artificial contaminants and free of harmful toxins that may affect organic life.

The specific standards for ground water and inland waterways, detailing water quality targets around physical and chemical composition, acidity, and so forth will be defined under plans pertaining to sanitation and waste water. This policy also has implications for land use management, solid and liquid waste management and will link to the NESAF and land management plans aiding to set goals around management of these areas.

1.8 We will develop appropriate standards for lagoon water quality to ensure the preservation and proliferation of natural lagoon marine ecology.

The specific standards for lagoon water, detailing water quality targets around physical and chemical composition and acidity are detailed in lagoon management plans. These will be reviewed from time to time to help provide a picture of incremental progress as well as factor in the wider effects of climate change.

2. Water Testing

In ensuring that water quality analysis reaches the standards as outlined above, policies for testing and measurement facilities, systems, protocols and persons must be in place across all agencies involved with water quality testing.

Standardised Procedures and Tests

2.1 We will develop standardised procedures for testing of fresh water, drinking water and lagoon water to ensure consistency, dependability and improve the utility of water testing.

Clear and consistent guidelines around testing must be developed that are common to all agencies involved in testing so that an accurate and holistic picture of the different water systems and the quality of water at different stages of the water cycle can be compiled over time. These guidelines should detail:

- Standards on **what** is being tested for (chemicals, metals, bacteria, etc.)
- Standards on **how** tests are conducted and samples are handled and processed
- Standardised instructions on **where** tests are conducted and **when** they are conducted
- Clarification on **who** does what tests across the water monitoring regime

Standardised National Water Quality Measures

2.2 We will develop national safety standards for drinking water, residential water, commercial water and water for agriculture.

In testing and monitoring water, it is important to have specific water quality goals for the purpose of gauging the efficacy of efforts in regards to improvement of water (and land) management practices. Separate standards will be developed and applied for the different naturally occurring bodies of water (ground water, rivers, lagoons, etc.) and according to the different usages of water; i.e. the standard for drinking water should be different to that of commercial use and agriculture.

3. Sustainable Management of Water Resources

To ensure the quality of water we must also consider how we manage the Cook Islands' water resources and establish standards and policies in this area. In developing a policy for the management of water resources we look at the range of water sources (i.e. ridge to reef).

Land-based activity is a significant factor that impacts on water quality. Therefore land development must be managed to avoid or minimise contamination or upsetting the natural balance and natural courses of water and water sources. Agencies such as the National Environment Service, Ministry of Infrastructure Cook Islands building control, Public Health, Ministry of Agriculture and other relevant agencies involved in the management of these areas of regulation must work in a cooperative and collaborative manner in developing and implementing plans and actions to effectively address issues in this area.

Coordinating Natural Resource Management for IWRM

3.1 We will ensure that policies concerning natural resource management, that covers anything from the 'ridge to reef', will be **coordinated** to ensure a holistic and comprehensive approach to IWRM is undertaken.

Management of Groundwater

3.2 We will manage Ground water resources so as to not adversely affect the surrounding ecology or the overall composition and ongoing sustainability of the water table.

Measures must be taken to advocate and ensure sustainable management and use of ground water. Activities and actions in these areas must work in congruence to ensure that ground water resources are protected from contamination and pollution.

Management of Streams and Rivers

3.3 We will manage naturally occurring rivers, streams, creeks or any water ways, temporal or permanent such that they will neither be disturbed nor diverted.

As with the management of groundwater, the management of water and streams is significantly impacted by the management of land. Agencies such as NES, ICI building control, Public Health and other relevant agencies involved in the management of these areas must work in a cooperative and

collaborative manner in developing and implementing plans and actions to effectively address issues in this area.

Management of Man-made Waterways

3.4 We will ensure any man-made diversions of or artificial water ways may not adversely affect the surrounding natural environment or the over-all balance of any part of the eco-system.

In the development, management and maintenance of artificial waterways (drains, culverts, canals, etc.) it is important that they are effectively maintained and managed and this policy is enforced. The main threats in this area arise from:

- Poor design and construction causing blockages, flooding, or unsustainable diversion of natural rivers and streams affecting the natural ecosystem
- The leakage or dumping of waste water and liquid waste in to drainage

Management of Wetlands & Estuaries

3.5 We will manage Wetlands and estuaries such that they will not be disturbed or filled in. In addition to this, any development or activities in wetland areas will not disturb the natural flow of the water cycle.

Again, this policy is relevant to land use management policies and practice. Actions in this area are heavily dependent on the capacity and willingness to enforce the law and its intent. Plans should focus on building capacity in assessment and enforcement, but should also include actions around advocacy and promoting good practice by the public in wetland areas.

Lagoon and Coastal Management

3.6 We will manage all activities in lagoon areas or coastal zones such that they will not adversely harm the marine ecology.

3.7 We will ensure maritime activities take all precautions to not pollute or harm the coastal area in which it is commuting through or where it is docked¹¹.

The management of lagoon, coastal and foreshore areas is vital in sustaining the livelihoods of Cook Islanders, affects industries like tourism through to pearl farming. To preserve these areas, sustainable practices and usage must be promoted and enforced by the various agencies and stakeholders involved in the use and regulation of these areas. In developing management plans for these areas it is important for roles and responsibilities to be clearly defined.

¹¹ This is consistent with the International Convention for the Prevention of Pollution from Ships (MARPOL) of which the Cook Islands is party to and is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes.

4. Community Engagement and Advocacy

Public Responsibility and Awareness

4.1 We will conduct education, awareness and advocacy campaigns such that all persons in the Cook Islands are informed on how to conserve and use water responsibly.

It is necessary to have a general awareness and understanding of the importance and fragility of the Cook Islands' water resources and that management of these resources is dependent on the behaviours of all individuals in the Cook Islands. Individual responsibility for water management includes everything from water use minimisation practices at home to better management of land and waste.

Community Water Management Planning

4.2 We will implement Community water management plans to be mainstreamed into island and village, community and school level planning and activities.

There are significant opportunities to improve the management of water resources, particularly at the “grass roots” or community level. This starts with general education and advocacy programmes for the general public on good practice and management of water resources, but can be augmented through the mainstreaming of IWRM policies into community level and island community plans. The ‘Pa Enua’ or outer islands have island-level planning which coordinates activities on island. IWRM activities, such as regular ‘lagoon days’ or cleaning of beaches, or inland water ways by communities or schools could greatly augment efforts around improving IWRM across the country.

Education and awareness around sustainable fishing practices, harvesting of other marine life, the safe operation of small vessels, and treatment of coral reefs are critical to ensuring that safe practices and sustainable usage become common knowledge and practice in Cook Islands coastal waters.

5. Usage, Practice and Water Conservation

Domestic Usage

5.1 We will minimise water wastage and ensure all vessels that contain, carry or distribute fresh water do not leak.

5.2 We will use advocacy, education, or appropriate interventions (incentives or disincentives) to ensure that persons conserve water.

Water conservation and the minimisation of usage and wastage are the key tenants under which the Cook Islands will endeavour to improve its management of resources. In doing so there are many things that individuals can do to reduce their own water usage such as the limiting of shower time, fixing leaking taps, among many other small actions that add up to large savings and reductions in total water usage. In encouraging these and other good practices, advocacy and awareness campaigns (as detailed in the previous section) must be conducted targeting all persons to embed these behaviours as second nature with respect to the usage of water.

Commercial Usage

5.3 We will use advocacy, education, or appropriate interventions (incentives or disincentives) to ensure that businesses conserve water.

5.4 We will explore possibilities for the recycling of waste water for commercial/business purposes.

Like individuals, business and commerce have a crucial role to play in water conservation and there are many opportunities to save and better utilise water. Businesses can take measures similar to individuals to better use water resources and other opportunities exist, particularly with larger businesses, to better integrate usage of water by their customers (particular tourist accommodators) and also in some instances recycle water and mitigate and against water wastage and loss. Government and relevant agencies must work closely with the private sector in developing pragmatic and innovative solutions to improving water management and conservation by business (and government agencies) across the Cook Islands.

Agricultural Practice

5.5 We will encourage and educate farmers and growers to utilise techniques that will minimise water use whilst maintaining or increasing crop productivity.

5.6 We will explore and utilise the most appropriate water sources and storage methods for horticulture.

Agriculture is estimated to be the largest single sector user of water on Rarotonga with approximately 40% of water usage attributed to agricultural and horticultural practice¹². With the development infrastructure for reticulated treated water on Rarotonga and the impending implementation of user pays, as well as the impacts of climate change (greater variance in weather conditions) the agriculture industry, not only in Rarotonga but across the country, must improve the usage of water. With respect to horticulture, there are opportunities to reduce water consumption through the use of new and innovative crop management techniques.

Appropriate water sources should also be explored for the provision of water, particularly on Rarotonga where treated, reticulated water will be more costly and redundant where there may be better and appropriate sources available that may include tank storage from rainfall capture or groundwater. Research must be done in this area with farmers and government working hand in hand to find smarter and more appropriate solutions in the provision of water for the agricultural and horticultural activity throughout the country. Provisions for this should be part of the water infrastructure strategy.

Practices in Coastal & Lagoon Areas

5.7 We will ensure sustainable management of lagoon and coastal areas through Ra'ui and the promotion of sustainable practices in lagoon and foreshore areas.

Education and awareness around sustainable fishing practices, harvesting of other marine life, the safe operation of small vessels, and treatment of coral reefs are critical to ensuring that safe practices and sustainable usage become common knowledge and practice in the Cook Islands coastal waters.

6. Consistent and Transparent Application of Water Policy

In ensuring transparency in the management of water resources, it is imperative that processes and procedures around how water resources are managed are made readily available to the public and that there is high awareness around water management and water quality. The public availability of this information will improve accountability around the management of water.

¹² Dawe, P. Schozel, H. (2000) Hydraulic Network Modelling of the Rarotonga Water Supply System Cook Islands, SOPAC, Technical Report 296
Cook Islands National IWRM Policy - FINAL v1 0 250314_

Publishing of Water Testing Results

6.1 We will make publicly available all results of water quality testing will be made to ensure transparency and accountability.

6.2 We will make publicly available all information regarding processes and procedures in the management of water resources to ensure transparency and consistency in the application of this policy.

In ensuring consistency and accountability in the management of water resources and the application of this policy (and associated laws and regulations) there is a need to ensure that the regulation and enforcement of laws is conducted without bias or undue influence. With the Cook Islands being an extremely small island state, conflicts of interests are almost inevitable. Thus it is vital that there are systematic redundancies in the enforcement of regulations, having checks and balances in place to ensure that laws and regulations are applied consistency and fairly without undue influence.

Impartial and Equitable Enforcement of Regulations

6.3 We will, in the regulation and management of water resources, have appropriate **checks and balances** in place to ensure that impartial decisions are made in the interest of preserving of our water resources for the general public and future generations.

For there to be consistent and transparent application of water policy, there must also be clear delineation of the roles and responsibilities of all parties and agencies involved in the management of water resources ridge to reef, as well as those who regulate and manage the various uses of water. These roles and responsibilities are outlined in the final section of this document.

7. Resourcing and Capacity Building for IWRM

In improving the management of water resources, there must be investment into the structure and people that will be responsible for managing our water resources.

Capacity Building for IWRM

7.1 We will develop a programme for the capacity building for IWRM to improve the capacity of institutions and agencies involved in the management of IWRM.

The management of water resources and the other components that contribute to water resources does not lend itself directly to cost recovery i.e. there is no revenue that can be directly derived

Cook Islands National IWRM Policy - FINAL v1 0 250314_ 20

from IWRM, however as shown by the 2004 Economic valuation of water pollution on Rarotonga (Hajkowicz & Okotai) there is a real economic cost if there are not measures to have sustainable IWRM practices. Thus it is crucial that government understand the cost of integrated water resource management and ensure that it makes efforts to meet the costs of managing and protecting its water resources. In utilising these resources it is important that we protect them and in doing so employ best practice. In the short to medium term, there may exist opportunities to improve resource management with regards to water testing.

Costing of IWRM

7.2 We will assess appropriate costing of IWRM based activities regularly to ensure that adequate funding and associated arrangements are in place to ensure the sustainability of IWRM efforts.

Though 'Water Infrastructure' is covered under a separate policy, it is important to consider its resourcing also, as adequate resourcing and upkeep of water supply and infrastructure are indelibly linked to the good IWRM practices.

Sustainable Financing of Water Supply

7.3 In designing future water supply infrastructure and services – full consideration of ongoing operating and maintenance costs must be planned and budgeted for to ensure sustainable ongoing financing of water supply.

Improved Testing Facilities

7.4 We will optimise the management of national water testing resources to improve the utilisation of limited resources whilst ensure the highest standard of testing and scrutiny.

In a small country with limited financial resources it is important that we manage human, capital and financial resources in the most effective and efficient way possible. The water testing and monitoring regime should be reviewed to assess what may be the best way to optimise the organisation and management of water testing facilities and resources in the future.

Role & Responsibilities

The National Sustainable Development Committee

The National Sustainable Development committee is the body responsible for overseeing the implementation of the National Sustainable Development Plan (NSDP). With IWRM be a critical

Cook Islands National IWRM Policy - FINAL v1 0 250314_

component of the NSDP, the NSDC will be the body responsible for oversight of the implementation of the IWRM Policy and resultant actions and initiatives.

National Environment Service (NES)

NES are responsible for the regulation of water quality of streams, rivers and lagoon areas as well as land use practice that affects the water quality in these bodies. Thus any prosecution or legal enforcement around incorrect or unsustainable practice in relation to water resources is the responsibility of the NES. NES also play a significant role in advocacy and awareness around sustainable practices in relation to water resource management.

Ministry of Infrastructure Cook Islands (ICI)

ICI are primarily responsible for the development and planning of water infrastructure in Cook Islands. They are also responsible for the management of centrally reticulated water systems in the Cook Islands and ongoing repairs and maintenance.

Ministry of Health - Department of Public Health

The Department of Public Health are responsible for the monitoring and regulation of drinking water throughout the country as well as awareness around health safety with respect to practices in treatment for safe drinking water. They have also worked closely with the WHO and ICI in developing 'Water Safety Plans' to ensure the safety of water for consumption across the Cook Islands for the future.

Ministry of Marine Resources (MMR)

MMR are responsible for water testing of lagoon and coastal areas and work closely with NES and Island Administrations as well as other groups in the development and active management of these areas. MMR's scientific research is critical to understanding the past, current and future state of lagoons and assisting in optimising management techniques in the face of impacts from development and climate change.

Maritime Cook Islands

The Maritime Office works in conjunction with MMR and is responsible for the enforcement of Maritime law and compliance to ensure all vessels comply and operate within national and international laws and conventions, protecting coastal zones and the ocean.

Ministry of Finance and Economic Management – Development Coordination Division

DCD (formerly known as Aid management Division or AMD) is responsible for the coordination of donor funds used in the development of water infrastructure. To this end DCD work closely with ICI in the development of infrastructure funded by donor partners as well as with other stakeholders such as Public Health and Island Administrations.

Office of the Prime Minister - Climate Change Unit

The Climate change division through the SRIC programme are involved in the development of Climate change adaptation programmes, which includes the building the resilience of fresh water resources (against the impacts of climate change) across the country. The Climate Change Unit works closely with ICI, islands administration and other stakeholders in developing sustainable solutions for freshwater resource management.

Island Administrations

Island administrations are responsible for the provision of government functions on their respective islands which includes management of water resources. They work closely with the aforementioned agencies to ensure consistency in the standards and practices around water management in the Cook Islands.

Ministry of Agriculture

The ministry of Agriculture is responsible for the encouraging and advocating the use of water conserving methods in agriculture and horticultural practice. They will work alongside with farmers and growers to develop solutions to that will promote productivity in the agricultural sector whilst being in harmony with IWRM policies.

Cook Islands Tourism

The Cook Islands Tourism Corporation is actually a government entity responsible for the promotion of the Cook Islands as a destination and promoting standards within the national tourism industry. In implementing IWRM principles, Cook Islands Tourism will work with the industry to promote water conservation measures with service providers, accommodators and tourists themselves.

Private Sector

Economic activity and development is one of the primary influences on the sustainable integrated water resource management, thus the Cook Islands' business community have to take responsible for ensuring their own practices are consistent with IWRM Policies.

Individuals and the Public

Integrated Water Resource Management is everyone's responsibility. All Cook Islander's must take responsibility for their own activities and ensure that their actions are consistent with the IWRM policy. The successful implementation of the IWRM policy is dependent on these policies and principles being embedded in the behaviours and actions of all who reside in the Cook Islands.

Summary of IWRM Policies

Policy Objectives	Policy
1. <i>Reliable Potable Water and Standards for Water Quality and Resource Management.</i>	<p>1.1 We will ensure persons in the Cook Islands shall have access to safe and potable drinking water.</p> <p>1.2 We will have reliable access to safe water for bathing, cooking and cleaning for all persons in the Cook Islands.</p> <p>1.3 We will have reliable access to safe water ‘fit for purpose’ for Business and Commerce to use in a manner consistent with efforts to conserve fresh water resources and minimise any waste water to ensure the economic viability and environmental sustainability of the country.</p> <p>1.4 We will have adequate, appropriate and reliable water for horticultural and agricultural production.</p> <p>1.5 We will have Water catchment and intakes free of toxins and chemical contaminants so that water meets appropriate standards.</p> <p>1.6 We will develop appropriate water quality standards for streams, rivers and creeks such that effluent and wastewater does not adversely and permanently affect the natural environment and native species of the Cook Islands.</p> <p>1.7 We will ensure Ground water is free of chemical and artificial contaminants and free of harmful toxins that may affect organic life.</p> <p>1.8 We will develop appropriate standards for lagoon water quality to ensure the preservation and proliferation of natural lagoon marine ecology.</p>
2. <i>Optimise and standardise the regular testing of water quality.</i>	<p>2.1 We will develop standardised procedures for testing of fresh water, drinking water and lagoon water to ensure consistency, dependability and improve the utility of water testing.</p> <p>2.2 We will develop national safety standards for drinking water, residential water, commercial water and water for agriculture.</p>
3. <i>Sustainable management of both inland and coastal water resources.</i>	<p>3.1 We will ensure that policies concerning natural resource management, that covers anything from the ‘ridge to reef’, will be coordinated to ensure a holistic and comprehensive approach to IWRM is undertaken.</p> <p>3.2 We will manage Ground water resources so as to not adversely affect the surrounding ecology or the overall composition and ongoing sustainability of the water table.</p> <p>3.3 We will ensure naturally occurring rivers, streams, creeks or any water ways, temporal or</p>

	<p>permanent should neither be disturbed or diverted.</p> <p>3.4 We will ensure that any man-made diversions of or artificial water ways will not adversely affect the surrounding natural environment or the overall balance of any part of the eco-system.</p> <p>3.5 We will manage wetlands and estuaries such that they will not be disturbed or filled in. In addition to this, any development or activities surrounding wetland areas will not disturb the natural flow of the water cycle.</p> <p>3.6 We will manage all activities in lagoon areas or coastal zones such that they will not adversely harm the marine ecology.</p> <p>3.7 We will ensure maritime activities take all precautions to not pollute or harm the coastal area in which it is commuting through or where it is docked.</p>
4. A community that is engaged and active in the sustainable management of the Cook Islands water resources.	<p>4.1 We will conduct education, awareness and advocacy campaigns to ensure that all persons in the Cook Islands are versed in protection water resources.</p> <p>4.2 We will mainstream community water management plans into island and village, community and school level planning and activities.</p>
5. Equitable systems for controlling demand and appropriate usage, conserving water and minimising waste.	<p>5.1 We will minimise water wastage and ensure all vessels that contain, carry or distribute fresh water do not leak.</p> <p>5.2 We will use advocacy, education, or appropriate interventions (incentives or disincentives) to ensure that persons conserve water.</p> <p>5.3 We will explore possibilities for the recycling of waste water for commercial/ business purposes.</p> <p>5.4 We will encourage and educate farmers and growers to utilise techniques that will minimise water use whilst maintaining or increasing crop productivity.</p> <p>5.5 We will explore and utilise the most appropriate water sources and storage methods for horticulture.</p> <p>5.6 We will ensure sustainable management of lagoon and coastal areas through Ra'ui and the promotion of sustainable practices in lagoon and foreshore areas.</p>

<p>6. Consistent and transparent application of water policy, plans and laws.</p>	<p>6.1 We will make publicly available all results of water quality testing to ensure transparency and accountability.</p> <p>6.2 We will make publicly available all information regarding processes and procedures in the management of water resources, to ensure transparency and consistency in the application of this policy.</p> <p>6.3 We will regulate and manage water resources having appropriate checks and balances in place to ensure that impartial decisions are made in the interest of preservation of our water resources for the general public and future generations.</p>
<p>7. Appropriate resources, capacity, skills training, and information available for managing water sources and infrastructure.</p>	<p>7.1 We will develop a programme for the capacity building for IWRM to improve the capacity of institutions and agencies involved in the management of IWRM.</p> <p>7.2 We will assess appropriate costing of IWRM based activities regularly to ensure that adequate funding and associated arrangements are in place to ensure the sustainability of IWRM efforts.</p> <p>7.3 In designing future water supply infrastructure and services – full consideration of ongoing operating and maintenance costs must be planned and budgeted for to ensure sustainable ongoing financing of water supply.</p> <p>7.4 We will optimise the management of national water testing resources to improve the utilisation of limited resources whilst ensure the highest standard of testing and scrutiny.</p>