



COOK ISLANDS

NATIONAL WATER POLICY

2016

Water is a universal resource that is provided to us from nature. It has no ownership. However it is valuable to all people as it is required for life. It is a basic need second only to air.

COOK ISLANDS NATIONAL WATER POLICY

Background

Policies have been drafted for drinking-water management and supply in previous years, however little concrete progress has been made. An Integrated Water Resource Management (IWRM) policy (2014) and the National Sanitation Policy (2012 & 2016)¹ have been endorsed by Cabinet, but an integrated multi-sectoral approach to the country's sustainable water needs and management is still needed.

The Cook Islands has embarked upon the largest single infrastructure project in the country's history – Te Mato Vai – which will deliver replace and substantially upgrade water supply infrastructure for Rarotonga, providing increased security and reliability of supply and the opportunity for improved drinking-water quality and safety.

Other projects are active or in the final stages of completion, in the areas of sanitation improvement, water resources management planning including underground water investigation, rainwater harvesting and ridge to reef water management.

At the same time as these projects and initiatives are being implemented, the Cook Islands is planning for future management of issues such as climate change, increasing visitor numbers, changes in agricultural practises and increasing development recognising all the possible linkages.

It is anticipated that a suite of policy documents (including strategies and plans) 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. This new fully integrated "water policy" updates aspects of the previous IWRM; creates effective new policies for water supply, incorporates drinking-water safety planning and brings all four aspects together in a single document. This National Water Policy also aims to ensure proper management of the water environment as a whole, and recognises the links between the various aspects of the water cycle and the factors that affect those areas and links.

Purpose

The purpose of this policy document is to establish objectives and articulate desired outcomes that will guide planning and implement actions across the Cook Islands to ensure that:

- All national water resources are protected from contamination sources and are managed in an integrated, equitable and sustainable way;
- All the population has access to safe drinking-water;

¹*Cook Islands National Integrated Water Resources Management Policy, March 2014; Cook Islands Sanitation Policy, 2012 & 2016.*

- All public health risks associated with unsafe drinking-water are identified and managed commensurate with local circumstances and in a timely manner

Scope

This policy document integrates aspects of the sanitation and Integrated Water Resources Management policies, bringing together government policies for water resources management, infrastructure, water supply, drinking-water safety planning and sanitation.

The policy sets a framework for the development of strategies and plans, which will appear in subsequent documents and procedures, some of which are signalled here, some of which will be developed later to be consistent with the strategies identified here.

Clear principles and objectives are vital for the development of the water sector in the Cook Islands. Planning, projects and operations and management in the water sector will use the objectives and direction set out here to ensure a sustainable long-term approach to water resources management, sanitation/wastewater and water supply services. Related forthcoming documents (including strategies and plans) will drive and enable the 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 and its population.

Who is the water policy for?

This policy provides the Government of the Cook Islands with a comprehensive and consistent framework for managing water resources in a coordinated manner across all agencies and organisations with a responsibility for managing, supplying or monitoring water. The objectives presented here are in the national interest.

This National Water Policy will benefit the entire population of the Cook Islands, by putting in place a system to achieve:

- sustainable and equitable access to safe water for domestic and customary uses;
- for the purposes of economic development;
- health protection and; and
- environmental protection

The intent is that, through the implementation of this policy, current and future generations will benefit from the protection and sustainable management of water resources.

Linkages with strategic planning:

Sustainable Development Goal 6: Ensure availability and sustainable management of water and sanitation for all.

- SDG 6.1 By 2030, achieve universal and equitable access to safe & affordable drinking water for all;
- SDG 6.2 By 2030, achieving access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

Healthy Islands Vision- Pacific Ministers of Health ideal vision: Ecological balance is a source of pride.

- proportion of population with access to improved water sources²

Cook Islands NSDP 2016-2020 Goal 4: Sustainable management of water and sanitation

Goal 4.1: Percentage of population with access to sufficient and safe water in their homes; and

Goal 4.2: Percentage of properties using sanitation systems that meet approved standards

Overarching Policy Principles

Precautionary Principle

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

Sustainability & Environmental preservation

Strive to protect and avoid adverse interference with the natural ecology of the Cook Islands' 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 generations to come.

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 all humans, and terrestrial and marine animals and plant life.

Water Conservation

To ensure that the principle of water conservation underlines all water based activities and uses, recognising the scarcity, fragility and value of our fresh water resources.

Equity and Affordability

All groups and persons in the Cook Islands should have equal and equitable access to water resources to improve their well-being. In delivering water to people and water for human use, the primary

² Note that this is a MDG indicator which the Cook Islands has achieved – we have now moved to the SDG indicators as above.

consideration will be ensuring all Cook Islanders have access to reliable and safe water that is affordable and fit for purpose.

Engagement & Participation

Communities and individuals will be encouraged and, where necessary, required to participate in ongoing improvements and maintenance of water and sanitation systems through implementation of best practices and compliance with relevant and appropriate standards with a view to protecting and improving public health and water quality.

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 knowledge of water resource management.

Mitigation of the impact of Infrastructure and Development on Ecological Flows

In designing and delivering future water supplies, 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.

Collaboration and Cooperation

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

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.

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 ratified and committed to.

Consistency with International Best-Practice

Water supplies, water and wastewater treatment and disposal systems shall be adapted to local realities and comply with best-practice global standards and guidelines that are sustainable and economically viable, and safeguard the environment and the health of communities in the Cook Islands.

Vision

To protect, enhance and improve the resilience, quality and sustainability of the Cook Islands water resources to ensure the health of the people and the environment.

To fulfil this overall vision we will pursue the following objectives:

Objective 1: Ensure **Safe and sustainable management of water supply.**

Objective 2: Ensure **water systems are resilient** and mitigate the impacts of Climate Change and disasters.

Objective 3: Ensure access to **reliable, safe drinking water** for all who reside in the Cook Islands

Objective 4: Establish **equitable and economically-sustainable systems** for managing demand, appropriate usage of water, conserving water and minimizing waste and leakages.

Objective 5: Ensure **sustainable management of both inland and coastal water** resources.

Objective 6: Actively **engage communities** in the sustainable management of water

Objective 7: Ensure **catchment and water sources are protected**

Objective 8: Optimize and standardize the regular **testing of water** quality.

Objective 9: **Consistently and transparently apply water policy**, plans and laws.

Objective 10: Ensure appropriate **resources, capacity, skills training, and information is available** for managing water resources and infrastructure.

Objective 1: Ensure Safe and sustainable management of the water supply.

1.1 Reticulated water systems will be developed when and where appropriate, and will be managed in both a financially and environmentally sustainable manner.

1.2 Tanks or other personal water systems will be maintained by the respective owners to ensure these systems are safe and reliable.

Objective 2: Ensure water systems are resilient and mitigate the impacts of climate change and disasters

2.1 Ensure as far as practicable that there is an adequate and secure supply of water in case of drought and disaster.

2.2 The design of water supply systems will be reflective of changes in climatic conditions and established engineering standards.

2.3 Ensure desalination as a short term option post disasters.

Objective 3: Ensure access to reliable, safe drinking water for all who reside in the Cook Islands, and establish standards for water quality and resource management.

One of the key measures of an integrated water resource management system is the quality of water. In developing appropriate policies for water the different uses and applications of water in the water cycle must be considered and this includes the following:

- Drinking water for human consumption
- Water for bathing, washing and domestic usage
- Water for commercial usage
- Water for agricultural, horticultural and livestock use.

Drinking Water for Human Consumption

3.1 Ensure all persons in the Cook Islands have access to reliable, safe drinking water.

Safe drinking water means water that is suitable for human consumption. We want the people of the Cook Islands to drink water that would be considered safe according to a set standard, which is why we aim to use the WHO Guidelines which will take into account the local realities for Drinking-Water Quality to inform our health targets, water treatment options and water safety management through Drinking-Water Safety Plans (DWSPs).

Using the WHO Guidelines as a reference point, standards for drinking-water will be established that will be specific to and appropriate for the Cook Islands situation. These standards will be regulated and enforceable, with penalties for non-compliance.

Evidence of recent testing of all water catchment areas on Rarotonga has highlighted the need for water to be disinfected.³

WHO evidence for chlorination is compelling, and this National Water Policy proposes a robust system of water standards, monitoring, and transparent reporting that will ensure disinfection is managed properly and sustainably for the benefit of all.

Beyond drinking water, it is important to establish clear objectives regarding appropriate water quality and provision for domestic, commercial and agricultural use of water in the Cook Islands. These usages impact not only tap water but the management of water resources upstream such that it is uncontaminated and suitable for human consumption.

3.2 Ensure access to safe water for bathing, cooking and cleaning for all persons in the Cook Islands.

3.3 Ensure access to safe water that is ‘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.

By ‘fit for purpose’, we mean water that is suitable for the intended use. Drinking water will need to meet the quality standard established for safe drinking water. Water required for commercial uses that is not going to be drunk may not need to meet that standard. Water can be reused and recycled for washing equipment and vehicles. Grey water can be reused in gardening and toilets.

³ Water testing was carried out in September 2016.

If agricultural growers have access to non-treated water, they will be able to use it without the water needing to meet the standard expected of drinking water, but they should be able to show that it is not being used for drinking water, and that they are not endangering the quality of the source.

3.4 Ensure adequate and affordable water for horticultural and agricultural production.

Some users may use water sources not identified in Drinking Water Safety Plans i.e. from bores or stream catchments. Horticulture and agriculture users will not threaten the quality or sustainability of water sources for other users. Users of water at each of these sites must ensure that water is protected from contamination. Information will be provided to users to comply with DWSPs and maintain applicable standards where possible.

It is also important to coordinate and balance planned commercial and agricultural use of water resources. When we set targets for commercial development (such as increasing visitor numbers) we should coordinate these targets with our supply and management of water resources.

3.5 Ensure water catchment and intakes free of toxins and chemical contaminants so that water meets the established national standards.

The drinking-water standards will specify the quality of source water that can be used. They may establish some basic limitations for activity around catchments. Specific limitation and governance of land-use development around catchments will need further work, involving all stakeholders.

3.6 Ensure appropriate water quality standards for streams, rivers and creeks such that effluent and wastewater do not adversely and permanently affect the natural environment and native species of the Cook Islands.

3.7 Ensure that ground water is free of chemical and artificial contaminants and free of harmful toxins that may affect organic life.

These goals will have implications on water infrastructure and the management of these facilities and the catchment areas. The Drinking-Water Quality Standards will identify our expectations for water quality and management to ensure appropriate use will be identified in drinking-water safety plans.

These policy goals also have 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.

3.8 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.

Objective 4 - Establish equitable systems for managing demand, appropriate usage of water, conserving water and minimising waste and leakages.

The primary tools for controlling demand on the Pa Enua will be water management plans, water conservation practices identified in DWSPs as necessary for water security, and accompanying education and awareness. The situation will be quite different on Rarotonga, where specific incentives

and expectations will be placed on a water provider to establish and implement effective drinking water-quality management strategies and procedures.

Expectations will also be placed on individual water users to play their part in *responsible water usage*. Any Charges will be for the delivery and maintenance of water. These charges also incentivise people to ensure they have no leaks or drips in their own piping and to encourage conservation of water.

Consideration to ensure domestic, agriculture- horticulture and commercial free allocations are in place at the minimum requirements. Additional water usage will carry consideration for water charges at affordable rates.

The government could contribute some portion of revenue to the water authority to cover the costs of the free allocation. The exact mechanism will require development with the formation of a water authority.

Domestic Usage

4.1 Domestic water users will minimise water wastage and ensure as far as practicable all vessels that contain, carry or distribute fresh water do not leak.

4.2 Government agencies will be responsible for 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 tenets 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 and 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

4.3 Commercial water users will minimise water wastage and ensure as far as practicable all vessels that contain, carry or distribute fresh water do not leak.

4.4 Explore possibilities for the recycling of grey 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. 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 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

4.5 Encourage and educate farmers and growers to utilise techniques that will minimise water use whilst maintaining or increasing crop productivity.

4.6 Explore and utilise the most appropriate water sources and storage methods for agriculture and horticulture.

Agriculture is estimated to be the largest single sector for usage of water on Rarotonga with approximately 40% of water usage attributed to agricultural and horticultural practice. 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, 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

4.7 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, 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.

Objective 5: Ensure sustainable management of both island and coastal water resources.

Fundamentally, the success of any attempt to sustainably manage resources is the level of participation and public awareness of the community and stakeholders as a whole. What is required is their input at various decision-making levels, which will ensure that the management of the water resource is effective and efficient.

Management of Groundwater

5.1 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

5.2 Manage naturally occurring rivers, streams, creeks or any water ways, temporal or permanent such that they will neither be disturbed nor diverted in a way that has an adverse impact.

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, MMR, MoH - Public Health and other relevant agencies involved in the management of these areas must coordinate development and implementation plans and actions to effectively address issues in this area.

Where approval is given for waterway diversions or alterations, potential for adverse impact must be mitigated to ensure appropriate preservation of the waterway and associated flora and fauna. Examples of alterations that may be approved include water catchment intakes, and flood or erosion prevention works.

Management of Man-made Waterways

5.3 Ensure any man-made diversions of water or artificial water ways shall not adversely affect the surrounding natural environment or the overall balance of any part of the ecosystem.

In the development, management and maintenance of artificial waterways (drains, culverts, canals, etc.) it is important that they are effectively maintained and managed. Appropriate authority from NES must be obtained in order for actions to be coordinated and any risks to public health or water quality can be mitigated.

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 wastewater and liquid waste into drainage

Management of Wetlands & Estuaries

5.4 Ensure the conservation management and wise use of wetlands, as a contribution towards achieving national sustainable development.

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. Currently, any activity in a wetland or estuary, including the filling of those areas requires a permit from the island environment authority and is assessed on a case by case basis.

Lagoon and Coastal Management

5.5 Manage all activities in lagoon areas or coastal zones such that they will not adversely harm the marine ecology.

5.6 Ensure maritime activities take all precautions to not pollute or harm the coastal area while commuting through or docked.

The management of lagoon, coastal and foreshore areas is vital in sustaining the livelihoods of Cook Islanders, and affects industries from 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.

Objective 6: Actively engage communities in the sustainable management of water resources.

As stated earlier, this national water policy introduces a framework for managing and supplying water that relies on different ways of thinking about water than most Cook Islanders have traditionally thought. We need to change conceptions of what is 'safe' drinking water. We need to educate people about water sustainability and how much work is required to ensure water is available for all. We also need to understand that water is not infinite – our plans for development and growth require us to consider how much water we have and how much we may need. Thinking differently requires public

education and awareness, and we need to plan how to do this to ensure clarity, consistency and a shared understanding.

Public Responsibility and Awareness

6.1 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.

Such awareness goes hand-in-hand with a shift to water metering and user-pays principles for a safe, reticulated water supply. People grow to understand that water conservation and personal water-budget management go together.

Education and awareness will be jointly planned and provided through the Ministry of Health, TMV, ICI and the Water authority responsible for water supply when it is established. Non-government organisations may also be involved. Te Mato Vai has already begun a communications strategy that is linked in with key stakeholders. Further awareness should link in and build off this strategy.

Community Water Management Planning

6.2 Implement community water management plans to be mainstreamed into island, 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 water resource management at the community level.

The Pa Enea, have island-level planning that coordinates activities on the islands. Island administrations will have a key role to play in leading community water management, and Cook Islands government agencies will work closely with them. Activities such as regular 'lagoon days' or cleaning of beaches or inland water ways by communities or schools could greatly augment efforts around improving water resource management across the country. Such practices and plans can easily be coordinated with DWSPs (water security will be a key risk management consideration on the Pa Enea), with information provided to the right people at the level most suitable for responsible water management.

Objective 7 – Ensure catchment and water sources are protected

7.1 Water catchment areas will be protected and compliant with relevant policies, legislation and Regulations in the Cook Islands.

7.2 Waste from domestic and commercial animal farming shall comply with all relevant policies, legislation and Regulations in the Cook Islands.

Objective 8: Optimise and standardise the regular testing of water quality.

In ensuring that water quality analysis reaches the standards expected, government agencies involved with water quality testing will cooperate to ensure testing and measurement facilities, systems, protocols and persons are consistent and efficiently coordinated.

Standardised Procedures and Tests

8.1 Develop standardised procedures for testing of fresh water, drinking water and lagoon water to ensure consistency, objectivity, dependability and improve the utility of water testing.

Clear and consistent water quality testing must be developed by 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.

The agencies responsible for testing (Ministry of Health, Infrastructure Cook Islands, Ministry of Marine Resources and National Environment Services) will prepare a Memorandum of Understanding detailing:

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

This Memorandum of Understanding (“MoU”) will support Developed Water Safety Plans, and be coordinated with the Drinking-Water Quality Standards to be developed. All standards will be identified commensurate with risk and capacity. Other information needs will also be taken into account. The MoU will likely need to be revised upon development and implementation of the drinking-water standards in regulation, however establishing agreed processes early in the process will ensure a smooth transition to the new regime.

In order to deliver on the recommendations of the WHO supported laboratory capacity review carried out in January 2014, agencies involved will centralise water testing lab services and provide a central point of contact and storage for water quality information.

Results of water quality testing should be publicly reported to ensure trust in the operation of the system. Reporting on water quality is considered further under Objective 9.

Objective 9 - Consistently and transparently apply water policy, plans and laws.

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.

Publishing of Water Testing Results

9.1 Publicly report the results of water quality testing to ensure transparency and accountability.

Public Accountability

9.2 Publicly report information regarding processes and procedures in the management of water resources to ensure transparency and consistency in the application of this policy.

Impartial and Equitable Enforcement of Regulations

9.3 Ensure that 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 our water resources for the general public and future generations.

Preserving water resources for future generations requires nearly equal recognition of economic, social and environmental safeguards. 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.

Objective 10 - Ensure appropriate resources, capacity, skills training and information is available for managing water sources and infrastructure.

In improving the management of water resources, there must be investment into the structure and people who will be responsible for managing our water resources. On Rarotonga this will largely be the responsibility of the Water authority water provider, with government playing a monitoring and supporting role. On the Pa Enua, the government will play a more direct role in providing resources through agencies, and working with people, Island Councils and other organisations as appropriate to ensure the objectives of the National Water Policy are fulfilled.

Capacity Building

10.1 Commit to improving and maintaining the capacity of institutions and agencies involved in the management of water resources and fulfilling the objectives of this policy.

It is important that the 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 – at a level commensurate with the risks and benefits associated with public health and water-dependent development.

In utilising these resources, it is important that we protect them and in doing so employ best practice. This involves ensuring expertise and relevant skills are retained in the Cook Islands. Succession planning and the development of staff are important, and the experience gained by talented individuals should be rewarded and shared. Good staff should not have to leave the Cook Islands to progress their careers.

Costing of activities associated with water resource management.

10.2 Determine where the costs of activities associated with the National Water Policy sit, and coordinate cost management to ensure that adequate funding and associated arrangements are in place to ensure sustainability.

Adequate resourcing and upkeep of water supply and infrastructure are indelibly linked to good water resource management practices. There will be a cost burden to different organisations and communities in delivering on the objectives of this National Water Policy.

On Rarotonga, paying for and maintaining water assets associated with water supply and distribution will be the responsibility of the Water authority Water Provider to manage.

Sustainable Financing of Water Supply

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

10.4 Continual Improvement of Laboratory Testing Facilities

10.5 Optimise the management of national water testing resources to improve the utilisation of limited resources whilst ensuring the highest standard of testing and scrutiny.

In a 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 periodically to assess what may be the best way to optimise the organisation and management of water testing facilities and resources in the future.

APPENDIX 1: Previous and existing work

Cook Islands Government has undertaken, and is planning, significant work and has implemented important initiatives in developing and managing water resources, including:

- Rarotonga Te Mato Vai project;
- National Integrated Water Resources Management (IWRM) Policy and Project;
- Cook Islands Sanitation Policy; and
- Water Safety Plans for drinking-water, nationwide

Greater detail about each project is outlined below.

Te Mato Vai project on Rarotonga

Te Mato Vai aims at delivering adequate access to drinking-water to the boundary of all residential and commercial properties connected to the current network on Rarotonga. The project is part of the Cook Islands Water Partnership with the People's Republic of China and New Zealand. It is the largest

infrastructure initiative ever undertaken by the Cook Islands which started in August 2012 when it was official announced by the Government at the Pacific Islands Forum hosted in Rarotonga.

The current water supply on Rarotonga does not meet modern quality standards, and the network has little storage capacity. Much of the pipe work was laid down in the 1960s and requires replacement. This has meant that in times of dry weather, supply to some parts of the island is unreliable.

Te Mato Vai is delivering a new, high standard water supply network, with improved storage capacity, new ring mains, filtration at the intakes, front mains and disinfection facilities. Currently Te Mato Vai has advised that it will be able to maintain a certain pressure for houses 30m above sea level and below.

An Authority will be legally established to manage this asset.

Integrated Water Resources Management (IWRM) Project and Policy.

The Cook Islands Government has been implementing an initiative to develop the concept of IWRM to “improve groundwater, freshwater and lagoon water quality using an IWRM framework and to gain information on the availability of groundwater for drought relief”, with the focus on Rarotonga. This initiative has been worked on since 2009, in cooperation with the Global Environment Facility (GEF) and the Pacific Islands Applied Geoscience Commission (SPC). This Pacific IWRM Project is entitled “Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries” and is being coordinated by SOPAC in 14 Pacific Island countries.

The project consists of three key activities:

1. Technical assessment of water quality and quantity assessments;
2. Communication to promote community knowledge and behavioural change;
3. Institutional strengthening and human resource skills development measures.

Under IWRM, a number of activities have been completed to achieve these goals, such as the installation and monitoring of trial onsite sanitation systems, expanded and upgraded monitoring of the lagoon and groundwater, and the GIS mapping of pollution sources. The Cook Islands government developed an IWRM Policy as a deliverable under the Project in 2013/14, which is endorsed by, and has been integrated within, this policy document together with other water management policies, such as public health targets and water supply expectations, in order to deliver a single, consistent and coordinated, National Water Policy.

Cook Islands Sanitation Policy 2012 & 2016

Infrastructure Cook Islands’ Water, Waste and Sanitation Unit (WATSAN) has implemented a National Sanitation policy, as part of the Waste Management and Sanitation Improvement (WMI) Programme, that provides a high-level framework and set of guiding principles for the sanitation sector in the Cook Islands. This Policy has been integrated within the National Water policy in the interests of clarity and simplicity.

Under the WMI Programme, WATSAN also developed a strategy for upgrading sanitation infrastructure by undertaking an assessment of potential options for the upgrade of sanitation systems on Rarotonga and Aitutaki. The outcome of the assessment on both islands is that a combination of onsite treatment systems and public reticulated systems is recommended to achieve sustainable public health and environmental outcomes whilst recognising local constraints. Once, a decision of the recommended options are confirmed by Government, WATSAN will then proceed to plan and develop concept design and proposals for reticulation. It is envisaged that WATSAN will progress this work under the Sanitation Upgrade Programme (SUP).

The statements and principles contained within the Sanitation Policy are consistent with the aims of the National Water Policy, and a number of the planned activities cross water resources management and water supply.

Drinking-Water Safety Plans

Drinking-Water Safety Plans (DWSPs) are a cost-effective, management-oriented, preventative approach to drinking-water safety. The initiative to start planning for water safety began with rainwater harvesting training held in the Cook Islands in November 2013 with support from WHO, and it was followed by a laboratory capacity review in January 2014. Draft Drinking-Water Safety Plans have since been prepared for Rarotonga and Aitutaki. The Government intends to continue implementing the DWSP approach, and this National Water Policy takes these actions into account and plans to expand their use.

The planned activities of the DWSP mainstreaming work focus on ensuring safe drinking-water supplies, building technical capacity (e.g. for water safety monitoring) and extending services the Pa Enea.

Background: Water projects in the Cook Islands.

Water security needs assessment for the Cook Islands

Drinking water safety planning was first introduced to the Cook Islands in 2006, as one of four pilot countries of the Programme for Water Safety Plans in Pacific Islands Countries project supported by AusAid. The programme was crafted in 2005 as an output of the Pacific Framework for Action on Drinking Water Quality and Health.⁴

The programme is now into its third phase, under the title of WHO/AusAid Water Safety Plan Mainstreaming Project. The focus of this phase is on ensuring safe drinking water supplies, building technical capacity and extending services to rural communities and outer islands

⁴ Water security needs assessment for the Cook Islands prepared by David Scott and reviewed by Jon Gregor (sponsored by SPC).

The Strengthening Water Security of Vulnerable Island States project⁵ is a five-year, NZD \$5 million project funded by the New Zealand Ministry of Foreign Affairs and Trade. The project is being implemented by the Pacific Community (SPC) across the Pacific Island Countries of the Cook Islands, Kiribati, Republic of the Marshall Islands (RMI), Tokelau and Tuvalu. The project is implementing a suite of practical measures to strengthen drinking water security in each of the five participating countries, with the aim of engaging and supporting government, local authorities and vulnerable island communities to build the skills, systems and basic infrastructure to better anticipate, respond to, and withstand drought and other events that threaten water security

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) is lead in coordinating the activities of all government agencies in compiling the NESAF. The objectives and action set in the National Water Policy are consistent with the strategic environmental goals set by the 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: ‘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 2007 and to make training of water quality related personnel a national priority.

Goal 2 in the Waste Management and Pollution Prevention section states:

“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.

Cook Islands National Sustainable Development Plan (Te Kaveinga Nui 2020)

⁵ The Strengthening Water Security of Vulnerable Island States project- Cook Islands implementation plan administered by SRCC under OPM Cook Islands.

The Cook Islands National Sustainable Development Plan is the journey towards achieving sustainable development in the Cook Islands. It is a visionary framework that articulates where the Cook Islands will be in terms of development and sustainability by 2020, and is supported by the National Sustainable Development Plans, which are issued in five year terms.

Our National vision is:

“To enjoy the highest quality of life consistent with the aspirations of our people in harmony with our culture and environment.”

The objectives and actions set in the National Water Policy have taken the National Vision into account, and are wholly consistent with achieving the national outcomes by 2020.

APPENDIX 2: Challenges and Considerations to be taken into account

Geographic and demographic diversity

The population of the Cook Islands is spread across 12 separate and diverse inhabited 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.

Being an 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 Enuā”. In developing plans and policies to improve the integrated water resource management, the Cook Islands must improve their ability to manage water resources, taking into consideration the restriction of scale and the vulnerabilities of vast geographic isolation.

Changing behaviours

Achieving the aims of the National Water Policy will require a concerted effort to educate people to change their behaviours, in particular:

- Avoiding the potential health risks of water, especially for drinking purposes
- Accepting and undertaking water storage and treatment
- Ensuring sustainable water conservation.

Traditional Land rights and Water Catchment areas

Issues pertaining to water rights, land issues and allocation are intrinsically related to customary land rights and ownership of water resources. Essentially water resources are not explicitly owned by any one person, or the State – although the Government is guaranteed access to water resources through the Rarotonga Waterworks Ordinance, 1960. This legislation requires updating to reflect current considerations and the intended functions of the Water Authority provider. Informed public input is

necessary at various decision making levels, to ensure that water and land rights fall in line with the management of the water resources in an effective and efficient way.

Proactive communication enables education and interaction with an open and engaged public. Drinking-water messages following on from this National Water Policy need to link in and build off this approach. Messages and resources must be shared with other stakeholders to promote healthy drinking-water, water conservation, and good decision making for the benefit of everyone.

Different groups of people will bring different opinions and perspectives to their understanding of water supply issues, and all should be reached out to and engaged with. Young people and older people are likely to have different attitudes to the supply of water, based on different experiences and memories. Similarly, different water users (people using water for domestic uses, or people using water for commercial purposes, for example), will have separate needs in mind. Women are the main users (or decision makers over use) of water resources in the home, and it is paramount that gender equity is guaranteed in water governance and management decision making processes to ensure their effectiveness.

Developing and implementing measures to increase awareness amongst the general population, users and this a critical factor in educating people as to the scarce nature of water as a resource. Traditional governance and advice bodies, in particular the House of Ariki and Koutu Nui, have an important role to play in discussions on water use, access and conservation. Their agreement on key measures should be sought. Their influence can also be key to acceptance of key measures to inform the public of water issues.

Affordable supply and management of water

Management of reticulated systems

Management of individual tank systems

Financial sustainability and user pays

Land Management and Environmental Conservation

The effective management of water resources is fundamentally linked to the management of land, as it is to many wider economic, social, cultural, environmental and ecological considerations. Thus in practicing water resource management we must endeavour to ensure that any land management policy reflects the objectives of the National Water Policy and assists the greater environmental management framework in setting goals that give effect to improving the management of ecosystems as a whole. This also includes land tenure issues that obstruct the government's ability to manage terrestrial resources

To ensure water used for drinking-water is safe and of a suitable quality, development above catchments needs to be controlled to ensure it is not contaminated by run-off. Managing land in this way will require consultation.

Management and Collection of Data

Climate Change

The impacts of climate change on rainfall, cyclones and the greater ecology of the country has been factored in to the management of water resources. In recent years, some of the Cook Islands have experienced serious drought conditions that have tested existing water resources and supplies. The most recent climate change projections suggest these situations will become more frequent and intense. 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

Establishing a Water Authority to manage the Water Supply in Rarotonga

Consistent with the goals of the Te Mato Vai project, the Government has endorsed the principle that a State-Owned Enterprise (Water Authority) will be formed to take responsibility for the management of the water supply assets on Rarotonga, once Te Mato Vai has completed its works [CM(12)0318 refers]. The Government has also agreed that the Water Authority Water Provider will institute an equitable system of charging for water supplied to households and businesses on Rarotonga, in order to ensure the economic and high quality sustainability of the supply.

Cabinet noted on acceptance of this proposal that options will be developed to ensure “future pricing tariffs do not burden the vulnerable and will include:

- An appropriate household allocation of free water
- Assistance with water efficiency measures in households and businesses; and
- Provision of water tanks to harvest water.⁶

As of November 2015 Te Mato Vai acquired a technical assistant to look into the establishment of the Water Authority. In December 2015 cabinet approved the establishment of the Water Authority.

The Ministry of Finance and Economic Management (MFEM) has already undertaken this last point with the Water Tank Subsidy Programme. Potential issues for moving to a user-pays system of charging for water to be supplied on Rarotonga.

Appendix 3: Roles & 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 water resources a critical component of sustainable development – of importance socially, culturally and economically, the NSDC will be the body responsible for oversight of the sustainable planning and resulting actions and initiatives relating to water resources.

Ui Ariki and Koutu Nui

Developing and implementing measures to increase awareness amongst the general population, users and this a critical factor in educating people as to the scarce nature of water as a resource. Traditional governance and advice bodies, in particular the House of Ariki and Koutu Nui, have an important role

⁶CM(12)0318

to play in discussions on water use, access and conservation. Their agreement on key measures should be sought. Their influence can also be key to acceptance of key measures to inform the public of water issues.

Individuals and the Public

Sustainable management of water resources is everyone's responsibility. All Cook Islanders must pay attention to public messages on water and take responsibility for their own activities.

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.

Infrastructure Cook Islands (ICI)

ICI are primarily responsible for the development and planning of water infrastructure in the Cook Islands. They are also currently responsible for the management of centrally reticulated water systems in the Cook Islands and ongoing repairs and maintenance. In this position ICI can support the Ministry of Health in monitoring and reporting on water quality.

Te Mato Vai (TMV)

TMV is responsible for supporting the Cook Islands Government's policy objective of "Delivering safe drinking water reliably to all properties connected to the existing water supply network", thereby contributing to improved living conditions on Rarotonga.

Ministry of Health - Community Health Services

Community Health Services 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 also work closely with the WHO and ICI in developing 'Drinking-Water Safety Plans' to ensure the safety of water for consumption across the Cook Islands for the future.

The Ministry of Health shall maintain a record of drinking-water test results, and report them transparently.

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. This role will be better coordinated with the Ministry of Health's monitoring and reporting on drinking-water quality under a proposed Memorandum of Understanding for water testing services.

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.

They will have a key role in coordinating water management plans, and community input and engagement with Drinking-Water Safety Plans

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.

Appendix 4: Information for safe drinking water

For Rarotonga, the WHO has specifically recommended chlorination, possibly supported with UV irradiation, as the most suitable disinfecting treatment method, taking into account local circumstances and public health objectives. The definition of Safe drinking water should be elaborated in the National Drinking Water Standards.

Evidence of recent testing of all water catchment areas on Rarotonga has highlighted the need for water to be disinfected.

Past issues with chlorination failure still live in Cook Islands' memory, and may be one influence on local wariness of it as a treatment option. However, the WHO evidence for chlorination is compelling, and this National Water Policy proposes a robust system of water standards, monitoring, and transparent reporting that will ensure disinfection is managed properly and sustainably for the benefit of all.

UV alone is not seen as sufficient protection for a full reticulated water supply in Rarotonga because if there is no residual disinfectant to prevent recontamination in the distribution network, recontamination can occur. Recontamination in piped distribution networks is surprisingly common, and can happen for a variety of reasons, including leaks and backflow issues that proper maintenance alone may not prevent.

Power outages, even very short ones bridged with backup supplies, can interrupt UV treatment and result in infected water entering the distribution system. Chlorination prevents such an occurrence leading to further contamination.

Cost and sustainability considerations also led to the WHO recommending chlorination. Staff training requirements and maintenance needs are higher for UV than for chlorination. There are also higher up keeping costs for UV.

The decisive risk management decision that ensures the best possible level of confidence in the integrity of a drinking-water distribution network is this: Even with top-rate primary disinfection through UV, there is also a need for residual disinfection for protection against microbial recontamination in the distribution system in the Cook Islands. There must be research done on the long term impacts of this possible disinfection so that we can make an informed decision about whether the potential benefits of chlorinated water outweigh any negative impacts.

Microbial aspects

The greatest microbial risks are associated with ingestion of water that is contaminated with faeces from humans or animals (including birds) that can contain bacteria or viruses. Securing the microbial safety of drinking-water supplies is based on the use of multiple barriers, from catchment to consumer, to prevent the contamination of drinking water. Safety is increased if multiple barriers are in place, including protection of water resources, proper selection and operation of a series of treatment steps and management of distribution systems to maintain and protect treated water quality.

Disinfection⁷

The WHO identifies disinfection treatment as being of unquestionable importance in the supply of safe drinking water. Disinfection is an effective barrier to many pathogens (especially bacteria) during drinking-water treatment and should be used for surface waters and for groundwater subject to faecal contamination. There are multiple disinfecting treatment options to consider, the best choice of which for any given circumstance will depend on:

- Availability
- Cost of disinfectant
- Logistics (especially transport costs) and cost/availability of equipment
- Quality of water pre-treatment

Chemical aspects

The health concerns associated with chemical constituents of drinking-water differ from those associated with microbial contamination and arise primarily from the ability of chemical constituents to cause adverse health effects after prolonged periods of exposure. We are currently not aware of any such chemical constituents in Cook Islands drinking water. There are very few chemical constituents of water that can lead to health problems resulting from a single exposure, except through massive accidental contamination of a drinking-water supply – an eventuality that will be managed through contingency planning in Drinking-Water Safety Plans. Such chemical contamination could be caused by unmonitored use of pesticides, fuel spills, or pollution from chemical cleaning agents, to name a few.

Radiological aspects

The health risks associated with the presence of naturally occurring radionuclides in drinking water should also be taken into consideration, although the contribution of drinking water to total exposure to radionuclides is very small under normal circumstances.

Acceptability aspects (taste, odour, appearance)

Water should be free of tastes and odours that would be objectionable to the majority of consumers. In assessing the quality of drinking water, consumers rely principally upon their senses. Microbial, chemical and physical constituents of water may affect the appearance, odour or taste of the water and the consumer will evaluate the quality and acceptability of the water on the basis of these criteria. Although these constituents may have no direct health effects, water that is highly turbid, highly coloured or has an objectionable taste or odour may be regarded by consumers as unsafe and rejected.

- In extreme cases, consumers may avoid aesthetically unacceptable but otherwise safe drinking water in favour of more pleasant but potentially unsafe sources. It is therefore wise to be aware of consumer perceptions and to take into account both health related guideline

⁷ Refer to Appendix 3 for chlorination as an option for disinfection.

values and aesthetic criteria when assessing drinking-water supplies and developing standards.

Appendix 5: Relevant Legislation & Policy

- Rarotonga Waterworks Ordinance 1960 (water issues only) (amended in December 2015)
- Cook Islands Act 1915 (management of water resources and land use issues)
- Prevention of Marine Pollution Act 1998 (dumping of waste in Cook Islands waters)
- Public Health Act 2004
- National Environment Act 2003
- Marine Resources Act 2005

Policies:

- Cook Islands Sanitation Policy 2016
- National Integrated Water Resources Management (IWRM) Policy 2014
- National Environment Strategic Action Framework (NESAF)
- The Joint National Action Plan (JNAP) for Disaster Risk Management and Climate Change Adaptation 2011-2015
- National Disaster Risk Management Plan (NDRM)

APPENDIX 6: Monitoring and Evaluation

Objectives	Policy Statements	Indicator	Sources
Objective 1: Ensure Safe and sustainable management of water supply.	1.1 Reticulated water systems will be developed when and where appropriate and will be managed in both a financially and environmentally sustainable manner.	% of household income spent on water usage	Water Authority Statistics
		Periodic testing of drinking water sources	MOH
	1.2 Tanks or other personal water systems will be maintained by the respective owners to ensure these systems are safe and reliable.	Results from water tank WOF programme	MOH
Objective 2: Ensure water systems are resilient and mitigate the impacts of Climate Change and disasters	2.1 Ensure as far as practicable that there is an adequate and secure supply in case of drought and disaster.	Reporting of emergency drinking water supplies	ICI Red Cross
	2.2 The design of water supply systems will be reflective of changes in climatic conditions and established engineering standards.	(ensure mainstreaming of climate change considerations through JNAP monitoring)	ICI
	2.3 ensure desalination as a short term option post disasters.	Report on use of desalination post disaster	EMCI
Objective 3: Ensure access to reliable, safe	3.1 Ensure all persons in the Cook Islands have	% of households with a supply of 200 L per person per day.	WATER AUTHORITY

drinking water for all who reside in the Cook Islands	access to reliable, safe drinking water.	% of households with access to approved standard water.	WATER AUTHORITY
	3.2 Ensure access to safe water for bathing, cooking and cleaning for all persons in the Cook Islands.	% of households with access to water of approved standards.	WATER AUTHORITY
	3.3 Ensure access to safe water that is '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	% of business and commercial users with access to water of approved standards	WATER AUTHORITY
		% of businesses and commercial properties that use water conservation measures	WATER AUTHORITY
	3.4 Ensure adequate and affordable water for horticultural and agricultural production.	Horticulture/agricultural users with access to water for use.	MOA WATER AUTHORITY
	3.5 Ensure water catchment and intakes are free of toxins and chemical contaminants so that water meets the established national standards.	Percentage of water intakes tested that are free from toxins and chemical contaminants.	MOH NES
	3.6 Ensure appropriate water quality standards for streams, rivers and creeks such that effluent and wastewater do not adversely and permanently affect the natural environment and	Testing against standard for streams rivers and creeks established	NES
		Number of problems arising from effluent and wastewater seepage.	NES MOH

	native species of the Cook Islands.		
	3.7 Ensure that ground water is free of chemical and artificial contaminants and free of harmful toxins that may affect organic life.	Ground water tests that are free from chemical, artificial and harmful toxins.	NES
	3.8 Develop appropriate standards for lagoon water quality to ensure the preservation and proliferation of natural lagoon marine ecology.	Standards for lagoon water developed	MMR
Objective 4: Establish equitable and economically-sustainable systems for managing demand, appropriate usage of water, conserving water and minimizing waste and leakages.	4.1 Domestic water users will minimise water wastage and ensure as far as practicable all vessels that contain, carry or distribute fresh water do not leak.	Average water usage per capita (data from metering)	WATER AUTHORITY
	4.2 Government agencies will be responsible for advocacy, education, or appropriate interventions (incentives or disincentives) to ensure that persons conserve water.	Number of information packages disseminated	All gov agencies
	4.3. Commercial water users will minimise water wastage and ensure as far as practicable all vessels that contain, carry or distribute fresh water do not leak.	Annual Report on amount% of water used above the free allocation.	WATER AUTHORITY

	4.4 Explore possibilities for the recycling of grey water for commercial/business purposes.	Feasibility study completed for recycling of grey water completed	NES
	4.5 Encourage and educate farmers and growers to utilise techniques that will minimise water use whilst maintaining or increasing crop productivity.	Advocacy /education plan established on water conservation for farmers and growers.	MOA
	4.6 Explore and utilise the most appropriate water sources and storage methods for agriculture, horticulture and aquaculture	All water sources mapped out and assessed for suitability for agricultural and horticulture, aquaculture purposes.	ICI MOA MMR
		Storage methods assessed for suitability for agricultural and horticulture purposes.	MOA
	4.7 Ensure sustainable management of lagoon and coastal areas through Ra'ui and the promotion of sustainable practices in lagoon and foreshore areas.	Assessment of reefs and fish stock (see NSDP)	NES MMR
Objective 5: Ensure sustainable management of both inland and coastal water resources.	5.1 Manage ground water resources so as to not adversely affect the surrounding ecology or the overall composition and ongoing sustainability of the water table.	Establish management guidelines and practices for ground water resources.	NES
	5.2 Manage naturally occurring rivers, streams, creeks or any	Incorporated into EIA process and Environment Act	NES

	water ways, temporal or permanent such that they will neither be disturbed nor diverted in a way that has an adverse impact	Awareness campaign launched	NES
	5.3 Ensure any man-made diversions of water or artificial water ways shall not adversely affect the surrounding natural environment or the overall balance of any part of the ecosystem.	Incorporated into EIA process and Environment Act	NES
	5.4 Ensure the conservation management and wise use of wetlands, as a contribution towards achieving national sustainable development.	% of identified and conserved wetlands	NES
	5.5 Manage all activities in lagoon areas or coastal zones such that they will not adversely harm the marine ecology.	% of compliant sewage systems	MOH MMR WATSAN
		% of compliant piggeries	NES
	5.6 Ensure maritime activities take all precautions to not pollute or harm the coastal area while commuting through or docked.	Number of maritime violations	PORT AUTHORITY MMR
Objective 6: Actively engage communities in the sustainable	6.1 Conduct education, awareness and advocacy campaigns such that all persons in the Cook	Number of information disseminated	All agencies

management of water resources.	Islands are informed on how to conserve and use water responsibly.		
	6.2 Implement community water management plans to be mainstreamed into island, village, community and school-level planning and activities.	Water management plans developed and implemented for all communities	MOH ICI NES MFEM
Objective 7: Ensure catchment and water sources are protected	7.1 Water catchment areas will be protected and compliant with relevant policies, legislation and Regulations in the Cook Islands. 7.2 Waste from domestic and commercial animal farming shall comply with all relevant policies, legislation and Regulations in the Cook Islands. .	6 monthly Water catchment compliance report Domestic and commercial animal farming report	NES NES WATSAN MOH
Objective 8: Optimize and standardize the regular testing of water quality.	8.1 Develop standardised procedures for testing of fresh water, drinking water and lagoon water to ensure consistency, objectivity, dependability and improve the utility of water testing.	MOU established between key testing agencies	MMR MOH

Objective 9: Consistently and transparently apply water policy, plans and laws.	9.1 Publicly report the results of water quality testing to ensure transparency and accountability.	Annual report published and disseminated.	MOH
	9.2 Publicly report information regarding processes and procedures in the management of water resources to ensure transparency and consistency in the application of this policy.	Annual report published and disseminated.	
	9.3 Ensure that 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 our water resources for the general public and future generations.	Establishment of water sector group.	Chairman of Water Sector Group
Objective 10: Ensure appropriate resources, capacity, skills training, and information is available for managing water	10.1 Commit to improving and maintaining the capacity of institutions and agencies involved in the management of water resources and fulfilling the objectives of this policy.	Annual workshop on water management held	All Agencies

resources and infrastructure.	10.2 Determine where the costs of activities associated with the National Water Policy, and coordinate cost management to ensure that adequate funding and associated arrangements are in place to ensure sustainability.	National Water Policy costed.	DCD
	10.3 In designing future water supply infrastructure and services, full consideration of ongoing operating and maintenance costs must and be planned and budgeted for to ensure sustainable ongoing financing of water supply.	Economic and financial feasibility assessments carried out for all water supply projects.	All agencies
	10.4 Continual Improvement of laboratory Testing Facilities	Annual improvement report of testing facilities submitted to the water sector group.	MOH MMR
	10.4 Optimise the management of national water testing resources to improve the utilisation of limited resources whilst ensuring the highest standard of testing and scrutiny.	Regular independent audit of laboratory facilities conducted.	MOH MMR