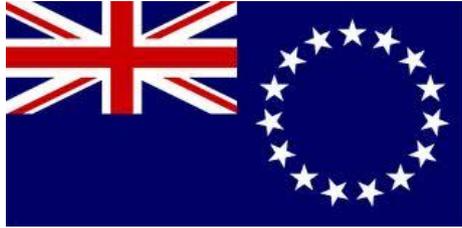


CLIMATE CHANGE PROFILE



COOK ISLANDS

Version 2, July 2013

GLOBAL CLIMATE CHANGE ALLIANCE: PACIFIC SMALL ISLAND STATES PROJECT





Cook Islands Îles Cook

Penrhyn
(Tongareva)

Rakahanga
Manihiki

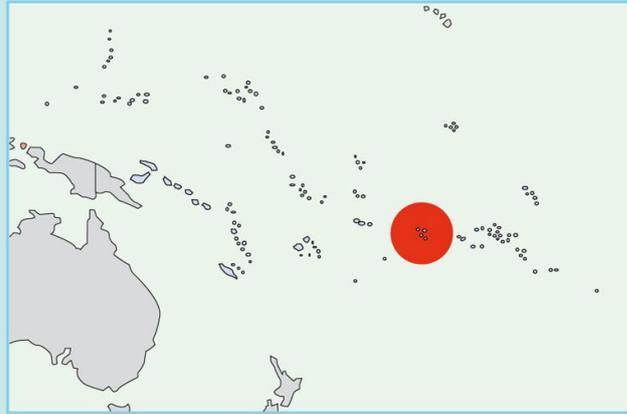
Pukapuka

NORTHERN GROUP

Nassau

ÎLES COOK DU NORD

Suvarrow



Palmerston

ÎLES SOUTHERN COOK DU SUD

Aitutaki
Manuae
Takutea
Atiu
Mitiaro
Mauke

RAROTONGA

Mangaia

164° W/O

22° S



0 Kilometres 300

0 Kilometres 3

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Abbreviations

ADB	Asian Development Bank
CIG	Cook Islands Government
CCCI	Climate Change Cook Islands
DRM	Disaster Risk Management
EEZ	Exclusive Economic Zone
ERP	Economic Reform Programme
EU	European Union
GCCA:PSIS	Global Climate Change Alliance: Pacific Small Island States project
KPAF	Kyoto Protocol Adaptation Fund
MFEM	Ministry of Finance and Economic Management
NES	National Environment Service
NESAF	National Environment Strategic Action Framework
NSDP	National Sustainable Development Plan
OPM	Office of the Prime Minister
PACC	Pacific Adaptation to Climate Change Project
PACCSAP	Pacific Australia Climate Change Science and Adaptation Planning
PEFA	Public expenditure and financial accountability assessment
PFM	Public financial management
SOPAC	Applied Geoscience and Technology Division of SPC
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

OBJECTIVE OF THE CLIMATE CHANGE PROFILE

This second version of the climate change profile for Cook Islands has been prepared as part of the Secretariat of the Pacific Community's (SPC) Global Climate Change Alliance: Pacific Small Island States (GCCA: PSIS) project. The goal of the GCCA: PSIS project is to support the governments of nine small Pacific Island states, namely Cook Islands, Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Niue, Palau, Tonga and Tuvalu, in their efforts to tackle the adverse effects of climate change. The purpose of the project is to promote long-term strategies and approaches to adaptation planning, and pave the way for more effective and coordinated aid delivery on climate change, including the delivery of streamlined adaptation finance, at the national and regional level.

This climate change profile is specific in nature and seeks to inform the GCCA: PSIS project as well as the larger SPC Climate Change Support Team. It commences with a section on the country's background, including geography, economy, financial management and aid delivery. This is followed by a section focusing on the country's response to climate change, including climate change projections, institutional arrangements, ongoing adaptation activities and climate change priorities. The profile is a work in progress and will be revised and enhanced as the project develops.

COUNTRY BACKGROUND

Country Information ⁱ	
Geographic coordinates	Lat. 8 ⁰ S - 24 ⁰ S, Long. 157 ⁰ - 166 ⁰ W
Total land area	237 km ²
Coastline	120 km
Exclusive economic zone (EEZ)	1,800,000 km ²ⁱⁱ
Population (2010 mid-year)	15,708
Average annual growth rate (2010)	0.5%
Population density	66 per km ²
Human development index	0.837 ¹

Introduction

Cook Islands are made up of 15 islands, with the high volcanic island of Rarotonga the centre of government and commerce. Geographically and, to a certain extent culturally, the nation is divided into two groups: the southern group, comprising the islands of Aitutaki, Atiu, Mangaia, Mauke, Mitiaro, Rarotonga, Manuae (an uninhabited atoll) and Takutea (an uninhabited sand cay); and the northern group, comprising the islands of Manihiki, Palmerston, Penrhyn, Pukapuka, Suvarrow (atolls) and Nassau, which are relatively isolated and less developed.

Government

Cook Islands is a self-governing, parliamentary, representative democracy within a constitutional monarchy in free association with New Zealand. Under the terms of the free association, Cook Islanders hold New Zealand citizenship (there is no Cook Islands citizenship) and enjoy the right of free access to New Zealand. New Zealand retains some

¹ The human development index (HDI) is a comparative measure of life expectancy, literacy, education, and standards of living for countries worldwide. It is a standard means of measuring well-being, especially child welfare. It is used to distinguish whether the country is a developed, a developing or an under-developed country, and also to measure the impact of economic policies on the quality of life. The HDI score indicates that Cook Islands is in the high human development category.

responsibility for external affairs in consultation with Cook Islands, although in recent times Cook Islands has adopted an increasingly independent foreign policy and has diplomatic relations in its own name with 21 countries and international organisations.

The constitution of Cook Islands took effect on 4 August 1965, when it became a self-governing state in free association with New Zealand. Cook Islands has a twenty-four-seat, unicameral parliament directly elected by universal suffrage from single-seat constituencies for a fixed four-year term. There is also a House of Ariki (*Are Ariki*), which is a ceremonial 'upper house' that provides advice to the parliament on land use and customary issues (it does not have a constitutional mandate to make decisions or effect legislation). The members of the House of Ariki are appointed by the Queen's Representative and represent the chiefs and nobility (*ariki*) of the different islands. The main ministries of government are listed below (Table 1). The ministries are shared by a six-member Cabinet including the Prime Minister.

Table 1 Ministries and Agencies of Governmentⁱⁱⁱ

<p>1. <u>Prime Minister:</u></p> <ul style="list-style-type: none"> • Office of the Prime Minister • Office of the Public Service Commission • Office of the Head of State • Attorney General • Parliamentary Services • <i>Ministry of Justice</i> • Ombudsman • National Environment Service • Energy and Renewable Energy • Climate Change Cook Islands • Emergency Management Cook Islands 	<p>2. <u>Deputy Prime Minister</u></p> <ul style="list-style-type: none"> • <i>Ministry of Foreign Affairs and Immigration</i> • <i>Ministry of Transport</i> • Mineral and Natural Resources 	<p>3. <u>Minister</u></p> <ul style="list-style-type: none"> • <i>Ministry of Finance and Economic Management</i> • Business Trade and Investment Board • Cook Islands Investment Corporation • Ministry of Internal Affairs • Commerce Commission • Finance Intelligence Unit • Telecommunications • Financial Services Development Authority • Financial Supervisory Commission • National Superannuation • Public Expenditure Review Committee and Audit
<p>4. <u>Minister</u></p> <ul style="list-style-type: none"> • <i>Ministry of Infrastructure and Planning</i> • <i>Ministry of Cultural Development</i> • House of Ariki • Police 	<p>5. <u>Minister</u></p> <ul style="list-style-type: none"> • <i>Ministry of Education</i> • <i>Ministry of Marine Resources</i> • Tourism Cook Islands • National Human Resource Development 	<p>6. <u>Minister</u></p> <ul style="list-style-type: none"> • <i>Ministry of Health</i> • <i>Ministry of Agriculture</i>

National and sector policies and strategies

The national social and economic priorities of the Government of Cook Islands are laid out in *Te Kaveinga Nui: Living the Cook Islands Vision – a 2020 challenge: National Sustainable Development Plan 2007–2010*.^{iv} The plan has eight strategic goals that cover: governance, law and order; macro-economic stability; education; health services; infrastructure; agriculture; outer island development; maritime resources and tourism. The implementation of social and economic priorities in the National Sustainable Development Plan (NSDP) will contribute to the realisation of Cook Islands' national vision: 'To enjoy the highest quality of life consistent with the aspirations of our people, and in harmony with our culture and environment'. *Te Kaveinga Nui* is a 15-year visionary and/or development framework that provides the long-term targets and strategies. The national vision has five national strategic

development outcomes: (i) sustainable economic growth in harmony with our social values, culture and environment; (ii) well-educated, healthy, productive people and resilient communities; (iii) enhanced cultural and environmental values; (iv) responsible and mature foreign relations with New Zealand and other regional and international communities in the interest of the people of Cook Islands; and (v) a secure society built on law and order and good governance.

The NSDP process provides the outline of short to medium-term strategic targets and the strategies that need to be implemented towards achieving the 2020 development outcomes. A review of NSDP 2007–2010 was completed in 2009 and another NSDP 2011–2015^v was adopted to continue with *Te Kaveinga Nui*. Priorities for this plan period are: (i) economic development; (ii) infrastructure; (iii) energy; (iv) social development; (v) resilience; (vi) ecological sustainability; (vii) governance; and (viii) law and order.

The Cook Islands Joint National Action Plan (JNAP) for Disaster Risk Management and Climate Change Adaptation 2011-2015 will add to the strategic suite of sectoral plans and policies that guide the country’s own internal development resourcing mechanisms. The JNAP brings disaster risk management and climate change adaptation to the forefront of national planning. It was developed by the Office of the Prime Minister, Disaster Management Cook Islands and National Environment Service in collaboration with regional support from SOPAC, SPC, UNDP and SPREP.

Economy

Economic Information^{vi}	
Gross national income (GNI) per person 2009	USD 9,748.9
Gross domestic product (GDP) current (2008)	USD 289 million
Number of people employed	5,928

As with other small island developing states, Cook Islands’ economic development is hindered by the country’s isolation from foreign markets, the limited size of domestic markets, its lack of natural resources, periodic devastation by climate-related natural disasters, and inadequate infrastructure. However, in the late 1990s, the country went through a sale of public assets, a strengthening of economic management, encouragement of tourism, and debt restructuring, which have contributed to investment and growth and to Cook Islands being among the best-performing Pacific economies. It still faces increasing pressure over the sustainability of government debt levels, and its narrow economic base (underpinned by tourism and marine resources) makes it vulnerable to external shocks, including the global economic crisis.

A GDP per capita of NZD 15,795 in 2010/2011 is high, compared to other economies in the region. The Cook Islands 2010/11 budget decreased government expenditure from NZD 215.5 million to NZD 186.4 million, and reducing planned uptake of foreign loans. The government’s economic focus is on improving tourism links, expanding the black pearl industry and improving infrastructure. However, the fiscal year 2012 ended with a budget deficit of about 2.2% of the GDP with total expenditure exceeding budget by 4% due to cost of underwriting the higher cost of two Air New Zealand routes^{vii}. For the FY2013, a deficit equivalent to 2.3% of the GDP is projected and total expenditure will increase by 3.3% driven mainly by higher capital spending.

Tourism, estimated to account for around 60% of GDP, is vital to the Cook Islands economy. Visitor numbers in 2009/2010 held up, despite the global economic crisis, reaching an all-time annual high of more than 99,000. New Zealanders make up the largest

proportion of visitors (63.4%). The Cook Islands government has also launched new tourism branding and marketing, targeting Australia and the northern hemisphere markets, and the Tourism Board continues to explore the expansion of market access. The tourism sector continued to grow in the Cook Islands as tourism arrivals in FY2012 increased by 3% compared with FY2011. Continuing growth of visitors from Australia and New Zealand offset a decline in visitors from Europe and North America.

The largest group of employed people in Cook Islands (2,395 people, 35% of employed people) works in the community, social and personal services. This is closely followed by 2,097 people (31% of all employed persons) employed in the trade, restaurant and accommodation sectors.

Key issues identified for the government of Cook Islands in FY2012 (Pacific Economic Monitor 12/2012) will be to continue the government's reform programme by empowering outer islands officials to manage their financial and human resources. Under the ADB's Cook Islands Economic Recovery Support Programme further funding will be provided to the government to support government budget priorities, promoting public sector reforms and safeguarding fiscal sustainability.^{viii}

Financial management

In the 1990s a series of sweeping economic reforms (known as the Economic Reform Programme or ERP) resulted in the Ministry of Finance and Economic Management Act and the Public Expenditure Review Committee and Audit Act. These two acts laid the framework for fiscal discipline, increased accountability, and performance assessments of senior public servants. They led to tax reforms, the sale of state assets and strengthened economic and debt management. The reforms, together with major cutbacks of government employees, were credited with reversing the poor state of the economy in the late 1980s and early 1990s. Since 2010 budgets have been delivered in the context of a tightening fiscal and challenging economic environment.

Public financial management system

The public financial management system (PFM) in Cook Islands operates mainly at the central level. The Ministry of Finance and Economic Management (MFEM) is the central agency responsible for the PFM, handling the payment system for personnel and capital expenditure. The management of non-personnel recurrent expenditure is decentralised to the ministries and line agencies. A public expenditure and financial accountability (PEFA) assessment: *Cook Islands Public Financial Management Performance Report and Performance Indicators*^{ix} completed in 2011, provides an assessment of the PFM system in the Cook Islands.

The PFM system is centred on a set of relatively advanced budget and financial management rules and structures around a clear legislative framework. Compliance with these rules and processes is high, while financial management is constrained by limited capacity. There is also a clear break in the accountability chain due to lack of effective parliamentary scrutiny or oversight. This affects the ability of external stakeholders to hold managers to account for both the financial and non-financial performance.

As a result of the PEFA assessment, the government has identified key actions to take in ameliorating the issues identified therein and has prepared the *Cook Islands Government Public Financial Management Roadmap* to improve the PFM systems by June 2015.^x The following actions will be undertaken over the next three years to improve the PFM, address the issues/concerns identified in the public financial management performance report, better

align resources and accountability towards development results, and to provide a sound basis for development partners to provide general budget support. The agreed actions are:

- 1) improving measures of accountability across government;
- 2) further reducing systemic vulnerabilities to corruption;
- 3) better transparency and more regular provision of key fiscal information to the general public;
- 4) greater involvement of the legislature in scrutinising public finances and the annual budget law;
- 5) improving control in budget execution;
- 6) improving the financial management capacity across government.

The stakeholders responsible for implementing the roadmap include: MFEM, Office of the Prime Minister, Office of the Public Services Commissioner, the Public Expenditure Review Committee and Audit Office, Parliamentary Services, Ministry of Education, Ministry of Health, and the Office of the Ombudsman.

Donor support

New Zealand remains the major donor to Cook Islands, no longer offering general budget support to cover recurrent costs but focusing on project assistance for infrastructure improvements in the outer islands, with additional sector support to education and training, marine resources and governance. Australia is the second largest donor, focusing on education and training. Australia and New Zealand are preparing a joint country strategy paper, in consultation with the Government of Cook Islands, to complement the National Sustainable Development Plan.

The Asian development Bank (ADB) has concentrated on capacity building in support of the ERP and for private sector development. Applications to the European Investment Bank have been unsuccessful, although there are discussions about its participation in funding an airport extension and providing loans to the Bank of Cook Islands.

Under European Development Fund 9, an allocation of €1.7 million supported health and education infrastructure improvements in the outer islands. The Cook Islands Association of Non-governmental Organisations, which has 68 affiliated groups, provided a mechanism for the allocation of an additional € 300,000 of EU assistance.

Trust funds

The government has recently developed a policy governing the establishment of the Cook Islands Disaster Emergency Trust Fund (CI-DE-TF).² An amount of NZD 200,000 from the Reserve Trust Fund in 2011–2012 was transferred to start up the emergency fund.

RESPONSE TO CLIMATE CHANGE

Current and future climate

Current climate

Cook Islands lie within the extensive and persistent trade wind zone of the South Pacific. It has a tropical, mild maritime climate with a pronounced hot wet season during the months of

² Final draft dated November 2011 is now in circulation for review.

November to April, when two-thirds of the annual rain falls, and a cool dry season from May to October. The hot, wet season coincides with the cyclone season for the South Pacific region. The climate is dominated by easterly trade winds and the country has an annual rainfall of 2000 mm. The average temperature ranges from 21°C to 28°C throughout the year. The climate is often strongly influenced by large inter-annual variation and the El Niño-Southern Oscillation phenomenon.

The tropical cyclone season usually starts in November and ends in April. During this period cyclones tend to form to the far west of the northern Cook Islands and migrate towards the south, reaching latitude 15°S. During El Niño years, the southern Cook Islands experience a reduction of rainfall, sometimes by up to 60% of the annual rainfall, while in the northern Cook Islands rainfall increases in excess of 2,300 mm annually (i.e. over 200% change). The situation reverses during the La Niña phase.

Expected future climate

Surface air temperature, rainfall, sea level and ocean acidification will continue to rise over the next 25–40 years. Table 2 shows climate change projections for the northern and southern Cook Islands for 2030 and 2055^{xi}.

Table 2: Climate change projections for Cook Islands for 2030 and 2055 under the high emissions scenario (A2). (N refers to the northern group and S to the southern group; where there is only one set of figures, they refer to both groups.)

Climate Variable	Expected Change	Projected Change by 2030 (A2)	Projected Change 2055 (A2)	Confidence Level
Annual surface temperature	Average air temperature will increase	+0.5 to +0.9°C N +0.4 to +1.0°C S	+1.0 to +1.8°C N +0.9 to +1.7°C S	Moderate
Maximum temperature (1 in 20 year event)	More very hot days	NA	+1.0 to +2.0°C N +0.9 to +2.1°C S	Low
Minimum temperature (1 in 20 year event)	Fewer cool nights	NA	-0.5 to + 3.3°C N -0.3 to + 2.9°C S	Low
Annual total rainfall (%)	Annual rainfall will increase	-10 to +16% N -4 to +14% S	-20 to +32% N -6 to +16% S	Low
Wet season rainfall (%)	Wet season rainfall will increase	-6 to +12%	-14 to +24% N -9 to +19% S	Low
Dry season rainfall (%)	Dry season rainfall will increase	-14 to +24% N -5 to +19% S	-30 to +46% N -10 to +20% S	Low
Sea-surface temperature (°C)	Sea surface temperature will increase	+0.3 to +1.1°C N +0.4 to +1.0°C S	+0.7 to +1.9°C N +0.8 to +1.6°C S	Moderate
Annual maximum acidification (aragonite saturation)	Ocean acidification will continue to increase	+3.5 to +3.7Ωar N +3.4 to +3.6 Ωar S	+3.1 to +3.5Ωar N +3.0 tp +3.2Ωar S	Moderate

Mean sea level (cm)	Sea level will continue to rise	+6 to +25 cm	+9 to +48 cm	Moderate
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Institutional arrangements for climate change

As a recommendation of the Public Service Climate Change Functional Review³ carried out in 2011, a Climate Change Cook Islands office (CCCI)^{xi} has been established by the Government within the Office of the Prime Minister (OPM). The CCCI has two full-time staff tasked to coordinate and implement climate change issues in an integrated manner, including the development of a specific climate change policy and the evolution of the climate change division within the OPM as a separate entity. The CCCI also provides a coordinated strategic service to the rest of government on all matters relating to climate change adaptation and mitigation responses in Cook Islands.

A platform for climate change and disaster risk management was established to provide for sharing information relating to climate change and DRM activities in the Cook Islands and also to provide technical, scientific and policy oversight to their implementation. The platform comprising representatives from relevant government, non-government and civil society organisations meets once every quarter.

Ongoing and recently completed climate change adaptation activities

Title and Timeframe	Description, country focus and agencies responsible
Pacific Adaptation to Climate Change (PACC), a United Nations Development Programme Global Environment Fund (UNDP GEF)-funded project <i>Ongoing. 2008-2013</i>	Focus on coastal zone management and climate proofing infrastructure. Supported by SPREP and the Ministry of Infrastructure and Planning.
Strengthening Resilience of our Islands and Communities (KPAF-SRIC) <i>Ongoing 2011-2015</i>	Contribute to implementation of the joint national action plan for climate change adaptation and disaster risk management (USD 5.38 million)
Pacific-Australia Climate Change Science and Adaptation Planning (PACCSAP) project <i>Ongoing, 20109-2013</i>	Supporting the government of Cook Islands develop improved climate change projections and adaptation planning activities. Cook Islands and 14 other Pacific countries are part of this AUD 32 million project.
Preparation of the second national communication under the UNFCCC, funded by the GEF, implemented through UNDP <i>Completed and formally submitted 2012.</i>	National communications usually contain information on national circumstances, vulnerability assessment, financial resources and transfer of technology, and education, training and public awareness
SPC-Global Climate Change Alliance: Pacific Small Island	As part of a regional project covering 9 smaller Pacific Island countries, support the Government of Cook Islands

³ Supported by the Pacific Adaptation Strategies Assistance Programme, International Climate Change Adaptation Initiative, Department of Climate Change and Energy Efficiency, Government of Australia

States project <i>Ongoing, 2012- 2014</i>	mainstream climate change into national and sector strategies (including sector budget support) and to implement specific adaptation actions in key sectors. The main activities in the Cook Islands relate to pearl farming and environmental monitoring in the northern group; climate change finance; training and capacity building in climate change adaptation.
University of the South Pacific-Global Climate Change Alliance project <i>Ongoing 2011-2014</i>	As part of a regional project, address the challenges of climate change impacts in the 15 Pacific ACP countries, including Cook Islands, through capacity building, community engagement, and applied research.

National climate change priorities

Climate change issues and concerns are embedded in Priority Area 5 (resilience) of the NSDP for 2011–2015. This contains the following strategies:

- 1) Ensure strong governance arrangements for disaster risk management and climate change adaptation.
- 2) Ensure that high quality risk information is available to inform planning and implementation.
- 3) Enhance effective preparedness, response and recovery.
- 4) Build resilience through effective disaster risk reduction and climate change adaptation.

Cook Islands has outlined the short- to medium-term strategies for addressing climate change, disaster risk management, and other development issues, which will be further elaborated in the next planning period towards meeting the 2020 development outcomes. With regard to disaster risk management, the government has developed the *Policy Governing the Establishment and Operation of the Cook Islands Disaster Emergency Trust Fund (CI-DE-TF)*.

The other important documents are the *National Environment Strategic Action Framework 2005–2009 (NESAF)* and the *Disaster Risk Management National Action Plan (DRM-NAP)*. NESAF has been referenced in the NSDP and provides guidance and direction for achieving sustainable social and economic progress for Cook Islands, utilising its natural resources and environment wisely. The third goal of NESAF is to ‘Increase resilience by strengthening national capacities for climate change, variability, adaptation and mitigation’. The DRM-NAP provides policy direction on both preparation and risk reduction for disasters, as well as response and recovery/rehabilitation should they occur. The plan aligns with other national planning frameworks such as the NSDP, NESAF and the Cyclone Recovery Reconstruction Plan.

In the context of the first and second national communications to the UNFCCC, a number of pertinent adaptation needs and priorities have been identified and are outlined below.

Coastal zones and infrastructure

- a) Enforce guidelines and building codes for construction and operation of residential, tourism and industrial structures in the coastal areas that incorporate climate change projections for sea-level rise, storm surge and tropical cyclones.
- b) Develop and use planning around location of new buildings, regulate all new investments in infrastructure, housing construction and agriculture outside hazard

zones to minimise vulnerability. Reduce repair costs, decrease disruption to economic activities. Involve landowners in such planning exercises for long-term success.

- c) Carry out geographical information systems (GIS) mapping and identification of areas that are vulnerable to flooding and storm surge along the lines of the 'ridge to reef' programme on Mangaia.
- d) Develop a strategy for disaster response using GIS mapping of vulnerable areas and information on occupancy of buildings and needs of residents.
- e) Prepare and develop a project proposal for funding the design and construction of appropriate coastal protection systems for Avatiu and Avarua townships to protect them from flooding and storm surge damages.
- f) Test preparedness of energy supply companies and other disaster response agencies to respond to a disaster event through regular drills based on worst case scenario.
- g) Develop an appropriate communication strategy to raise awareness regarding poor land management as a cause of soil degradation and erosion.

Agriculture

- a) Collaborate with SPC research programmes (e.g. Center for Pacific Crops and Trees) developing climate-friendly crops and salt-tolerant crops.
- b) Promote and encourage home gardening (household agriculture) for domestic use.
- c) Encourage private sector investment in fruit crop processing and marketing.
- d) Improve water harvesting to support agriculture during drought.
- e) Carry out research into productivity and growth of subsistence crops.

Marine resources and fisheries

- a) Conduct assessment/study of effects of climate change on migratory fish stocks throughout the Pacific region to inform policy decisions about EEZ management.
- b) Develop monitoring programmes for a variety of fish stocks to inform implementation and management plans.
- c) Implement management plans and guidelines for the aquaculture sector for managing/controlling pollution of the lagoon environment.
- d) Increase cool storage facilities for fish on all islands.
- e) Promote eco-tourism in the marine sector through dive and snorkel programmes for giant clams, fish and coral.

Biodiversity

- a) Develop a natural heritage trust inventory to allow modelling of climate change effects on populations over time.
- b) Develop surveys and plans for the conservation of endangered and rare native animals and plants.
- c) Manage invasive species – carry out surveys on all islands, develop eradication programmes, (island level and national level).
- d) Develop community-base protected area plans and strategies.

Water resources

- a) Introduce and enforce building requirements for water tanks and rainwater collection systems for all new buildings.
- b) Develop innovative programmes for household water tanks and water tank maintenance.

- c) Develop and use policy instruments (subsidies, incentives, competitive tendering for watershed improvement, awareness schemes) for watershed management.
- d) Carry out regular water quality testing and publication of results.
- e) Implement filtration technology.
- f) Replant trees around catchment areas.
- g) Continue ground water resources assessments and monitoring of salt water intrusion.

Human health and wellbeing

- a) Conduct education programmes on household water treatment options (filtration, boiling water) for times when water quality is low (as determined by regular testing).
- b) Provide training for food storage and processing techniques to improve food security, livelihood of family households isolated from the availability of food products.
- c) Continue promoting locally grown produce – production and consumption.
- d) Monitoring of vectors to be done quarterly, especially if vectors become resistant.
- e) Continue testing the quality of the drinking water, using WHO standards quarterly.
- f) Check notifiable conditions on a weekly basis and take action to manage any outbreaks.
- g) Conduct school inspections, especially after heavy rain and flooding, to monitor the school septic tanks. There is bound to be an overflow of sewage. An increase in rain due to future climate change may also increase flooding.
- h) Carry out a school health survey of all students at all levels every three years, looking at all health-related aspects of the children, and ascertain if the change in climate might have an influence on children's health.

The SPC GCCA: PSIS project in the Cook Islands will focus on environmental monitoring to enhance community livelihoods of the pearl farmers, artisanal and small scale commercial fisheries in the northern atolls of the Cook Islands. This will enhance the capacity of the vulnerable communities on these atolls to adapt to the impacts of a changing climate. The project requires both broad-scale and fine-scale approaches. Activities seek to strengthen existing environmental monitoring, including water quality; to provide information that will assist pearl farmers to improve their farming practices, and avoid disease outbreaks and stress to the oysters due to present environmental conditions and future projected conditions under climate change. This project is consistent with the climate change adaptation needs and priorities for the Cook Islands as identified in the JNAP for Climate Change Adaptation and Disaster Risk Management, supported by intensive participatory consultations.

Key challenges

The government of the Cook Islands highlighted its priority needs for adaptation to climate change in the National Sustainable Development Plan 2011-2015 and other documents. Many of the climate change issues are being addressed with the support of its regional and international development partners. However, some key challenges still remain and will compromise future long term efforts unless effectively addressed.

Of particular note is a general lack of highly skilled personnel, in permanent positions, to take on the task of managing climate change risks over the near and long term. Short term personnel and project personnel only go some way to addressing this gap. Climate change education at primary, secondary and tertiary levels, short term training, on-the-job training and job attachments are critical to address the capacity gap. So too is the need to develop innovative ways to retain skilled personnel in country through appropriate levels of remuneration and other means. Continual public awareness building is another important activity.

Given that many of climate change activities implemented in the Cook Islands are project based, activities may not always be sustainable. Cook Islands is already making significant efforts to integrate disaster risk management and climate change activities and to tailor new projects to address specific gaps in their national agenda, and this approach needs to be maintained and expanded.

Additionally integration of climate change into national, sector and community programmes, projects and activities is needed on a continual basis over the long term. Another key challenge for the Cook Islands is to ensure that gender-sensitive and disability inclusiveness is addressed in its climate change programmes, projects and activities. Climate change affects communities and individuals in different ways.

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